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International Optimism: Correlates and Consequences of Dispositional Optimism across 61 Countries

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Abstract

The current study assesses dispositional optimism and its correlates across 61 countries around the world (N = 16,258). Worldwide, mean optimism levels were above the midpoint of the scale. Country-level optimism was negatively related to GDP per capita, population density, and democratic norms and positively related to income inequality and perceived corruption. However, country-level optimism was positively related to projected economic improvement. Individual-level optimism was positively related to individual well-being within every country, although this relationship was strongest in countries rated higher on measures of quality of life. While individuals around the world are generally optimistic, societal characteristics may affect the degree to which their optimism is associated with their psychological well-being.

International Optimism: Correlates and Consequences of Dispositional Optimism Across 61 Countries

It is no great surprise that positive thinking is related to positive life outcomes. Optimistic individuals tend to be healthier, more satisfied in their romantic relationships, and more successful at their jobs (for a review, see Carver & Scheier, 2014). Although the physical, social, and psychological correlates of dispositional optimism are well-established, nearly all the studies that established these associations include individuals from W.E.I.R.D. populations (Western, Educated, Industrial, Rich, Democratic; Henrich, Heine & Norenzayan, 2010) and, more specifically, were conducted in the U.S.

The current paper examines dispositional optimism, or the general expectation for positive outcomes, across 61 countries. We first describe cross-country variation in mean-level optimism and its relations with country-level variables. We then assess relations between individual levels of optimism and a range of other individual difference measures, including personality and psychological well-being, and explore gender differences. Finally, we explore country-level moderators of links between optimism, individual differences, and psychological well-being.

Optimism as Related to Individual Characteristics

A large body of research has established relationships between dispositional optimism and other aspects of personality (Marshall, Wortman, Kusulas, Hervig, & Vickers, & 1992; Mattis, Fontenot, & Hatcher-Kay, 2003; Neff, Rude, & Kirkpatrick, 2007; You, Fung & Isaacowitz, 2009). Optimism is positively related to extraversion, agreeableness, conscientiousness, and emotional stability (Chang & Sanna, 2001; Scheier, & Carver, 1992;

Vickers & Vogeltanz, 2000), with the strongest relationships observed with extraversion and emotional stability (Sharpe et al., 2011).

Unlike the consistent findings concerning personality traits, research investigating gender differences has produced mixed results. In a pioneering assessment of dispositional optimism, researchers found no gender difference (Williams, 1992). However, one study found that young, well-educated women tend to be more optimistic on average relative to their older, less educated male counterparts (Gallagher, Lopez & Pressman, 2012).

Optimism and Well-Being

Many studies have assessed links between optimism and indicators of well-being (see Carver et al., 2010 for a review). Optimism is positively related to general psychological well-being (Alarcon, Bowling, & Khazon, 2013; Dember & Brooks, 1989; Scheier & Carver, 1992; Scheier, Carver, & Bridges, 2001) and subjective happiness (Augusto-Landa, Pulido-Martos, & Lopez-Zafra, 2011; Gallagher & Lopez, 2009; Lyubomirsky & Lepper, 1999; Neff et al., 2007; Scheier, & Carver, 1992) and negatively related to neuroticism (Brebner, Donaldson, Kirby, & Ward, 1995; Scheier et al., 1994) and psychological distress (Chang & Sanna, 2001; Creed, Patton, & Bartrum, 2002). One review theorized that optimism is an adaptive trait that enables individuals to perceive desirable outcomes as possible and use coping strategies to actively alleviate negative emotions during stressful circumstances (Scheier & Carver, 1992). Indeed, among individuals undergoing a distressing event, those high in dispositional optimism tend to evaluate their circumstances less negatively as they utilize more productive coping strategies (Carver & Gaines, 1987; Carver et al., 1993; Scheier et al., 1989).

The role of culture in the strength or direction of these relations has received little empirical attention. Long established in the fields of anthropology, sociology, and economics is

the notion that country-level indicators of quality of life predict individual-level well-being (Bonini, 2008; Jones & Klenow, 2010; Slottje, 1991; Stroup, 2007; Veenhoven, 1999). But even though optimism is consistently related to individual well-being, it may also be true that societal-level circumstances play a role in the degree to which individuals' optimism is psychologically beneficial – a possibility that will be investigated in the present study.

Cross-Cultural Variation in Optimism

A few recent investigations have begun to illuminate the ways in which culture might be associated with mean-level optimism around the world. A recent study used the Gallup World Poll data to examine cross-country variability in individuals' predictions of future subjective socioeconomic status, which researchers used as a proxy for dispositional optimism (Gallagher, Lopez, & Pressman, 2012). Although the researchers had to rely on this imperfect proxy, their analysis demonstrated that across 142 countries, most individuals had favorable expectations, and on the individual level, this optimistic projection was consistently associated with higher levels of subjective well-being and subjective health across countries (Gallagher et al., 2012).

Additionally, a meta-analysis of 213 studies from 22 countries (Fischer & Chalmers, 2008) focused on cross-cultural variation in mean-level optimism scores, assessed using the revised version of the Life Orientation Test (LOT-R), and the association between each country's average level of optimism and various culture-level value dimensions (i.e., power distance, egalitarianism, individualism, uncertainty avoidance, masculinity, autonomy, harmony, and SES). The researchers concluded that the variability in mean-level optimism scores was fairly small across countries, yet countries with higher optimism tended to be higher in egalitarianism and individualism (Fischer & Chalmers, 2008).

Overview and Research Questions

The current study examined optimism's relationship with individual- and country-level variables across 61 countries. We further sought to illuminate cultural variability in these relationships by examining the interaction between optimism, well-being, and country-level indicators of cultural quality of life. Specifically, we had four exploratory research questions:

1. Does dispositional optimism vary across countries?
2. What country-level variables are associated with variation in the mean level of optimism across countries?
3. Are individual levels of optimism associated with personality traits and individual well-being, and do these associations vary across countries?
4. Are country-level indicators of quality of life associated with variation in the relationships between optimism, individual characteristics, and well-being?

Method

Participants

Participants (N = 16,258; 70% female) were recruited by local collaborators in 61 countries (see Table 1) and were primarily members of college communities with a few samples comprised of members of the wider community (average age = 22.34, SD = 5.50).[1] Our overall sample size provides sufficient power to detect Participants either volunteered or received extra credit, course credit, small gifts, or monetary compensation for their participation.

Table 1

Demographic Information by Country

Country	Mean age	Total N	% female	Country	Mean age	Total N	% female
Argentina	24.83	156	78.85	Netherlands	20.13	300	81.33
Australia	19.84	196	76.02	New Zealand	19.19	129	86.05

[1] Our study was strictly exploratory, but our overall sample size is sufficient to detect average zero order effects.

Austria	21.26	113	81.42	Nigeria	24.75	134	33.58
Bolivia	21.01	135	57.78	Norway	23.89	159	74.21
Brazil	23.68	309	72.17	Pakistan	20.61	114	50.00
Bulgaria	25.05	150	70.67	Palestine	22.17	295	83.39
Canada	21.86	302	79.14	Peru	28.21	115	58.26
Chile	21.45	384	66.41	Philippines	19.71	331	69.18
China	25.31	702	46.01	Poland	22.35	234	83.33
Colombia	21.68	181	74.03	Portugal	21.66	156	87.82
Croatia	21.46	218	64.68	Romania	22.84	177	57.06
Czech Republic	22.65	193	80.83	Russia	21.92	158	78.48
Denmark	22.94	244	79.92	Senegal	23.32	634	47.48
Estonia	25.88	293	83.96	Serbia	23.57	323	75.85
France	22.60	228	85.53	Singapore	20.93	136	77.94
Georgia	20.29	140	80.00	Slovakia	22.41	148	69.59
Germany	24.49	465	75.70	Slovenia	20.43	122	57.38
Greece	24.09	255	79.22	South Africa	22.21	255	66.67
Hong Kong	19.00	142	59.15	South Korea	22.35	281	58.36
Hungary	25.33	570	66.67	Spain	19.73	419	85.20
India	24.99	270	57.04	Sweden	†	126	72.22
Indonesia	21.85	129	52.71	Switzerland	22.45	758	84.30
Israel	25.35	171	61.40	Taiwan	19.71	162	76.54
Italy	21.86	717	64.57	Thailand	19.24	188	80.32
Japan	22.58	242	61.98	Turkey	21.09	328	68.29
Jordan	19.87	141	80.85	Uganda	22.63	93	64.52
Kenya	21.17	139	65.47	Ukraine	23.91	347	75.79
Latvia	24.87	169	82.84	United Kingdom	25.61	138	88.41
Lithuania	20.26	144	78.47	United States	19.85	1360	67.72
Malaysia	21.53	228	71.05	Vietnam	19.05	167	77.25
Mexico	23.88	245	58.37	*World sample*	*22.34*	*16,258*	*70.13*

Note: † = Data not available.

Procedures

The data reported in this article stem from the International Situations Project, a large cross-cultural study assessing situational experience, daily behavior, and individual differences. Participants were directed by a local study coordinator to the study's custom-made website

(ispstudy.net). After providing informed consent, participants completed a series of individual difference measures. Participants then had the opportunity to receive feedback on their personality trait levels (for the wireframe of the study website, see Supplementary Materials at https://osf.io/tgfrx/?view_only=36b35b50821749efa4c1204dd1874498)

Measures

The present study included measures of individual differences including the Big Five and their facets, Honesty-Humility and its facets, Narcissism, Religiosity, and two measures of happiness. Cronbach's alpha coefficients ranged from .49 (admiration facet of narcissism) to .91 (religiosity).[2] For non-English speaking countries, international collaborators (all of whom are psychologists) translated each measure into the local language; these translations were then compared with the English original through back-translation and adjusted for discrepancies. Research materials were translated into 39 languages.[3]

Dispositional optimism. Participants completed the 6-item Life Orientation Test-Revised (LOT-R; Carver, Scheier & Segerstrom, 2010; e.g., "In uncertain times, I usually expect the best"; 1 = *strongly disagree*, 5 = *strongly agree*).

Personality. The Big Five personality traits along with three facets of each were measured using the 60-item BFI-2 (Soto & John, 2017; four items represent each facet), as follows: extraversion (sociality, assertiveness, energy), agreeableness (trust, respect, compassion), conscientiousness (productiveness, responsibility, organization), openness to experience (intellect, aestheticism, creativity), and negative emotionality (the inverse of emotional stability: anxiety, depression, emotionality-moodiness). Participants responded to each

[2]Averaged across countries. Cronbach's alpha reliability coefficients for all measures are available in the Supplementary Materials.

[3] Translations of all measures used in the ISP are available at https://www.situationslab.com/translations.

of 60 statements (e.g., "I am someone who is outgoing") on a five-point scale (1 = *disagree strongly,* 5 = *agree strongly*).

Participants completed the 10-item Honesty-Humility subscale (e.g., "I wouldn't use flattery to get a raise or promotion at work, even if I thought it would succeed"; 1 = *strongly disagree* to 5 = *strongly agree*) of the HEXACO (facets: sincerity, fairness, greed, modesty; Ashton & Lee, 2009). Participants also completed the Narcissistic Admiration and Rivalry Questionnaire (NARQ; Back et al., 2013; e.g., "I deserve to be seen as a great person"; "Other people are worth nothing"; 1 = *strongly disagree*, 5 = *strongly agree*), as well as the Religiosity scale of the Social Axioms Survey (Leung et al., 2012; e.g., "Belief in a religion helps one understand the meaning of life"; 1 = *strongly disbelieve*, 5 = *strongly believe*).

Happiness. Happiness was measured using the Subjective Happiness Scale (SHS; Lyubomirsky & Lepper, 1999) and the Interpersonal Happiness Scale (IHS; Hitokoto & Uchida, 2015). The SHS, developed in the U.S., is a 4-item scale (e.g., "In general, I consider myself…" 1 = *not a very happy person*, 7 = *a very happy person*), and the ISH, developed in Japan, is a 9-item scale (e.g., "I believe that I and those around me are happy"; 1 = *strongly disagree*, 5 = *strongly agree*).

Country-level variables. The current analyses utilized previously and separately-collected country-level variables publicly available from various sources. We cast a wide net to identify associations of broad interest, especially seeking country-level variables that captured social, political, and economic properties as well as societal values of many, if not all, of the countries included in our sample.

We first gathered variables for 55 of our 61 countries from The World Bank (2016; databank.worldbank.org) including employment rate (employment to population ratio for

individuals over the age of 15; averaged across 2013-2016), gross domestic product (GDP) per capita, population density (i.e., people per square-kilometer of land area), life expectancy (in years), income inequality (GINI index), and infant mortality rate (deaths per 1,000 live births). Additionally, country-level suicide rate was gathered from the World Health Organization (age-standardized, per 100,000 deaths; World Health Organization, 2012).

For 60 of our countries, we collected estimates for projected and actual growth in GDP from the International Monetary Fund (imf.org). GDP projected growth was assessed as the projected change in GDP to 2020; GDP actual growth was assessed as the measured change in GDP since 2016.

For 57 of our countries, we accumulated variables relevant to satisfaction with life from the World Happiness Report (Helliwell, Layard, & Sachs, 2016). These indicators were quantified as the average binary ratings by country for questions relating to each of the following: freedom of choice ("Are you satisfied or dissatisfied with your freedom to choose what you do with your life?"), perceptions of corruption ("Is corruption widespread throughout the government or not?"; "Is corruption widespread within businesses or not?"), confidence in government ("Do you have confidence in each of the following, or not?"; "How about the national government?), and democratic quality (various indicators of voice, accountability, and political stability as accumulated by Worldwide Governance Indicators project; Kaufmann, Kraay, & Mastruzzi, 2011).

For 55 countries in our sample, previous research using the Schwartz Value Survey provided data concerning cultural values along seven dimensions (Schwartz, 2001; 2008): harmony (valuing the group rather than the self), mastery (valuing success through self-assertion), embeddedness (focus on sustaining order and tradition), hierarchy (reliance on

structured and hierarchical social roles), egalitarianism (valuing cooperation and concern for all), affective autonomy (the independent pursuit of pleasure), and intellectual autonomy (the independent pursuit of ideas and knowledge).

Finally, for 31 countries, we obtained variables from the Organization for Economic Co-operation and Development (OECD) Better Life Index (Better Life Index, 2016; http://www.oecdbetterlifeindex.org/). These included country-level scores for homicide rate (homicides per 100,000 people), personal safety (percentage of people who report feeling safe walking alone at night), long work hours (percentage of individuals who work over 50 hours per week), and leisure time (average number of hours spent on leisure and personal care, including sleeping and eating).

Assessing measurement equivalence of optimism across countries. Before proceeding with our primary analyses, we addressed the comparability of the measurement of dispositional optimism across countries using a method that is feasible in large-scale, multi-country studies (Bryne & von de Vijver, 2010). Given that the meaning of each item of a psychological measure can be defined by its relationship with the other items, one method for assessing measurement comparability of optimism across countries is to assess how similarly participants within each country interpret the items of the LOT-R.

In line with this logic, we used the Matrix Comparison approach suggested by Gardiner et al. (2019) that is especially suitable for comparing a large number of countries. First, we correlated each item of the LOT-R with every other item, producing a 6 x 6 matrix within each of the 61 countries. Next, we constructed an intercorrelation matrix of these matrices, relating each country's inter-item correlation matrix with each other country's matrix. These analyses produced a 61 x 61 correlation matrix that represented the similarities of the items' meanings

(i.e., the pattern of LOT-R inter-item correlations) between two countries. These correlations can also be interpreted as indicators of factorial invariance, because the factor structure of an instrument derives directly from the intercorrelations of its items.

The average correlation was r =.91, ranging from r = .997 (Serbia and Greece) to r =.54 (Malaysia and Indonesia). To evaluate these correlations, we used as a reference point the average similarities of inter-item correlation patterns among subgroups within single countries. Specifically, we generated inter-item matrices for the data gathered within six U.S. states and within two cities in the 11 countries for which multi-site data are available. The average inter-item matrix correlation across states in the U.S. and multiple cities within various countries was r = .96. Taken together, this matrix comparison approach revealed that the degree of within-country similarity in LOT-R interpretation is not much greater (.96 vs. .91) than between-country similarity in interpretation (see Supplementary Materials, Table 2). These results indicate factorial invariance, but not necessarily scalar invariance, the equivalence of the interpretation of means. Scalar invariance is an ideal, rarely, if ever, achieved in large cross-cultural studies, and we suggest that the association between country-level mean scores and other variables – such as reported later in this paper – are more reasonable and informative indicators of the implications of mean-level variation.

Assessing generalizability of dispositional optimism. The vast majority of the participants included in this study were recruited from college communities. Given that levels of dispositional optimism may vary based on socioeconomic status, we sought to address its generalizability outside the college student population. We therefore compared mean-levels of optimism from the subset of our countries that recruited members from both college and non-college communities (China, Ukraine, Serbia, and Turkey). There were no significant differences

between these college and community samples in Ukraine, Serbia and Turkey. In China, participants from college communities were lower in dispositional optimism (M = 3.37) than their non-college community counterparts (M = 3.47; t = 2.22, p = .03; see Supplementary Materials). These findings do not support any strong or universal differences in optimism between college and community samples (although the Chinese data found college samples to be somewhat less optimistic).

Results

Country-Level Variation in Optimism

Average optimism scores across countries ranged from 3.08 (Singapore) to 3.87 (Estonia), with a world average of 3.41. Estonia, Mexico, Nigeria were among the highest in optimism, and Singapore, Japan, Hong Kong were among the lowest. Although optimism did not show large mean-level differences across countries, multilevel modeling (level 1 = individuals, level 2 = countries) revealed that individuals' level of optimism did vary depending on their country of residence, χ^2 = 547,099, p < .00012; ICC(1) = .07; ICC(2) = .95 (see Table 2).

Table 2

Ranked Average Optimism Scores by Country and Gender

Country	Male average	Female average	Overall average	Country	Male average	Female average	Overall average
Estonia	4.01	3.84	3.87	South Korea	3.41	3.40	3.41
Mexico	3.89	3.79	3.83	Czech Republic	3.46	3.38	3.40
Nigeria	3.78	3.74	3.77	Malaysia	3.31	3.44	3.40
Kenya	3.84	3.70	3.75	Croatia	3.42	3.38	3.39
Uganda	3.61	3.82	3.75	Germany	3.40	3.37	3.37
Peru	3.74	3.62	3.67	Switzerland	3.36	3.36	3.36
Colombia	3.67	3.65	3.66	Austria	3.43	3.33	3.35
Israel	3.66	3.66	3.66	Spain	3.22	3.35	3.33
Chile	3.63	3.60	3.61	Greece	3.41	3.29	3.31

Romania	3.55	3.64	3.60	United Kingdom	3.47	3.29	3.31
Indonesia	3.57	3.60	3.59	Netherlands	3.44	3.27	3.30
Ukraine	3.52	3.60	3.58	Canada	3.19	3.32	3.29
Lithuania	3.42	3.61	3.57	Pakistan	3.23	3.35	3.29
Thailand	3.53	3.57	3.56	Slovenia	3.41	3.20	3.29
Georgia	3.64	3.53	3.55	Sweden	3.30	3.24	3.26
Palestine*	3.72	3.50	3.54	Turkey	3.28	3.22	3.24
Argentina*	3.74	3.47	3.53	Brazil	3.11	3.27	3.23
Denmark	3.51	3.52	3.52	Taiwan	3.04	3.27	3.22
Bolivia	3.55	3.49	3.51	United States	3.25	3.20	3.22
India	3.48	3.53	3.51	Philippines	3.18	3.22	3.20
Russia	3.65	3.47	3.51	Slovakia	3.26	3.18	3.20
Bulgaria	3.46	3.50	3.49	France	3.27	3.14	3.15
Hungary	3.53	3.46	3.49	Portugal	3.04	3.16	3.15
Senegal	3.46	3.52	3.49	New Zealand	3.15	3.14	3.14
Vietnam*	3.30	3.55	3.49	Italy*	3.27	3.05	3.13
Jordan	3.28	3.53	3.48	Australia	3.15	3.11	3.12
Norway	3.47	3.48	3.48	Poland	3.29	3.08	3.12
Latvia	3.25	3.52	3.47	Hong Kong	3.02	3.14	3.09
Serbia	3.48	3.45	3.46	Japan*	2.98	3.15	3.09
South Africa	3.56	3.39	3.45	Singapore	3.18	3.05	3.08
China	3.39	3.43	3.41	*World sample*	*3.41*	*3.38*	*3.39*

Note: Sorted by mean level of dispositional optimism. ICC(1) = .07; ICC(2) = .95. *significant gender differences in dispositional optimism

Next, we assessed the correlations between country-level optimism and other country-level variables. We organized these variables into three broad categories: societal characteristics (e.g., employment rate, GDP per capita, democratic quality), quality of life (e.g., life expectancy, infant mortality, personal safety), and cultural values (e.g., harmony, egalitarianism; see Table 3).

Within the category of societal characteristics, country-level optimism scores were positively related to average perceptions of corruption and negatively related to GDP per capita, population density, and democratic quality. Optimism was also positively related to projected growth in GDP, a variable that is associated with low *current* GDP per capita and other positive country-level markers (i.e., countries that are worse off generally have higher projected growth). In contrast, optimism was unrelated to actual GDP growth.

For indicators of quality of life, country-level optimism scores were positively associated with infant mortality and negative associated with life expectancy.

For indicators of cultural values, "embedded values" were positively related to country-level optimism, whereas both affective autonomy and intellectual autonomy were negatively related to country-level optimism.

Table 3

Correlations between Country-Level Optimism and Country-Level Indicators

	r	# of countries in analysis
Societal characteristics		
Employment rate	0.17	55
Gross domestic product actual growth	0.14	60
Gross domestic product projected growth	0.34**	60
Gross domestic product (per capita)	-0.44**	55
Population density	-0.32*	57
Income inequality (GINI)	0.28	43

Freedom of choice	-0.17	57
Perceptions of corruption	0.36*	56
Confidence in government	-0.09	55
Democratic quality	-0.40**	57
Quality of life		
Life expectancy	-0.54**	58
Infant mortality	0.34**	55
Suicide rate	0.03	55
Homicide rate	0.34	31
Personal safety	-0.20	31
Long work hours	0.01	31
Leisure time	-0.16	31
Cultural values		
Harmony	-0.11	55
Mastery	-0.03	55
Embeddedness	0.40**	55
Hierarchy	0.13	55
Egalitarianism	-0.20	55
Affective autonomy	-0.36**	55
Intellectual autonomy	-0.34**	55

Note: $^{*}p \leq .05$; $^{**}p \leq .01$.

Dispositional Optimism, Individual Differences, and Well-Being Across Countries

We next ran a series of multi-level models assessing cross-country variability in the relationships between individual-level optimism and individual-level Big Five personality traits and their facets, honesty-humility, narcissism, religiosity, gender, and subjective and interdependent happiness.

In 60 out of 61 countries (exception: Uganda), a significant relationship emerged between optimism and extraversion (Table 4; $\beta = 0.33$; $t = 29.28$, $p < .001$). Similarly, in 60 out of 61 countries (exception: Indonesia), a consistent negative relationship emerged between optimism and negative emotionality ($\beta = -0.48$; $t = -29.28$, $p < .001$). Associations between optimism and agreeableness were also generally positive, albeit less robust, as were

associations between optimism and conscientiousness. Optimism was inconsistently associated with openness, honesty-humility, religiosity and narcissism. Results for the facets of each trait generally followed the patterns just described (see Supplemental Materials). For all individual difference measures assessed, there was significant variation across countries in their relationship with optimism (see Table 4). Finally, there was a small but significant gender difference in mean levels of optimism worldwide, (Table 2; female world average = 3.38, male world average = 3.41; $t = 2.75$, $p = .006$). This trend did not vary by country ($\beta = 0.004$, $t = 0.71$, $p = .47$).

With one exception (Indonesia), consistent positive relationships emerged between optimism and both subjective happiness ($\beta = 0.53$, $t = 56.64$, $p < .001$) and interdependent happiness ($\beta = 0.41$, $t = 62.58$, $p < .001$).

Table 4
Results of Multilevel Models Predicting Personal Characteristics from Optimism

	B	*SE*	*t*
Optimism predicting:			
Extraversion	0.33	0.11	29.38**
Sociability	0.30	0.02	19.09**
Energy	0.39	0.01	29.14**
Assertiveness	0.30	0.01	22.28**
Agreeableness	0.20	0.01	23.82**
Compassion	0.17	0.01	14.77**
Respect	0.16	0.01	14.10**
Trust	0.29	0.01	24.69**
Conscientiousness	0.20	0.01	15.99**
Organization	0.16	0.02	10.20**
Productive	0.28	0.01	21.40**
Responsible	0.17	0.01	11.71**
Negative emotionality	-0.48	0.02	-29.45**
Anxiety	-0.39	0.02	-19.76**
Depression	-0.68	0.02	-37.23**
Emotionality (moodiness)	-0.38	0.01	-25.25**
Openness	0.16	0.01	13.40**
Intellect	0.11	0.01	9.17**
Aesthetic	0.10	0.01	7.94**
Creativity	0.22	0.01	16.61**
Honesty	0.06	0.01	5.49**

Sincerity	0.03	0.01	2.11*
Fairness	0.17	0.02	7.94**
Greed	0.04	0.02	2.77**
Modesty	-0.04	0.02	-2.18*
Narcissism	0.01	0.01	1.03
Admiration	-0.10	0.01	-7.95**
Rivalry	0.12	0.01	10.62**
Religiosity	0.17	0.01	12.26**
Gender	0.005	0.007	7.03*
Subjective happiness	0.97	0.02	44.55**
Interdependent happiness	0.37	0.01	32.30**

Note: $^{**}p \leq .01$; $^{*}p \leq .05$

Country-Level Moderators of Associations with Well-Being

Finally, we ran a series of multilevel models to examine variability in the relationships between optimism and markers of well-being (i.e., happiness and an absence of anxiety/depression). We ran models assessing the relationship between optimism and each well-being marker, accounting for nesting at the country level, followed by a series of model fit comparisons to assess the Chi-square difference between a model which fixes all slopes for associations between optimism and individual characteristics to be equal across countries (*Model 1*) and a model which allows these relationships to vary by country (*Model 2*). Results revealed significant variation across countries in the relationships between optimism and well-being (see Table 5).

Table 5

Variation in Associations between Optimism and Individual Differences

	Average *r* across countries	ΔX^2
Extraversion	0.36	70.92**
Sociability	0.23	53.82**
Energy	0.38	80.10**
Assertiveness	0.27	38.74**
Agreeableness	0.27	30.07**
Compassion	0.18	48.19**
Respect	0.17	29.46**

Trust	0.28	34.16**
Conscientiousness	0.22	68.06**
Organization	0.14	33.62**
Productive	0.25	42.73**
Responsible	0.18	90.37**
Negative emotionality	-0.45	101.57**
Anxiety	-0.32	92.71**
Depression	-0.53	103.04**
Emotionality (moodiness)	-0.29	38.57**
Openness	0.19	50.89**
Intellect	0.13	47.56**
Aesthetic	0.09	11.78*
Creativity	0.22	42.79**
Honesty	0.09	30.46**
Sincerity	0.03	17.00**
Fairness	0.14	76.27**
Greed	0.03	36.95**
Modesty	-0.01	24.16**
Narcissism	<0.01	14.53**
Admiration	-0.09	17.87**
Rivalry	0.10	17.27**
Religiosity	0.15	39.33**
Gender	<0.01	7.45*
Subjective happiness	0.53	56.64**
Interdependent happiness	0.41	62.58**

Note: $^{**}p \leq .01$; $^{*}p \leq .05$. Chi-square statistic comes from multilevel models and represents the extent of variability across countries in the association between dispositional optimism and the relevant individual characteristic.

To explain this variation, we examined interaction effects with country-level variables. In these analyses we treat markers of well-being as outcome variables rather than predictor variables given that well-being varies considerably within-person across time and circumstances (Lucas, 2007). In addition, we chose *a priori* to focus our analyses on four country-level indicators that provide a sense of the country's degree of development (Bérenger & Verdier-Chouchane, 2007): GDP per capita, income inequality, life expectancy, and infant mortality.

As seen in Table 6, in countries with higher GDP per capita, longer life expectancy, lower infant mortality rates, and lower income inequality, optimism was more strongly related to happiness (positively) and negative emotionality (inversely) relative to countries with lower GDP per capita, shorter life expectancy, higher infant mortality rates, and greater income inequality.

We also ran an additional series of models predicting markers of well-being from the interaction between individual-level optimism and both GDP projected growth (to year 2020) and GDP actual growth (since 2016; Table 6). In countries with low GDP projected growth, optimism was more positively related to happiness and more negatively related to negative emotionality relative to countries with high GDP projected growth. No such relationship was observed for GDP actual growth.

Table 6
Interaction Between Country-Level Indicators and Optimism Predicting Indicators of Well-being

	β	*SE*	*t*
GDP per capita x Optimism predicting:			
Negative emotionality	-0.004	0.0007	-5.25**
Anxiety	-0.005	0.0008	-5.92**
Depression	-0.003	0.0008	-4.36**
Subjective happiness	0.003	0.001	3.32**
Interdependent happiness	0.001	0.0005	2.56**
GDP projected growth x Optimism predicting:			
Negative emotionality	0.044	0.008	5.18**
Anxiety	0.055	0.009	6.27**
Depression	0.024	0.009	2.71**
Subjective happiness	-0.05	0.012	-4.16**
Interdependent happiness	-0.015	0.007	-2.07*
GDP actual growth x Optimism predicting:			
Negative emotionality	0.014	0.007	1.78
Anxiety	0.013	0.01	1.33
Depression	0.19	0.009	2.17*
Subjective happiness	-0.016	0.01	-1.51
Interdependent happiness	-0.001	0.006	-0.24

Income inequality x Optimism predicting:			
Negative emotionality	0.002	0.002	0.82
Anxiety	0.007	0.002	3.08**
Depression	0.0008	0.002	0.43
Subjective happiness	-0.005	0.002	-1.97*
Interdependent happiness	-0.001	0.001	-1.05
Infant mortality x Optimism predicting:			
Negative emotionality	0.007	0.001	7.16**
Anxiety	0.009	0.001	7.68**
Depression	0.008	0.001	6.73**
Subjective happiness	-0.009	0.001	-6.03**
Interdependent happiness	-0.002	0.0009	-2.50**
Income inequality x Optimism predicting:			
Life expectancy x Optimism predicting:			
Negative emotionality	-0.013	0.002	-6.23**
Anxiety	-0.015	0.003	-6.26**
Depression	-0.015	0.002	-5.94**
Subjective happiness	0.015	0.003	4.51**
Interdependent happiness	0.005	0.002	2.41**

Note: $^{**}p \leq .01$; $^{*}p \leq .05$.

Taken together, these results indicate that for individuals who live in more developed countries with a relatively stable projected GDP, optimism is a stronger predictor of well-being than for individuals who live in less developed countries where GDP is projected to increase (see Figures 1a-1f for graphic representation of these relationships).

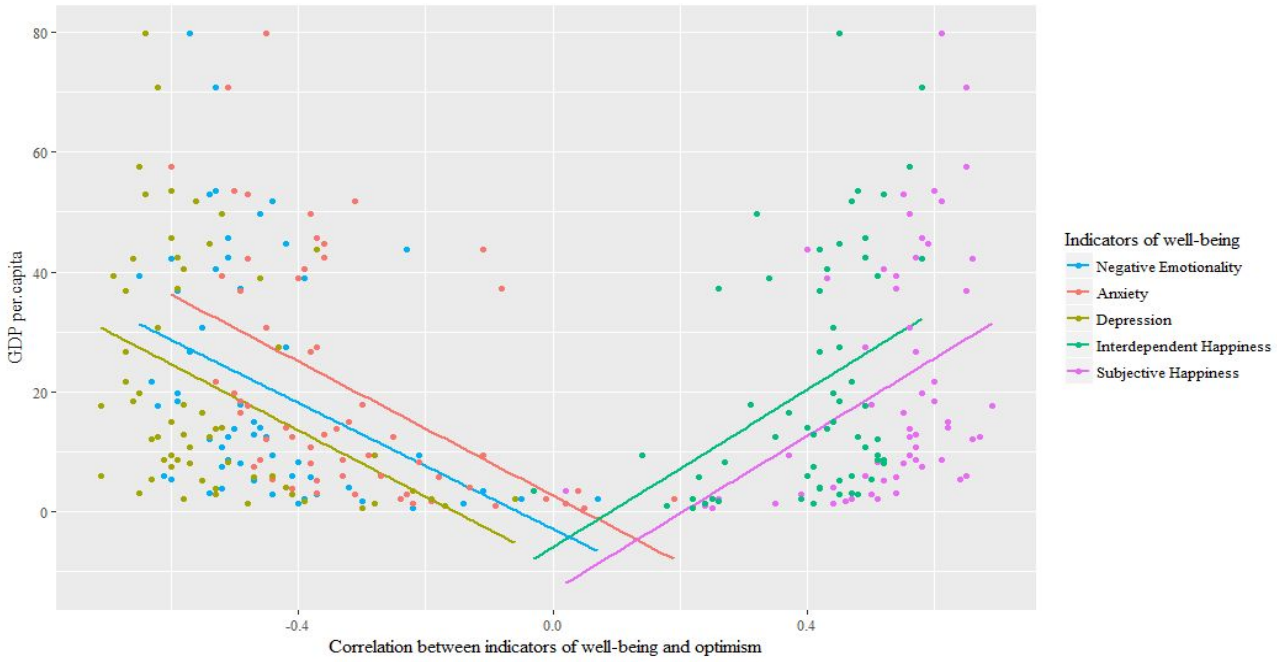

Figure 1a. Correlations between GDP per capita and the associations between optimism and various indicators of well-being.

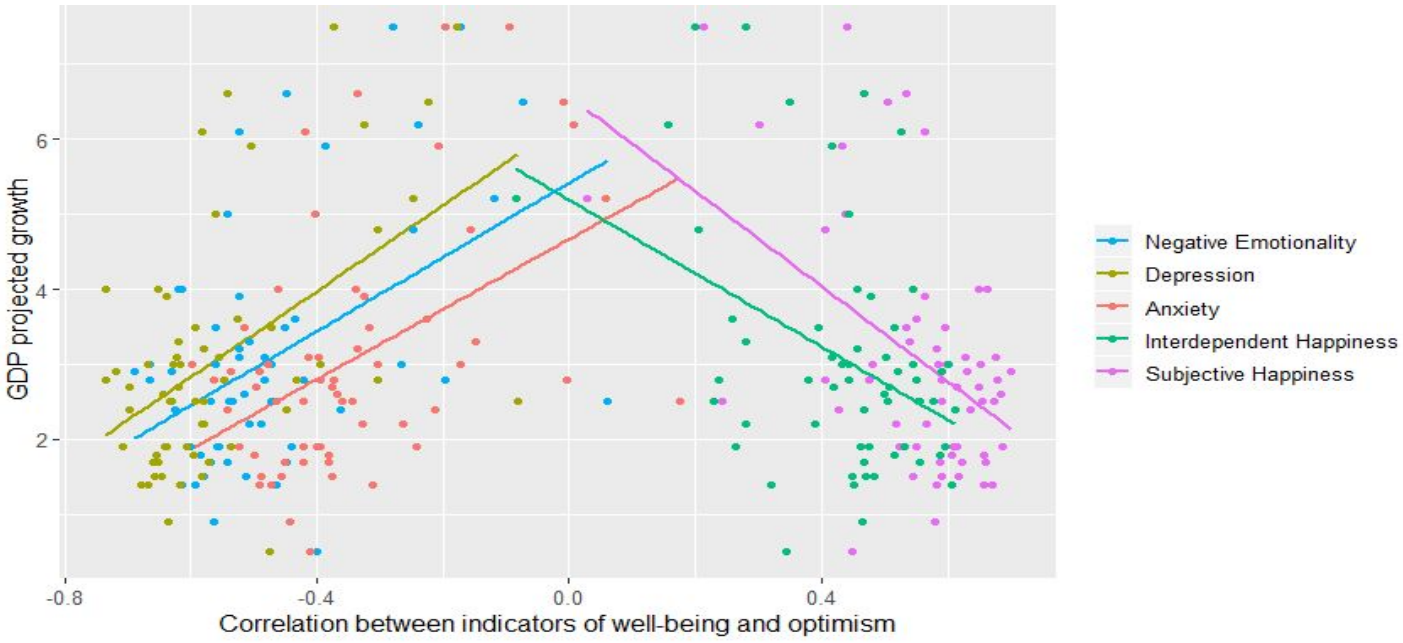

Figure 1b. Correlations between GDP projected growth and the associations between optimism and various indicators of well-being.

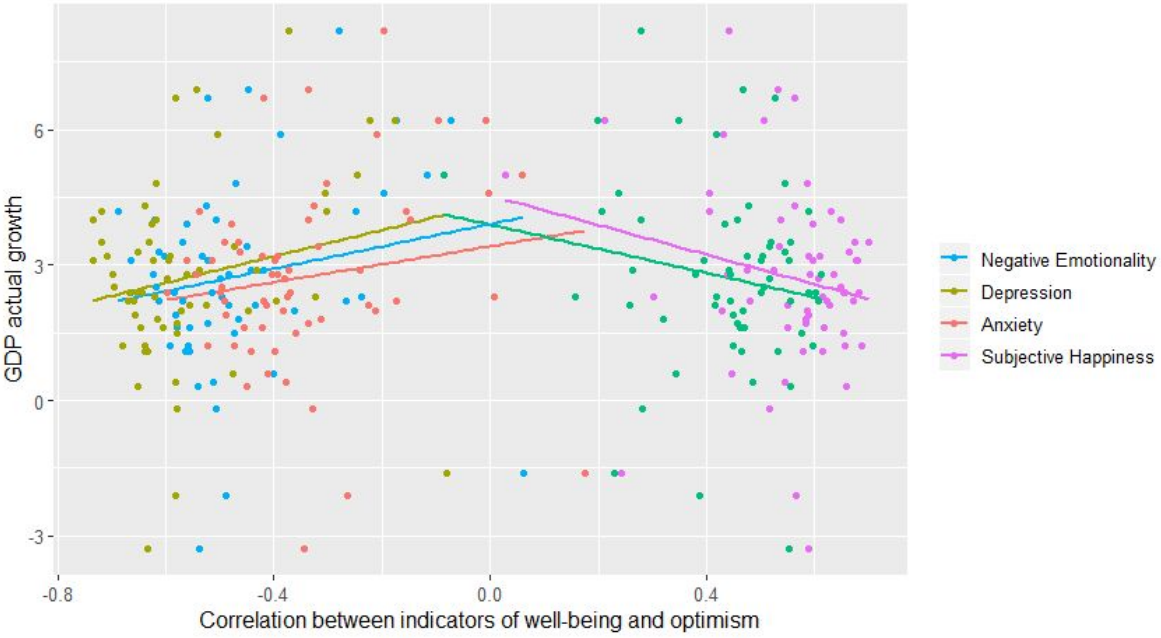

Figure 1c. Correlations between GDP actual growth and the associations between optimism and various indicators of well-being.

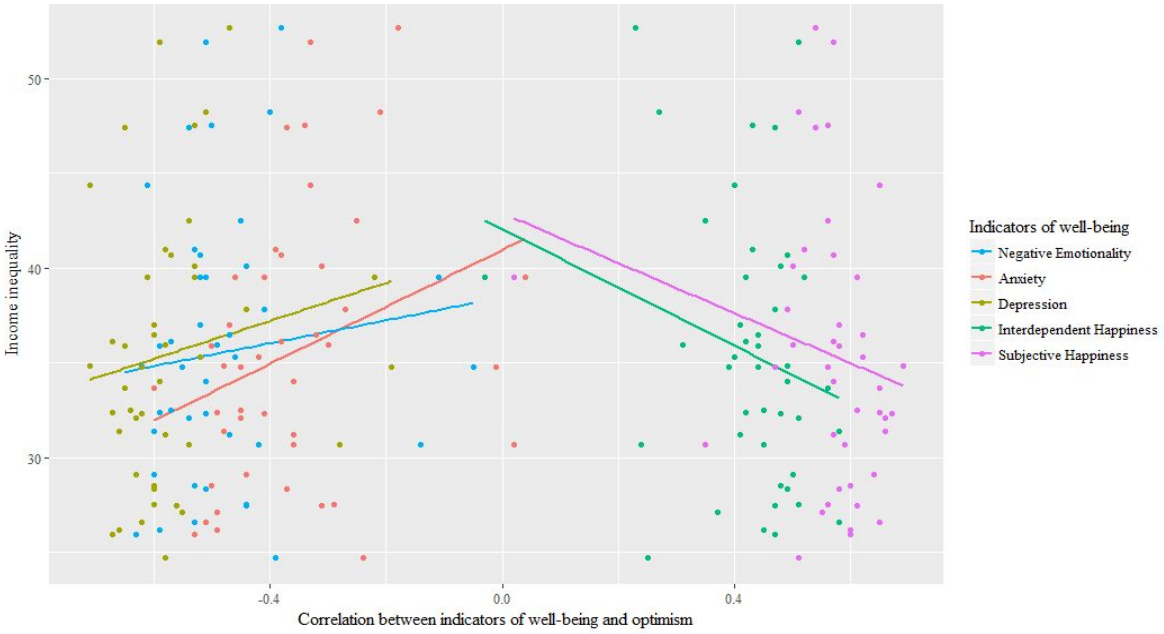

Figure 1d. Correlations between income inequality and the associations between optimism and various indicators of well-being.

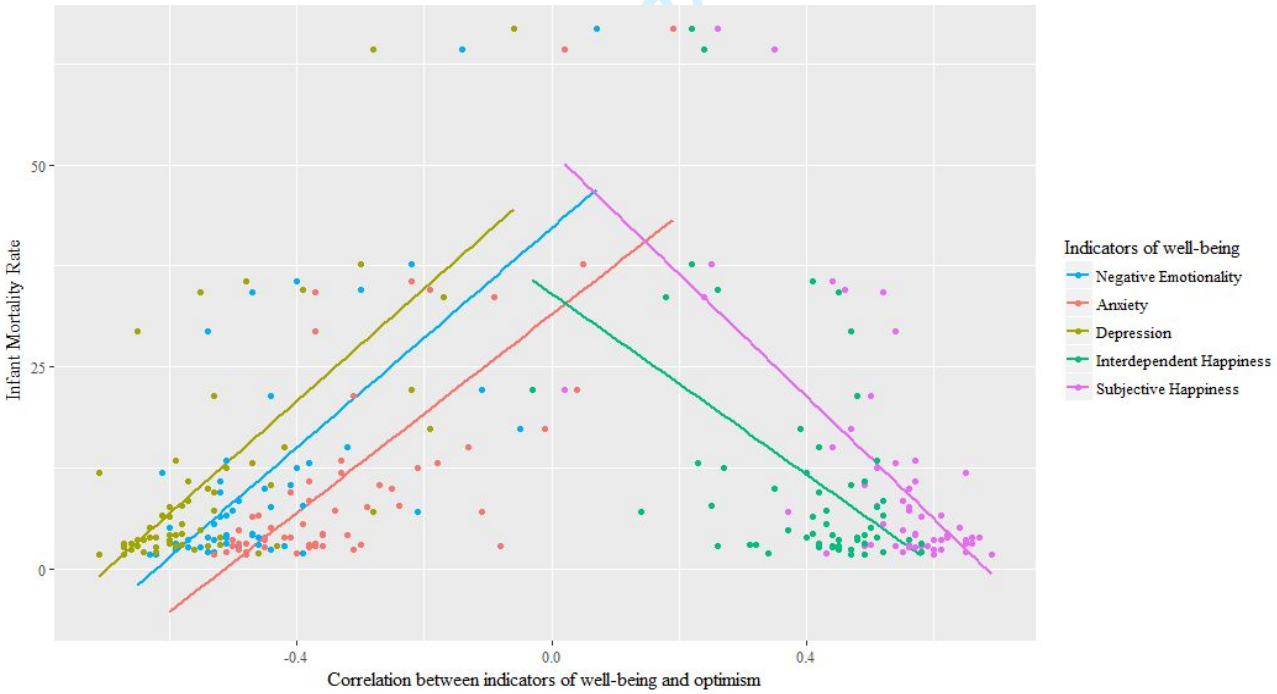

Figure 1e. Correlations between infant mortality rate and the associations between optimism and various indicators of well-being.

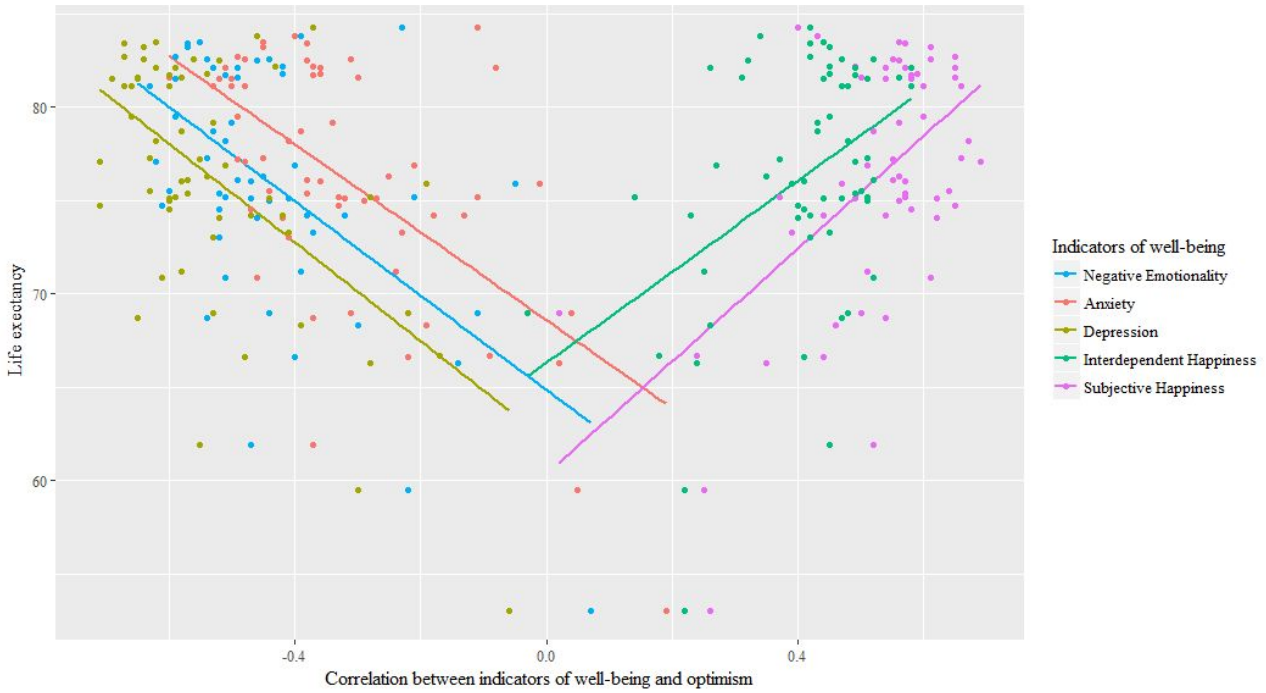

Figure 1f. Correlations between life expectancy and the associations between optimism and various indicators of well-being.

Discussion

Our investigation had the ambitious goal of examining dispositional optimism through a global lens. As we will address below, our study takes a large leap toward understanding the nature, predictors, and potential consequences of optimism in 61 countries varying widely in their economic, societal, and political characteristics.

Country-Level Associations

Given the wide range of countries included in our dataset, we were able to investigate whether the limited but detectable variability in optimism across countries was predictable based on societal characteristics, quality of life, or cultural values. People in countries that appear to be worse off reported higher levels of dispositional optimism. The picture was similar for cultural values, such that people in more rigid societies and societies that stifle individual autonomy were

higher in dispositional optimism on average. No result contradicted this general pattern, although some country-level indicators were unrelated to optimism. We can only speculate, but three possible explanations for this trend can be offered.

First, people might use their compatriots as a reference point when evaluating their future outlook (Heine, Lehman, Peng & Greenholtz, 2002). Most of our participants were college students, whose circumstances may relatively comfortable compared to many of the people around them, particularly in less developed countries. However, in some countries it might be the case that college students' economic prospects are worse than their parents and grandparents, and in the four countries in which we were able to compare student and community samples, only one (China) showed a difference, and that in the direction of slightly lower optimism among students.

Second, people might develop an optimistic outlook as a type of psychological armor when circumstances are particularly challenging. Dispositional optimism can and does change over time and across situations (e.g., Segerstrom et al., 2007), which leaves open the possibility of some degree of functional adaptation.

Third, recall that lower quality of life is associated with higher projected growth in GDP (see Supplementary Materials), and the projected growth in GDP is associated with optimism. At its core, optimism is about the future, not the present. Therefore, it may be in countries where things seem likely to improve – even when current conditions are poor – where optimism tends to thrive.

Individual-Level Associations

Our study was also well-suited to examine within-country, individual-level associations between optimism and personal characteristics. First, we largely replicated previous findings

linking optimism to Big Five personality traits, notably strong and consistent associations with extraversion and emotional stability. Although dispositional optimism is not typically listed among the core personality traits, considerable evidence points to its trait-like nature (e.g., stability over time, heritability, robust behavioral consequences; see Carver et al., 2010).

On average, female participants were significantly less optimistic than their male counterparts, although mean differences were quite small (a .03 difference on a 5-point scale). These findings are in contrast to Gallagher et al.'s (2012) analysis of the Gallup World Poll data in which women were *more* optimistic. However, the Gallup data used individuals' predictions of future subjective socioeconomic status as a rough proxy for optimism, whereas the present study used the well-validated LOT-R.

Turning to well-being, our study replicated a robust literature linking dispositional optimism to psychological well-being (e.g., Gallagher & Lopez, 2009; Neff et al., 2007). However, despite a consistent bivariate relationship between optimism and well-being, further analyses revealed variability in those relationships, such that dispositional optimism may be more effective at promoting happiness and buffering anxiety and depression in highly developed countries compared to less developed countries[4]. One possible explanation for these findings is that in less developed countries, current circumstances may be a stronger driver of well-being; where people are faring poorly overall, the benefits of an optimistic outlook for well-being may be attenuated. Another possible explanation can be derived from the finding that less-developed countries also had greater projected future economic growth. Thus, it is possible that to the

[4] We investigated the possibility that these findings arose because the LOT-R and SHS and, to a lesser degree, the IHS had lower alpha reliabilities in countries with higher GDP/lower projected growth. However, these correlations declined only slightly when each measure was corrected for attenuation (the four *r*'s, respectively, were .20, -.20, .31, and -.30, respectively).

extent that people in such countries are aware of indicators of future growth, they might develop an optimistic outlook that is not associated with their current, possibly low level of well-being.

This finding deserves replication and further investigation, but it suggests that simply being dispositionally optimistic is insufficient to reap its full benefits; the surrounding cultural situation limits or promotes its powers of positivity.

Limitations

A fundamental limitation of this and most cross-cultural research, is the relative homogeneity of our sample with regard to age and education. On the one hand, the fact that the majority of our participants across countries were sampled from college student populations makes differences between countries easier to interpret because country of residence is the principal variable that distinguishes between our samples – not affluence, education, or age. On the other hand, our samples may restrict the range of optimism. For example, perhaps individuals with access to higher education are in a position that promotes an optimistic outlook, namely one that is socioeconomically more comfortable. However, as was mentioned above, only one of four countries where we could compare student and non-student samples demonstrated significant mean-level differences in optimism, and in that country (China), the level of the college sample was actually somewhat lower. Nonetheless, casting a larger net to capture within-country variability in age and socioeconomic circumstances is a crucial next step for this area of research.

Conclusions

Although many questions and opportunities for future research remain, our investigation provides a rare glimpse at how a trait—one identified and conceptualized (and largely studied) in the U.S. using W.E.I.R.D. samples—looks on an international stage. Our findings highlight both the similarities and differences in human experience across a wide array of countries. People's

level of dispositional optimism is remarkably high across the world, as are its associations with other traits and broad measures of happiness—yet our findings also warn against the perils of assuming complete cultural invariance. In short, our message is a Lewinian one: Both the person and the situation – in particular, the cultural context – matter (Lewin, 1951; Furr & Funder, in press).

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