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

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Abstract

Objective: The current exploratory study sought to examine dispositional optimism, or the general expectation for positive outcomes, around the world.

Method: Dispositional optimism and possible correlates were assessed across 61 countries (N = 15,185; mean age = 21.92; 77% female). Mean-level differences in optimism were computed along with their relationships with individual and country-level variables.

Results: Worldwide, mean optimism levels were above the midpoint of the scale. Perhaps surprisingly, 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 less strong in countries with challenging economic and social circumstances.

Conclusions: While individuals around the world are generally optimistic, societal characteristics appear to affect the degree to which their optimism is associated with psychological well-being, sometimes in seemingly anomalous ways.

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

It is well established 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-studied, nearly all the research has been restricted to individuals from W.E.I.R.D. populations (Western, Educated, Industrial, Rich, Democratic; Henrich, Heine & Norenzayan, 2010) and, more specifically, was conducted in the U.S.

The current paper reports an exploratory study of 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 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). Thus, we would expect consistent relationships between optimism and these individual differences across countries, although this expectation has not heretofore been empirically tested.

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 higher in dispositional optimism 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 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 levels of 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 = 15,185; 77% female) were recruited by local collaborators in 61 countries (see Table 1) and were members of college communities (average age = 21.92, SD = 1.71). Participants either volunteered or received extra credit, course credit, small gifts, or monetary compensation for their participation.

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 an English-language wireframe of the data-gathering website see https://osf.io/r4q8p/).

Measures

As stated previously, the current analyses are part of a larger study that seeks to explore cross-country variation and similarity of situational experience and individual differences. We chose variables that we believed would accomplish this broad goal. The present study included measures of individual differences that have been previously associated with dispositional optimism, 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).[1]

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

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.[2]

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*). For brevity's sake, we removed four filler items of the original LOT-R. See Sweeny & Falkenstein (2016) for evidence supporting the appropriateness of removing the LOT-R filler items.

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 (sometimes called *neuroticism*, the inverse of emotional stability: anxiety, depression, emotionality-moodiness). Participants responded to each 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-

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

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 from The World Bank (2016; databank.worldbank.org) including employment rate (for 58 countries; employment to population ratio for individuals over the age of 15; averaged across 2013-2016), life expectancy (for 60 countries; in years), income inequality (for 43 countries; GINI index), infant mortality rate (for 58 countries; deaths per 1,000 live births), and human development, a composite variable comprising several demographic and economic indicators of quality of life (for 60 countries; Human Development Index, United Nations Development Program, 2016). Additionally, country-level suicide rate was gathered from the World Health Organization (for 58 countries; age-standardized, per 100,000 deaths; World Health Organization, 2012).

For 60 of our countries, we collected estimates for gross domestic product (GDP) per capita, population density (i.e., people per square-kilometer of land area), 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 59 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 57 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 33 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 measures across 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 reasonable and informative indicators of the implications of mean-level variation.

Results

The data that support the findings of this study are openly available on the Open Science Framework at https://osf.io/tgfrx/.

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 (see Table 2). 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 (SD = .20 on a 5-point scale), multilevel modeling (level 1 = individuals, level 2 = countries) revealed that individuals' level of optimism did vary depending on country of residence; ICC(1) = .07 (see Table 2).

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, Human Development Index (HDI), 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, perhaps surprisingly, positively related (at p <.001) to average perceptions of corruption and

negatively related to HDI and democratic quality (all *p*s < .001, see Table 3). 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) (this relationship was significant at $p < .01$ rather than $p < .001$ so perhaps should be interpreted with caution). In contrast, optimism was not significantly related to actual recent GDP growth.

For indicators of quality of life, country-level optimism scores were positively associated with infant mortality and negatively associated with life expectancy. Among indicators of cultural values, "embedded values" (focused on culture and tradition) were positively related to country-level optimism (at $p < .001$), whereas both affective autonomy and intellectual autonomy were negatively related (at $p < .01$).

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; $\beta = 0.38$ [*95% CI*: .36, .41]; $t = 29.39$, $p < .001$). Similarly, in 60 out of 61 countries (exception: Indonesia), a consistent negative relationship emerged between optimism and negative emotionality ($\beta = -0.49$ [-.52, -.45]; $t = -29.68$, $p < .001$). 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 across countries. 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 = 3.37, male world average = 3.41; $t = 2.48$, $p = .01$). This trend did not vary by country ($\beta = 0.005$ [-.01, .03], $t = 0.50$, $p = .61$). With one exception (Indonesia), consistent positive relationships emerged between optimism and both subjective happiness ($\beta = 0.58$ [.55, .60], $t = 42.82$, $p < .001$) and interdependent happiness ($\beta = 0.45$ [.42, .48], $t = 62.58$, $p < .001$).

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. We ran models assessing the relationship between optimism and each marker of well-being, accounting for nesting at the country level, followed by a series of model fit comparisons between a model with fixed slopes between optimism and well-being (*Model 1*) and a model which allows these relationships to vary by country (*Model 2*). Results revealed a significant change in the Chi square between models, indicating there was significant variation across countries in the relationships between optimism and well-being (see ΔX^2 column in Table 4).

To explain this variation, we examined interaction effects with country-level variables. In these analyses we treated markers of well-being as outcome variables rather than predictor variables given that well-being varies within-person across time and circumstances (Lucas, 2007), whereas dispositional optimism is relatively stable. In addition, we chose *a priori* to focus our analyses on six country-level indicators that provide a sense of the country's degree of development (Bérenger & Verdier-Chouchane, 2007): GDP per capita, GDP projected growth, GDP actual growth, income inequality, life expectancy, infant mortality, and human development[3].

For these analyses, we ran a series of models predicting markers of well-being from the interaction between individual- level optimism and various country-level indicators. These models, examined individually, are presented in Table 5. In countries with higher GDP per capita, longer life expectancy, lower infant mortality rates, higher human development, 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, and greater income inequality. Moreover, 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.

[3] The inclusion of Human Development in these analyses done at the suggestion of a reviewer, and thus was not *a priori.*

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. Figures 1a-1g provide aa graphic representation of these relationships. For instance, in Figure 1a, correlations between wellbeing and optimism and various measures of well-being (including negative indicators, such as depression) increase in strength as GDP per capita increases, whereas in Figure 1b, these same correlations generally decrease as projected *growth* in GDP increases.

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 beyond previous research that was largely restricted to "WEIRD" samples 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. Perhaps surprisingly, people in countries that appear to experience more challenging circumstances reported higher levels of dispositional optimism. Concerning cultural values, people in more traditional societies and countries that de-emphasize 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). Our participants were members of college and university communities, whose circumstances may be relatively comfortable compared to many of the people around them, particularly in less developed countries.

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. To test this supposition, we related country-level variables with negative emotionality, an overlapping, yet non-future oriented variable. Results from these exploratory analyses reveal less consistent relationships with country-level variables, signaling to the importance of optimism's future-oriented nature.

Finally, it is important to note that although we cannot be certain why our results differ from those reported in Fischer and Chalmers' (2008) meta-analysis, our study was distinct from their effort in a number of ways. Most notably, they took a meta-analytic approach, gathering existing studies rather than collecting new data. The practical effects of this distinction are that their data are older (the meta-analysis was conducted in 2006; our data were collected in 2017-2018) and less consistent in the methods by which they were gathered across different subsamples of participants.

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.

Concerning 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 strongly related to happiness, 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 facing difficulties overall, the benefits of an optimistic outlook for well-being may be attenuated. Likewise, in more- developed countries, individuals may not be as generally affected by their cultural circumstances (because they are not as severe and also perhaps less variable) and thus are able to draw on their optimism to boost their well-being. 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 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 communities 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

[4] We investigated the possibility that these findings arose because the LOT-R and SHS and 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 = .20, -.20, .31, and -.30, respectively).

is socioeconomically more comfortable, and pursuing higher education in order to improve one's future prospects is, almost by definition, an optimistic enterprise.

These conflicting possibilities illuminate the need to test the generalizability of optimism across age groups. To do so, we compared mean-levels of optimism from four countries in our sample 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 somewhat 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. 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.

Finally, future work should extend the current project and assess country-level predictors of cross-country variation in the relationship between optimism and physical health, which was not assessed in the present study.

Conclusions

Although many questions and opportunities for future research remain, the present investigation provides a rare glimpse at how a trait—one identified, conceptualized, and largely studied using W.E.I.R.D. samples (mostly in the US) 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 generally 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 because some of these associations vary across countries. 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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References

Augusto-Landa, J. M., Pulido-Martos, M., & Lopez-Zafra, E. (2011). Does perceived emotional intelligence and optimism/pessimism predict psychological well-being? *Journal of Happiness Studies*, *12*, 463-474.

Alarcon, G. M., Bowling, N. A., & Khazon, S. (2013). Great expectations: A meta-analytic examination of optimism and hope. *Personality and Individual Differences*, *54*, 821-827.

Bérenger, V., & Verdier-Chouchane, A. (2007). Multidimensional measures of well-being: Standard of living and quality of life across countries. *World Development*, *35*, 1259-1276.

Bonini, A. N. (2008). Cross-national variation in individual life satisfaction: Effects of national wealth, human development, and environmental conditions. *Social Indicators Research*, *87*, 223-236.

Brebner, J., Donaldson, J., Kirby, N., & Ward, L. (1995). Relationships between happiness and personality. *Personality and Individual Differences*, *19*, 251-258.

Dember, W. N., & Brooks, J. (1989). A new instrument for measuring optimism and pessimism: Test-retest reliability and relations with happiness and religious commitment. *Bulletin of the Psychonomic Society, 27*, 365-366.

Carver, C. S., & Gaines, J. G. (1987). Optimism, pessimism, and postpartum depression. *Cognitive Therapy and Research, 11*, 449-462.

Carver, C. S., Pozo, C., Harris, S. D., Noriega, V., Scheier, M. F., Robinson, D. S., ... & Clark, K. C. (1993). How coping mediates the effect of optimism on distress: A study of women with early stage breast cancer. *Journal of Personality and Social Psychology*, *65*, 375.

Carver, C. S., & Scheier, M. F. (2014). Dispositional optimism. *Trends in Cognitive Sciences*, *18*, 293-299.

Carver, C. S., Scheier, M. F., & Segerstrom, S. C. (2010). Optimism. *Clinical Psychology Review, 30*, 879-889.

Chang, E. C., & Sanna, L. J. (2001). Optimism, pessimism, and positive and negative affectivity in middle-aged adults: A test of a cognitive-affective model of psychological adjustment. *Psychology and Aging*, *16*, 524.

Creed, P. A., Patton, W., & Bartrum, D. (2002). Multidimensional properties of the LOT-R: Effects of optimism and pessimism on career and well-being related variables in

adolescents. *Journal of Career Assessment*, *10*, 42-61.

Financial Access Survey, The International Monetary Fund (2016).

Fischer, R., & Chalmers, A. (2008). Is optimism universal? A meta-analytical investigation of optimism levels across 22 nations. *Personality and Individual Differences*, *45*, 378-382.

Furr, R.M., & Funder, D.C. (in press). Persons, situations, and person-situation interactions. In O.P. John & R.W. Robins (Eds.), Handbook of Personality: Theory and Research (4th ed.). New York: Guilford.

Gallagher, M. W., & Lopez, S. J. (2009). Positive expectancies and mental health: Identifying the unique contributions of hope and optimism. *The Journal of Positive Psychology*, *4*, 548-556.

Gallagher, M. W., Lopez, S. J., & Pressman, S. D. (2013). Optimism is universal: Exploring the presence and benefits of optimism in a representative sample of the world. *Journal of Personality*, *81*, 429-440.

Gardiner, G., Guillaume, E., Stauner, N., Bae, J., Han, G., Moon, J., ... & Graf, S. (2019). Assessing personality across 13 countries using the California Adult Q-set. *International Journal of Personality Psychology*, *5*, 1-17.

Heine, S. J., Lehman, D. R., Peng, K., & Greenholtz, J. (2002). What's wrong with cross-cultural comparisons of subjective Likert scales? The reference-group effect. *Journal of Personality and Social Psychology*, *82*, 903–918.

Henrich, J., Heine, S. J., & Norenzayan, A. (2010). Most people are not WEIRD. *Nature, 466,* 29.

Jones, C. I., & Klenow, P. J. (2010). *Beyond GDP? Welfare across countries and time* (No. w16352). National Bureau of Economic Research.

Leung, K., Lam, C.P. Bond, M.H.…and Zhou, Fan (2012). Developing and evaluating the Social Axioms Survey in eleven countries: Its relationship with the five-factor model of personality. *Journal of Cross-Cultural Psychology, 43,* 833-857.

Lewin, K. (1951) Field theory in social science. New York: Harper & Row.

Lucas, R. E. (2007). Adaptation and the set-point model of subjective well-being: Does happiness change after major life events?. *Current Directions in Psychological Science, 16*, 75-79.

Lyubomirsky, S., & Lepper, H. S. (1999). A measure of subjective happiness: Preliminary

reliability and construct validation. *Social indicators research*, *46*, 137-155.

Marshall, G. N., Wortman, C. B., Kusulas, J. W., Hervig, L. K., & Vickers Jr, R. R. (1992). Distinguishing optimism from pessimism: Relations to fundamental dimensions of mood and personality. *Journal of Personality and Social Psychology, 62*, 1067-1074.

Mattis, J. S., Fontenot, D. L., & Hatcher-Kay, C. A. (2003). Religiosity, racism, and dispositional optimism among African Americans. *Personality and Individual Differences*, *34*, 1025-1038.

Neff, K. D., Rude, S. S., & Kirkpatrick, K. L. (2007). An examination of self-compassion in relation to positive psychological functioning and personality traits. *Journal of Research in Personality*, *41*, 908-916.

OECD (2016), The Better Life Index (database), http://www.oecdbetterlifeindex.org/ (accessed on 04 July 2016).

Scheier, M. F., & Carver, C. S. (1992). Effects of optimism on psychological and physical well-being: Theoretical overview and empirical update. *Cognitive Therapy and Research*, *16*, 201-228.

Scheier, M. F., Carver, C. S., & Bridges, M. W. (2001). Optimism, pessimism, and psychological well-being. *Optimism and Pessimism: Implications for Theory, Research, and Practice*, *1*, 189-216.

Scheier, M. F., Carver, C. S., & Bridges, M. W. (1994). Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): A reevaluation of the Life Orientation Test. *Journal of Personality and Social Psychology, 67*, 1063.

Scheier, M. F., & Carver, C. S. (1985). Optimism, coping, and health: Assessment and implication of generalized outcome expectancies. *Health Psychology, 4*, 219-247.

Scheier, M. F., Matthews, K. A., Owens, J. F., Magovern, G. J., Lefebvre, R. C., Abbott, R. A., & Carver, C. S. (1989). Dispositional optimism and recovery from coronary artery bypass surgery: The beneficial effects on physical and psychological well-being. *Journal of Personality and Social Psychology*, *57*, 1024-1040.

Sharpe, J. P., Martin, N. R., & Roth, K. A. (2011). Optimism and the Big Five factors of personality: Beyond neuroticism and extraversion. *Personality and Individual Differences*, *51*, 946-951.

Slottje, D. J. (1991). Measuring the quality of life across countries. *The Review of Economics*

and Statistics, 684-693.

Stroup, M. D. (2007). Economic freedom, democracy, and the quality of life. *World Development*, *35*, 52-66.

Veenhoven, R. (1999). Quality-of-life in individualistic society. *Social Indicators Research*, *48*, 159-188.

Vickers, K. S., & Vogeltanz, N. D. (2000). Dispositional optimism as a predictor of depressive symptoms over time. *Personality and Individual Differences*, *28*, 259-272.

Williams, D. G. (1992). Dispositional optimism, neuroticism, and extraversion. *Personality and Individual Differences*, *13*, 475-477.

You, J., Fung, H. H., & Isaacowitz, D. M. (2009). Age differences in dispositional optimism: A cross-cultural study. *European Journal of Ageing*, *6*, 247.

Table 1

Demographic Information by Country

Country	Mean age	% female	Total N	Country	Mean age	% female	Total N
Argentina	24.28	87.86	140	Netherlands	20.13	81.33	300
Australia	19.84	76.02	196	New Zealand	19.19	86.05	129
Austria	21.26	81.42	113	Nigeria	24.75	33.58	134
Bolivia	21.01	57.78	135	Norway	23.89	74.21	159
Brazil	23.68	72.17	309	Pakistan	20.61	50.00	114
Bulgaria	25.05	70.67	150	Palestine	22.17	83.39	295
Canada	21.86	79.14	302	Peru	22.65	93.06	72
Chile	21.45	66.41	384	Philippines	19.71	69.18	331
China	22.64	75.82	426	Poland	22.35	83.33	234
Colombia	21.68	74.03	181	Portugal	21.66	87.82	156
Croatia	21.46	64.68	218	Romania	22.84	57.06	177
Czech Republic	22.65	80.83	193	Russia	21.92	78.48	158
Denmark	22.94	79.92	244	Senegal	23.32	47.48	634
Estonia	25.88	83.96	293	Serbia	19.73	133.15	184
France	22.60	85.53	228	Singapore	20.93	77.94	136
Georgia	20.29	80.00	140	Slovakia	22.41	69.59	148
Germany	24.36	77.53	454	Slovenia	20.43	57.38	122
Greece	22.55	90.58	223	South Africa	22.21	66.67	255
Hong Kong	19.00	59.15	142	South Korea	22.35	58.36	281
Hungary	21.76	215.91	176	Spain	19.73	85.20	419
India	22.38	69.68	221	Sweden	†	72.22	126
Indonesia	21.85	52.71	129	Switzerland	22.37	85.09	751
Israel	25.35	61.40	171	Taiwan	19.71	76.54	162

Italy	21.86	64.57	717	Thailand	19.24	80.32	188
Japan	22.58	61.98	242	Turkey	21.09	68.29	328
Jordan	19.87	80.85	141	Uganda	22.63	64.52	93
Kenya	21.17	65.47	139	Ukraine	20.6	108.23	243
Latvia	24.87	82.84	169	United Kingdom	25.64	89.71	136
Lithuania	20.26	78.47	144	United States	19.85	67.72	1360
Malaysia	21.53	71.05	228	Vietnam	19.05	77.25	167
Mexico	23.88	58.37	245	World sample	21.92	76.56	15,165

Note: † = Data not available.

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	3.4	3.41
Mexico	3.89	3.79	3.83	Czech Republic	3.46	3.38	3.4
Nigeria	3.78	3.74	3.77	Malaysia	3.31	3.44	3.4
Kenya	3.84	3.7	3.75	Croatia	3.42	3.38	3.39
Uganda	3.61	3.82	3.75	Germany	3.4	3.37	3.37
Peru	3.67	3.61	3.67	Switzerland	3.36	3.35	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	3.6	3.61	Greece	3.44	3.26	3.31
Romania	3.55	3.64	3.6	United Kingdom	3.54	3.3	3.31
Indonesia	3.57	3.6	3.59	Netherlands	3.44	3.27	3.3
Ukraine	3.49	3.56	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	3.2	3.29
Georgia	3.64	3.53	3.55	Sweden	3.3	3.24	3.26
Palestine*	3.72	3.5	3.54	Turkey	3.28	3.22	3.24
Argentina*	3.75	3.48	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	3.2	3.22
India	3.47	3.53	3.51	Philippines	3.18	3.22	3.2
Russia	3.65	3.47	3.51	Slovakia	3.26	3.18	3.2
Bulgaria	3.46	3.5	3.49	France	3.27	3.14	3.15
Hungary	3.55	3.49	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*	3.3	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	3.52	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	3.34	3.4	3.41	World sample	3.40	3.37	3.41

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

Table 3

Correlations between Country-Level Optimism and Country-Level Indicators

	M (SD)	range (min-max)	r	# of countries in analysis
Societal characteristics				
Employment rate	56.48 (9.83)	32.25-84	.16	58
Gross domestic product actual growth	2.72 (2.05)	-3.30-8.20	.13	60
Gross domestic product projected growth	3.06 (1.61)	0.58-79.89	.33*	60

Gross domestic product (per capita)	20.84 (19.82)	0.58-79.89	-.46**	60
Income inequality (GINI)	35.50 (7.1)	24.70-52.70	.28	43
Human Development (HDI)	0.80 (0.12)	0.49-0.95	-.48**	60
Freedom of choice	0.78 (0.12)	0.48-0.95	-.17	60
Perceptions of corruption	0.73 (0.22)	0.05-0.95	.36**	59
Confidence in government	0.43 (0.18)	0.13-0.93	-.08	59
Democratic quality	0.29 (0.78)	-0.74- -0.08	-.39**	60
Population density	380.83 (1,333)	3.15-7,908	-.32	60
Quality of life				
Life expectancy	76.23 (6.49)	53.00-84.3	-.54**	60
Infant mortality	11.37 (14.18)	1.80-66.9	.34*	58
Suicide rate	10.83 (5.01)	2.5-26.10	.04	58
Homicide rate	3.42 (6.17)	0.20-26.70	.34	33
Personal safety	67.58 (13.47)	39.50-89.60	-.21	33
Long work hours	9.62 (8.61)	0.18-39.26	.01	33
Leisure time	14.77 (0.81)	12.24-16.36	-.15	33
Cultural values				
Harmony	4.05 (0.3)	3.42-4.62	-.11	57
Mastery	3.95 (0.15)	3.71-4.41	-.05	57
Embeddedness	3.73 (0.35)	3.10-4.45	.39**	57
Hierarchy	2.35 (0.45)	1.49-3.49	.11	57
Egalitarianism	4.68 (0.28)	4.13-5.27	-.20	57
Affective autonomy	3.53 (0.47)	2.39-4.39	-.35*	57
Intellectual autonomy	4.38 (0.36)	3.66-5.13	-.33*	57

Note: $^{*}p \leq .01$; $^{**}p \leq .001$.

Table 4

Results of Multilevel Models Predicting Personal Characteristics from Optimism

	β	95% CI	t	ΔX^2
Optimism predicting:				
Extraversion	0.39	.36, .41	29.39**	63.90**
Sociability	0.25	.22, .28	19.10**	52.96**
Energy	0.40	.37, .43	29.29**	64.23**
Assertiveness	0.28	.26, .31	21.41**	41.20**
Agreeableness	0.28	.25, .30	25.34**	11.46*
Compassion	0.18	.16, .20	16.17**	26.76**
Respect	0.18	.15, .20	13.51**	24.72**
Trust	0.29	.27, .32	24.56**	24.88**
Conscientiousness	0.22	.20, .25	16.43**	42.59**
Organization	0.13	.10, .15	10.50**	18.99**
Productive	0.26	.24, .28	22.14**	27.85**
Responsible	0.18	.15, .21	11.71**	71.76**
Negative emotionality	-0.49	-.52, -.45	-29.68**	103.82**
Anxiety	-0.35	-.39, -.31	-19.16**	97.66**
Depression	-0.58	-.61, -.55	36.66-**	101.41**
Emotionality (moodiness)	-0.31	-.34, -.29	-24.06**	38.06**
Openness	0.17	.14, .20	13.31**	33.73**
Intellect	0.12	.09, 14	8.68**	40.94**
Aesthetic	0.08	.06, .10	7.82**	6.17
Creativity	0.21	.19, .24	16.68**	25.72**
Honesty	0.07	.04, .10	5.05**	29.37**
Sincerity	0.02	.001, 05	2.08	10.55*
Fairness	0.13	.10, .17	7.57**	69.19**
Greed	0.03	.008, .06	2.63	35.20**
Modesty	-0.03	-.05, -.001	-2.05	30.00**
Narcissism	0.01	-.01, .04	1.03	19.34**
Admiration	-0.09	-.12, -.07	-7.35**	20.06**
Rivalry	0.11	.09, .13	10.00**	18.54**
Religiosity	0.14	.12, .17	11.63**	41.05**
Gender	0.005	-.02, .03	0.50	8.37

Subjective happiness	0.58	.55, .60	42.82**	60.97**
Interdependent happiness	0.45	.42, .48	31.24**	55.50**

Note: **p ≤ .001; * p ≤ .01. 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.

Table 5

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

	β	95% CI	t
GDP per capita x Optimism predicting:			
Negative emotionality	-.39	-.54, -.25	-5.25**
Anxiety	-.46	-.61, -.31	-6.10**
Depression	-.32	-.46, -.17	-4.28**
Subjective happiness	.23	.10, .36	3.43*
Interdependent happiness	.19	.04, .34	2.56
GDP projected growth x Optimism predicting:			
Negative emotionality	.42	.30, .58	5.10**
Anxiety	.45	.28, .62	5.15**
Depression	.44	.29, .58	6.07**
Subjective happiness	-.27	-.41, -.13	-3.84**
Interdependent happiness	-.17	-.33, -.006	-2.04
GDP actual growth x Optimism predicting:			
Negative emotionality	.14	-.03, .31	1.58
Anxiety	.14	-.05, .32	1.43
Depression	.16	-.001, .32	1.94
Subjective happiness	-.09	-.22, .05	-1.27
Interdependent happiness	-.02	-.17, .13	-0.25
Income inequality x Optimism predicting:			
Negative emotionality	.07	-.13, .27	0.68
Anxiety	.31	-.09, .53	2.78*
Depression	.36	-.13, .20	0.44
Subjective happiness	-.14	-.29, .008	-1.85
Interdependent happiness	-.09	-.31, .12	-0.83
Infant mortality x Optimism predicting:			

Negative emotionality	.45	.32, .58	6.97**
Anxiety	.50	.37, .64	7.49**
Depression	.41	.29, .53	6.62**
Subjective happiness	-.33	-.44, -.22	-5.84**
Interdependent happiness	-.18	-.32, -.04	-2.54
Human Development x Optimism predicting:			
Negative emotionality	-.82	-1.00, -.63	-8.50**
Anxiety	-.88	-1.08, -.68	-8.66**
Depression	-.76	-.93, -.56	-7.96**
Subjective happiness	.58	.41, .77	6.53**
Interdependent happiness	.34	.11, .58	2.84*
Life Expectancy x Optimism predicting:			
Negative emotionality	-1.10	-1.46, -.76	-6.18**
Anxiety	-1.20	-1.57, -.82	-6.27**
Depression	-.99	-1.33, -.66	-5.87**
Subjective happiness	.72	.40, 1.03	4.45**
Interdependent happiness	.46	.09, .83	2.41

Note: ** $p \leq .001$; * $p \leq .01$.

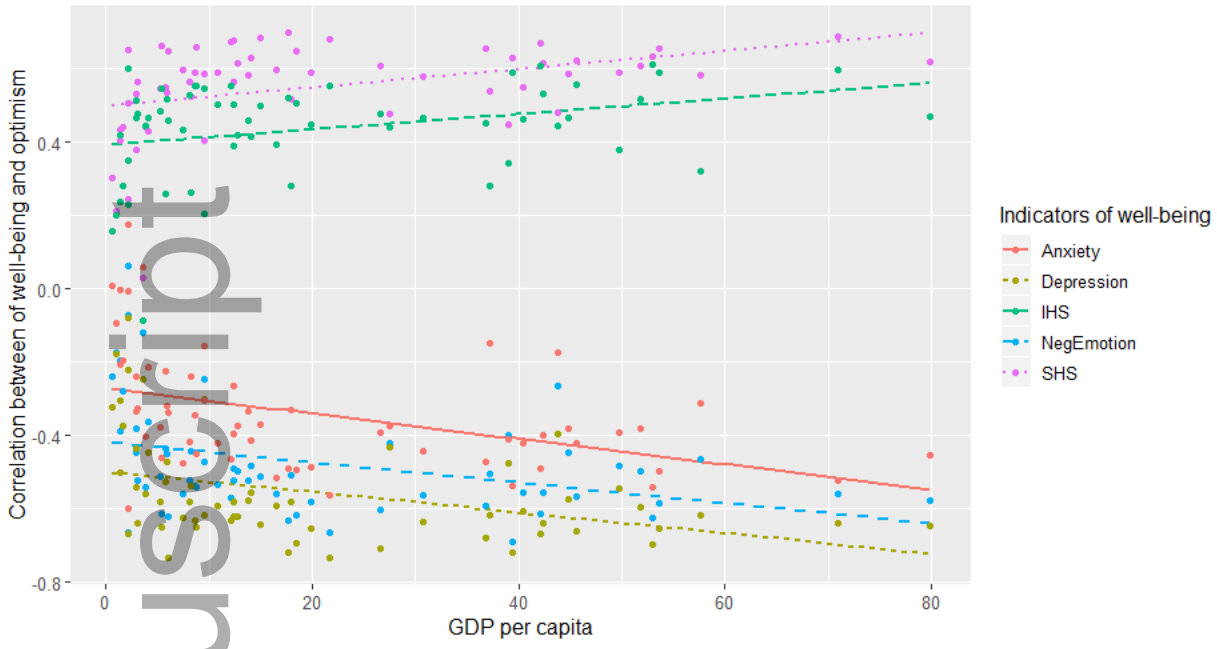

Figure 1a. Correlations between GDP per capita and the associations between optimism and various indicators of well-being. SHS = Subjective Happiness Scale, IHS = Interdependent Happiness Scale

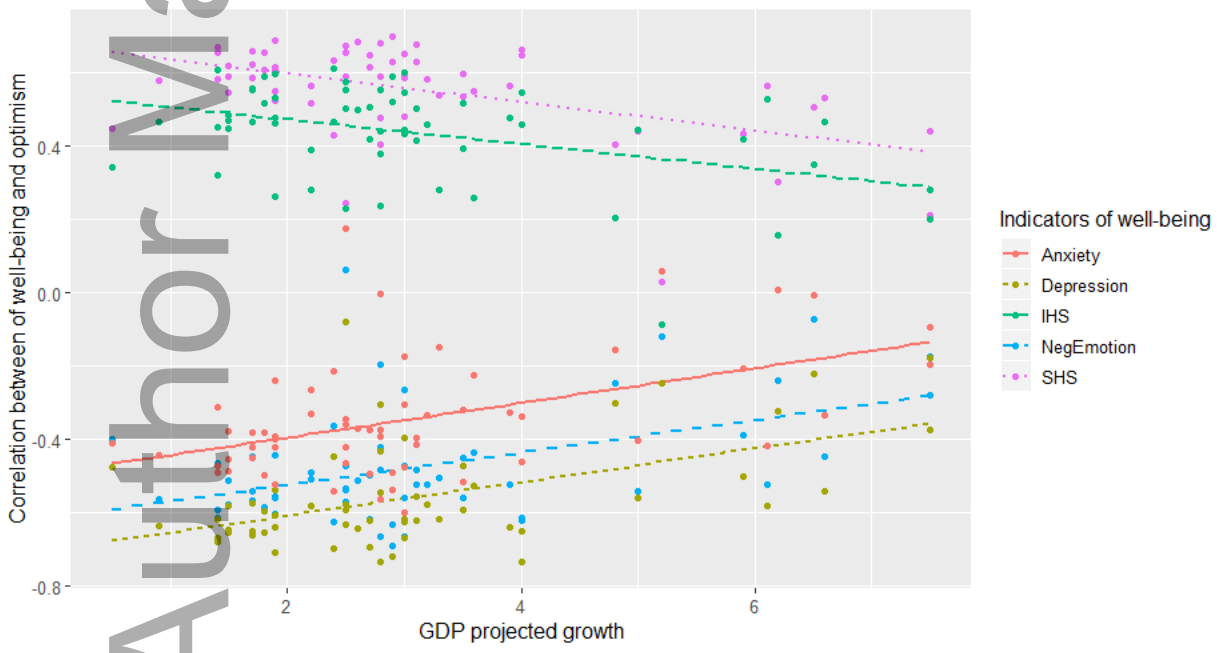

Figure 1b. Correlations between GDP projected growth and the associations between optimism and various indicators of well-being. SHS = Subjective Happiness Scale, IHS = Interdependent Happiness Scale

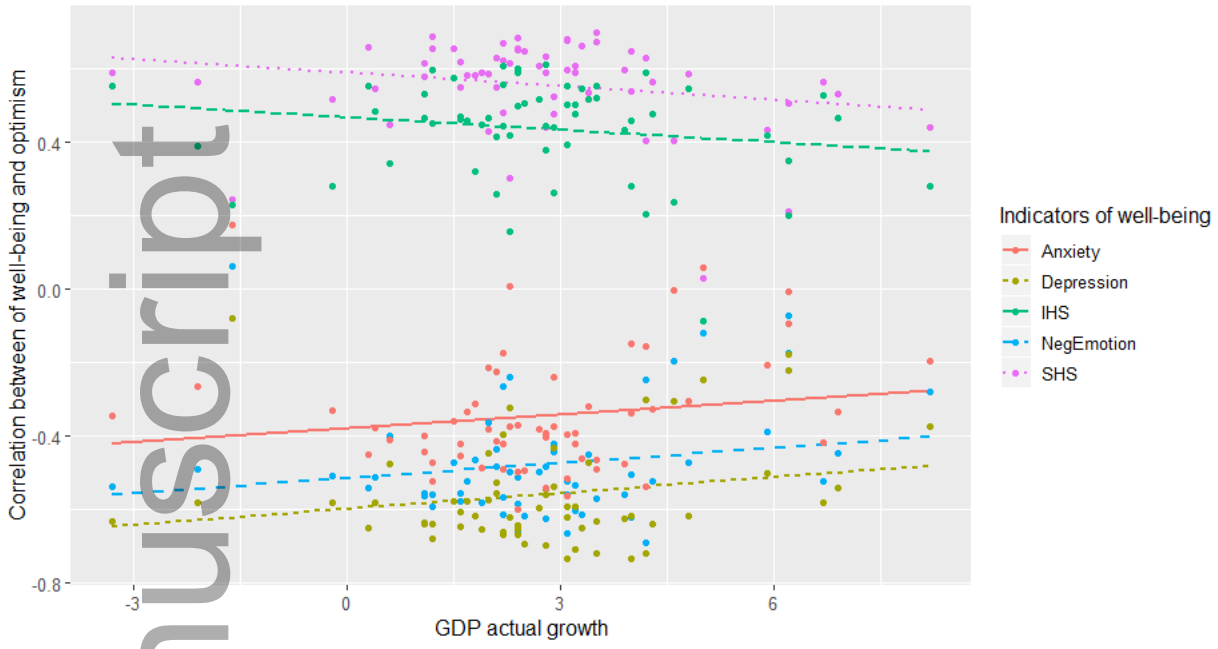

Figure 1c. Correlations between GDP actual growth and the associations between optimism and various indicators of well-being. SHS = Subjective Happiness Scale, IHS = Interdependent Happiness Scale.

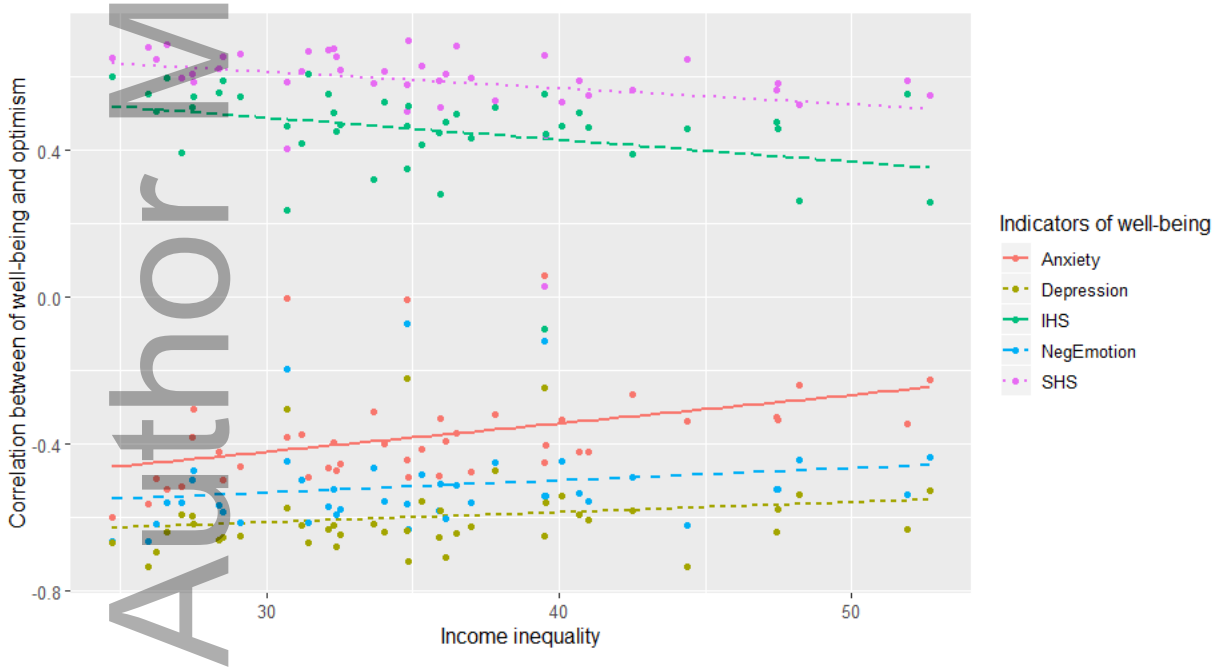

Figure 1d. Correlations between income inequality and the associations between optimism and various indicators of well-being. SHS = Subjective Happiness Scale, IHS = Interdependent Happiness Scale

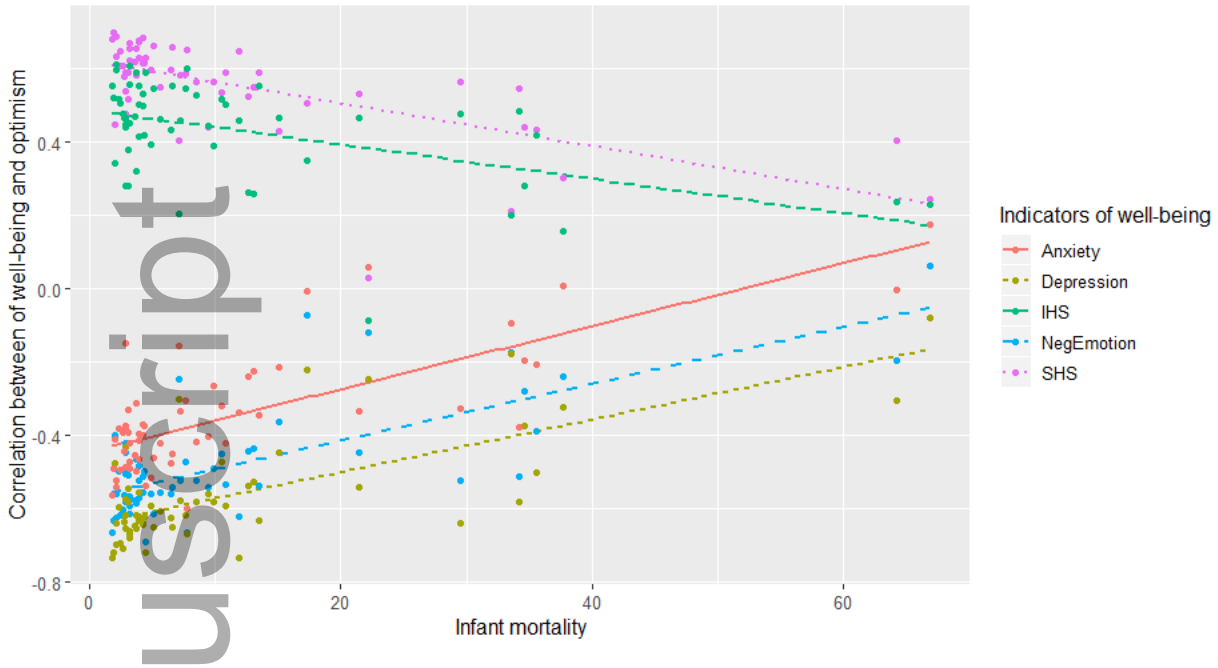

Figure 1e. Correlations between infant mortality rate and the associations between optimism and various indicators of well-being. SHS = Subjective Happiness Scale, IHS = Interdependent Happiness Scale

Figure 1f. Correlations between the Human Development Index (HDI) and the associations between optimism and various indicators of well-being. SHS = Subjective Happiness Scale, IHS = Interdependent Happiness Scale

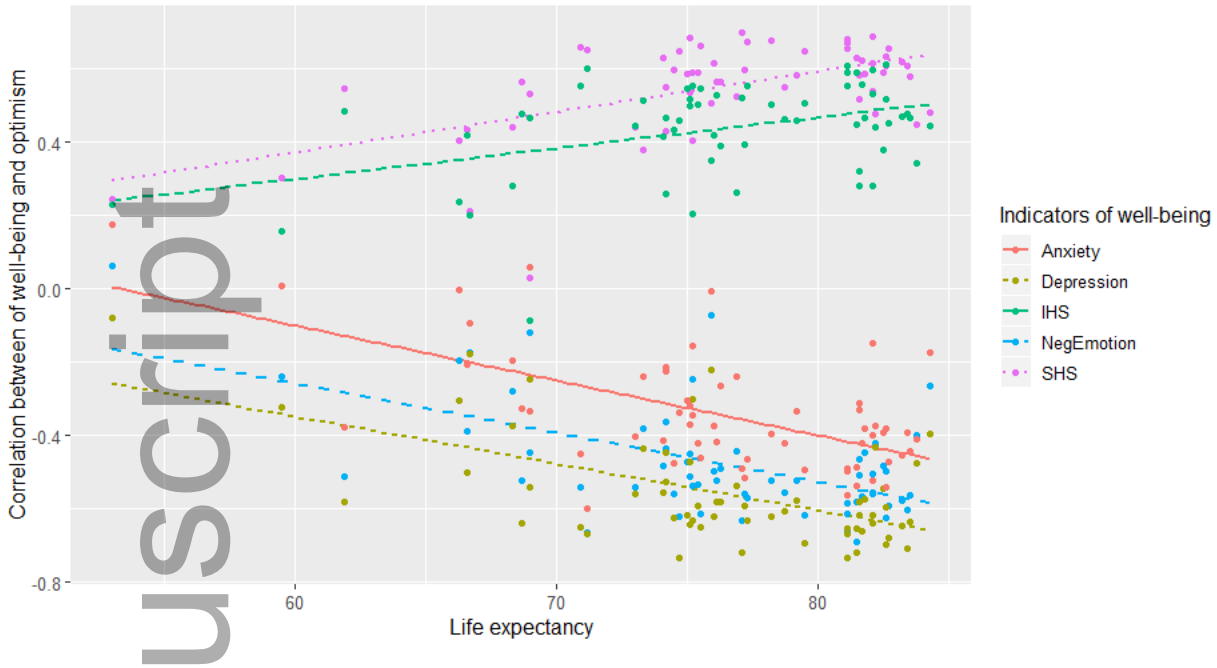

Figure 1g. Correlations between life expectancy and the associations between optimism and various indicators of well-being. SHS = Subjective Happiness Scale, IHS = Interdependent Happiness Scale