Subjective Well-Being and Prosociality Around the Globe: Happy People Give More of Their Time and Money to Others

Kostadin Kushlev[1] ⓘ, Nina Radosic[2], and Ed Diener[3,4]

Abstract

Subjective well-being (SWB) is positively related to prosocial giving and helping others, but so far, research has not explored the association of individual aspects of well-being with prosocial behavior across the world. We used a representative sample from the Gallup World Poll across 163 countries from 2006 to 2017 to explore the relationship between each aspect of well-being and prosocial behavior ($N = 1,797,630$). We found that different aspects of SWB are not equally associated with prosocial behavior: While life satisfaction and positive affect consistently predicted being more prosocial across the globe, negative affect did not consistently predict being more or less prosocial. We further explore economic and cultural moderators of these relationships. Our findings underline the importance of studying the effects of the different components of SWB separately, indicating that life satisfaction and positive emotions—more so than negative emotions—consistently predict being more prosocial across the globe.

Keywords

subjective well-being, happiness, prosocial behavior, Gallup World Poll

Who engages in more prosocial behavior—happy people or unhappy people? Previous research has shown that happiness and prosocial behavior are positively related (Batson et al., 1979; Borgonovi, 2008; Dunn et al., 2008; Meier & Stutzer, 2008; Rhoads et al., in press; Wilson & Musick, 1999) and that the relationship is both causal and reciprocal (Aknin et al., 2012, 2018; Boehm & Lyubomirsky, 2008; Lyubomirsky et al., 2005). Research also suggests, however, that unhappiness—or experiencing negative emotions—also sometimes predicts some prosocial action (Cialdini et al., 1973; Frijda et al., 1989; Iyer et al., 2007; Roseman et al., 1994). Using a sample of over 1 million individuals across 163 nations, we explore whether prosocial behavior is associated with all or only some of the components of subjective well-being (SWB): life satisfaction, positive affect (PA), and negative affect (NA; Diener, 1984, 2000).

Prosocial Behavior and PA

Past research has established a causal, reciprocal relationship between prosocial behavior and PA. Aknin and her colleagues (2012), for example, randomly assigned participants to recall a previous purchase that they spent either on themselves or on others; all participants were then given a monetary windfall and asked whether they want to spend it on themselves or others. The participants who recalled spending more money on others indicated feeling happier on the Subjective Happiness Scale (Lyubomirsky & Lepper, 1999). Importantly, the happier participants felt, the more likely they were to spend the windfall

money on others. This reciprocal relationship between PA and a range of prosocial behaviors has been replicated across a dozen studies with samples from across the globe (for a review, see Aknin et al., 2019).

Prosocial Behavior and Life Satisfaction

The evidence for a relationship between prosocial behavior and life satisfaction comes primarily from correlational research. In one study with over 200,000 participants in 136 countries from the Gallup World Poll (GWP), life satisfaction and prosocial spending were positively related within most countries, even after controlling for factors such as income and social support (Aknin et al., 2013). Prosocial behavior, of course, encompasses not only giving away one's money but also giving away one's time in the form of volunteering (Binder, 2014; Thoits & Hewitt, 2001) or helping others (Layous et al., 2017). People in countries higher in life satisfaction are more likely to engage in

[1] Department of Psychology, Georgetown University, Washington, DC, USA
[2] University of California Riverside, CA, USA
[3] University of Virginia, Charlottesville, VA, USA
[4] Gallup, Omaha, Nebraska

Corresponding Author:
Kostadin Kushlev, Department of Psychology, Georgetown University, 37th and O Streets, N.W., Washington, DC 20057, USA.
Email: kostadin.kushlev@georgetown.edu

a range of prosocial behaviors, including charitable donations, volunteering, everyday helping, blood donations, organ donations, and others (Rhoads et al., in press).

Prosocial Behavior and NA

Evidence is mixed regarding the relationship between prosocial behavior and NA. Some studies have documented an inverse relationship between NA and helping others (Moore et al., 1973; Underwood et al., 1977). Other studies, however, have found that NA predicts greater helping (Cialdini et al., 1973; Cialdini & Kenrick, 1976; Manucia et al., 1984). A meta-analysis of 85 studies found that negative mood induction had a small effect on helping of .225 in standardized units; this average effect, however, was qualified by a large standard deviation of .816, suggesting a great deal of variability that includes both positive and negative effects of NA on helping (Carlson & Miller, 1987). Indeed, research suggests that the effect of NA on helping depends on a range of situational and dispositional factors (Cialdini et al., 1973; Cialdini & Kenrick, 1976; Manucia et al., 1984; Rosenhan et al., 1981; Thompson et al., 1980). Cultural differences may also play a role, further increasing the variability in the relationship—though this possibility has rarely been explored as the literature on NA and helping is based almost exclusively on Western, educated, industrialized, rich, and democratic (WEIRD) samples (Henrich et al., 2010). Furthermore, while PA has been linked with a range of prosocial behaviors—including donating money, volunteering, and interpersonal helping (Isen, 1999)—the evidence for the effects of NA on prosocial behavior is primarily based on interpersonal helping. Thus, the relationship between NA and prosocial behavior beyond interpersonal helping remains largely unexplored.

The Present Research

We use correlational data from the GWP, consisting of over 1 million individuals across 163 countries, to characterize the size of the relationship between prosocial behavior and each separate component of SWB—life satisfaction, PA, and NA (Diener, 1984, 2000; Diener & Emmons, 1984). We thus go beyond past research with the GWP, which has typically examined the relationship between a single indicator of SWB and a single indicator of prosocial behavior, such as prosocial spending (e.g., Aknin et al., 2013). Indeed, in addition to prosocial spending, we include volunteering and helping strangers as measures of prosocial behavior. Given previous research suggesting that life evaluation predicts a range of prosocial behaviors (Rhoads et al., in press), we expect to find a positive relationship between life satisfaction and our broader composite of prosocial behavior. We also hypothesize that PA will predict more prosocial behavior (e.g., Aknin et al., 2018). We make no predictions regarding the association of NA with prosocial behavior because of (1) the large variability in the effects across studies and situations, (2) the lack of evidence for how the relationship may vary across cultures, and (3) the

dearth of evidence on prosocial behavior beyond interpersonal helping.

First, we estimate the bivariate relationships between the components of SWB and prosocial behavior using only the variance between individuals within country. This allows us to compare the standardized effect sizes of each SWB component with prosocial behavior and put those effect sizes in the context of the predictive power of related constructs (e.g., stress, social support) and key demographics (e.g., age, sex, income). Next, we use multilevel models to estimate the unique effects of each SWB component at the person level while also controlling for established person-level predictors of SWB and prosocial behavior. Finally, we examine whether any country-level variables (e.g., gross domestic product [GDP], inequality, culture; Hofstede et al., 2010) moderate how strongly each SWB component predicts prosocial behavior across the globe.

Method

Participants

Between 2006 and 2017, the GWP representatively sampled $N = 1{,}797{,}630$ people in 163 nations, both through random digit dialing and door-to-door interviews. Our primary outcome variable, prosocial behavior, was assessed in $N = 1{,}606{,}350$. Table 1 presents the exact sample size by key measures and sample demographics. See Table S1 for the bivariate pattern of sample size.

Measures

Prosocial behavior. Respondents were asked whether or not (*yes* or *no*) in the past month, they had *donated money*, *volunteered time*, and *helped a stranger* (see Table 1 for descriptives). See Table S2 for intercorrelations between items.

SWB: Life satisfaction. Gallup assesses life satisfaction with Cantril's (1965) Self-Anchoring Ladder. The ladder is a measure of the cognitive–evaluative component of SWB. Participants respond on an 11-point scale after imagining their life as a ladder with steps numbered from 0 to 10, where 0 represents the *worst possible life* for them and 10 represents the *best possible life* for them. Participants are then asked: *On which step of the ladder, would you say you personally feel you stand at this time?* This single-item measure is a well-validated measure of life satisfaction and has been used widely in national and international polls of well-being (Deaton, 2008; Diener et al., 2010). See Table 1 for descriptives.

SWB: PA. PA was measured by asking participants to report how they felt and what they did on the previous day (i.e., "yesterday"). Reports of daily emotions capture not only daily fluctuations but also dispositional differences between individuals (Funder & Ozer, 2019). Furthermore, emotions felt recently are remembered more vividly as episodic memories than those felt longer ago and are less vulnerable to influences such as priming (Robinson & Clore, 2002a, 2002b). To form a

Table 1. Descriptive Statistics.

Variable	N	Mean	SD	Minimum	Maximum
Prosocial behavior	1,606,350	0.33	0.32	0	1
Helped a Stanger	1,583,562	0.48	0.50	0	1
Volunteered	1,595,872	0.21	0.40	0	1
Donated	1,592,603	0.31	0.46	0	1
Life satisfaction	1,765,998	5.49	2.29	0	10
Negative affect	1,716,302	0.26	0.33	0	1
Worry	1,706,864	0.36	0.47	0	1
Sadness	1,704,135	0.22	0.41	0	1
Anger	1,687,233	0.20	0.40	0	1
Stress	1,602,916	0.31	0.46	0	1
Pain	1,708,045	0.29	0.45	0	1
Positive affect	1,735,474	0.71	0.39	0	1
Smile and laugh	1,666,694	0.71	0.39	0	1
Enjoyment	1,710,496	0.70	0.45	0	1
Treated with respect	1,699,309	0.87	0.33	0	1
Well-rested	1,704,967	0.68	0.47	0	1
Learned something new	1,701,101	0.52	0.50	0	1
Count for help	1,626,009	0.81	0.40	0	1
Religion important	1,533,724	0.73	0.45	0	1
Sex	1,797,608	1.53		1 = male	2 = female
Age	1,794,330	41.11	17.75	13.00	101.00
Income	1,398,173	8,358.41	17,734.00	0.00	498,907.58

Note. The N differs between variables because not all questions were asked in all countries. To use all available data, composites were computed even when a single component item was measured; thus, the N for the composites can be larger than the N for any of the component items. Income is shown in international dollars per household member.

composite of PA, we followed past research with the GWP (e.g., Diener & Tay, 2015; Helliwell & Wang, 2012; Joshanloo & Jovanovic, 2021; Kahneman & Deaton, 2010) and took the mean of two survey questions: whether or not participants had experienced *smiling/laughing* and *enjoyment* "a lot of the day yesterday" (*yes* or *no* for each item), α = .61.

SWB: NA. NA was also measured by asking participants to report their feelings on the previous day. Based on past research (e.g., Helliwell & Wang, 2012), we formed a composite by averaging the responses to three items: whether or not people had experienced *worry*, *anger*, and *sadness* "a lot of the day yesterday," α = .62. Consistent with past research, positive and NA were moderately associated at the person-level (within-country), r = −.34; life satisfaction was also associated with both PA, r = .20, and NA, r = −.20 (see Table 2).

Related constructs. The GWP collects additional measures of positive and negative experiences. Thus, in addition to worry, sadness, and anger, participants were asked whether or not for a lot of the day yesterday they had experienced *stress* and *pain*. Although closely associated with NA, measures of stress and pain show a different pattern of associations with economic indicators and societal issues compared to measures of NA (Ng et al., 2009). Due to this difference in correlation patterns (see Table 2 and Table S3), the measures of stress and pain were used as covariates. Similarly, in addition to smiling/laughing and enjoyment, participants were asked whether or not yesterday they *felt well-rested*, *learned something new*, and

were treated with respect. Following past research (e.g., Diener & Tay, 2015; Helliwell & Wang, 2012; Joshanloo & Jovanovic, 2021; Kahneman & Deaton, 2010) and theory (Diener, 1984; Diener, Heintzelman, et al., 2017; Diener, Ng, et al., 2010), we treated these items as covariates rather than as components of PA. In addition, following Aknin et al. (2013), we included social support as a covariate, measured as follows, "If you were in trouble, do you have relatives or friends you can count on to help you whenever you need them, or not?" Finally, since religion has been associated with both prosociality and well-being (Furrow et al., 2010; Green & Elliott, 2009; Witter et al., 1985), we also included religiosity as a covariate: "Is religion an important part of your daily life?" See Table 1 for descriptives and coding information.

Demographic controls. We controlled for sex, age, and income. Sex was measured on a dichotomous scale (1 = *male*, 2 = *female*). Income data are not available for the 2006, 2007, and 2008 Gallup surveys. From 2009 to 2017, participants reported their monthly household income in their local currency, which was then annualized to compute annual household income. Annual household income was divided by the number of persons in a household to form a measure of per capita income. Local income was converted to international dollars using the World Bank's individual consumption purchasing power parity conversion factor, making income estimates comparable across all countries (see Table 1). We log-transformed per capita income by $\log_{10}$ (Income + 1). For

Table 2. Within-Country Correlations.

Variable	1	2	3	4	5	6	7	8	9	10	11	13	13
1. Prosocial													
2. Life satisfaction	.09												
3. Positive affect	.11	.20											
4. Well-rested	.02	.13	.34										
5. Treated with respect	.04	.10	.26	.21									
6. Learned something new	.15	.14	.31	.15	.13								
7. Negative affect	.00	−.20	−.34	−.27	−.20	−.12							
8. Stress	.02	−.12	−.23	−.24	−.13	−.06	.46						
9. Pain	.00	−.13	−.21	−.22	−.08	−.09	.32	.21					
10. Count for help	.06	.17	.13	.09	.10	.09	−.12	−.08	−.09				
11. Religion important	.07	−.01	.02	.02	.03	.01	.01	−.01	.04	.01			
12. Sex	−.03	.01	.00	−.02	.00	−.03	.05	.02	.05	.00	.08		
13. Age	.00	−.10	−.12	−.02	.02	−.11	.05	−.02	.18	−.09	.10	.00	
14. Income (log10)	.10	.20	.09	.06	.06	.09	−.10	−.05	−.08	.12	−.05	−.06	.02

Note. Sex was coded as 1 = *male*, 2 = *female*. Positive affect was treated as a composite of smile/laugh and enjoyment yesterday (measured as 0 = *no*, 1 = *yes*). Negative affect is a composite of anger, sadness, and worry yesterday (measured as 0 = *no*, 1 = *yes*). Prosocial behavior is a composite of "donated money," "volunteered time," and "helped a stranger" in the past month (measured as 0 = *no*, 1 = *yes*). Stress, pain, well-rested, treated with respect, and learned something new are all coded 0 = *no*, 1 = *yes*. See Table S1 for exact bivariate sample sizes. See Tables S2 and S3 for correlations between each component item of our positive affect, negative affect, and prosocial indices.

further information on the GWP methodology, see https://osf.io/a9gkq/?view_only=df2d2381d91f482cb09ecd6b2c259e64

Country-level factors. To explore what factors may moderate the strength of the relationship between prosocial behavior and each SWB component at the country level, we combined the GWP data with country-level economic and cultural factors. Thus, we obtained each country's GDP and Gini coefficient from the World Bank (https://data.worldbank.org). The Gini coefficient is a measure of income distribution in a given population; higher values of the Gini coefficient indicate greater income inequality. To match the period available in the GWP, we computed the country means based on data from 2006 to 2017 for both GDP (N = 155, M = US\$19,484, SD = US\$20,249) and the Gini index (N = 138, M = 38.33, SD = 7.90).

We also obtained six indicators of country-level cultural differences based on Hofstede's model of national culture (Hofstede, 2001; Hofstede et al., 2010). In his original model, Hofstede (1980, 2001) identified four dimensions of national culture based on a large international survey of IBM employees across 50 countries containing more than 100,000 responses. The relative national scores across those dimensions have been extended to additional countries and replicated in other matched international samples, including among managers of other organizations, civil servants, and country elites (Hofstede et al., 2010). The four original dimensions are (1) individualism, defined the extent to which people's self-image is defined in terms of "I" versus "we" ($N_{\text{countries}}$ = 69, M = 43.72, SD = 24.01), (2) power-distance, which captures the extent to which people accept and expect a hierarchical distribution of power in society ($N_{\text{countries}}$ = 69, M = 59.13, SD = 21.86), (3) masculinity, which captures society's preference for achievement and competitiveness versus cooperation

($N_{\text{countries}}$ = 69, M = 48.72, SD = 19.83), and (4) uncertainty avoidance, which expresses the degree to which society embraces rigid codes of conduct ($N_{\text{countries}}$ = 69, M = 67.78, SD = 23.71). Hofstede's current model includes two additional dimensions identified based on international samples from the Chinese Values Survey (Hofstede & Bond, 1988) and the World Values Survey (Hofstede et al., 2010). These dimensions include (5) long-term orientation, or the degree to which societies are open to change versus honor traditional norms of behavior ($N_{\text{countries}}$ = 92, M = 45.91, SD = 24.07) and (6) indulgence, capturing the extent to which society embraces pleasure and hedonic gratification ($N_{\text{countries}}$ = 92, M = 45.16, SD = 22.35). The data for these indices are available on the Open Science Framework: https://osf.io/a9gkq/?view_only=df2d2381d91f482cb09ecd6b2c259e64

The exact wording of the questions used to assess the six dimensions of national culture has changed over time and varies by survey and sample. To obtain each country's score, countries are placed along a given dimension relative to each other based on factor analyses; the scores are then standardized along a 0- to 100-point scale (Hofstede et al., 2010). Researchers interested in extending and replicating these dimensions can use the Values Survey Module available on https://geerthofstede.com.

Results

Because we are working with a very large sample, we do not use null hypothesis significance testing to draw conclusions. Indeed, sensitivity analyses indicated that our person-level sample size allows us to detect effects as small as ρ = .003 with 95% power (α = .05, two-tailed). Instead, we focus on reporting and interpreting the standardized effect sizes for each association. We base our interpretation of effect sizes on Funder

and Ozer's (2019) "New Guidelines." In particular, effect sizes of $r = .05$ are considered negligible when applied to single events but potentially consequential in the not-very-long run. For example, the correlation between a baseball players' single turn and batting and his overall batting average is minute at first glance, $r = .056$ (Abelson, 1985). Across hundreds of battings in a season ("not-very-long run"), however, these small effects add up to determine the best and worst players—the winners and the losers (Funder & Ozer, 2019). Because we are examining the correlation of affect during a single day with prosocial behavior over 1 month, we consider $r = .05$ to signify a potentially consequential relationship between daily affect and monthly prosocial behavior. Life satisfaction should contain less random variance due to daily variation than PA and NA because people are asked to evaluate their life in general rather than during a single day (Willroth et al., 2020). Thus, an effect of consequence between life satisfaction and prosocial behavior should be closer to $r = .10$. To allow us to interpret effect size in terms of Pearson r, we estimated the within-country correlation coefficients (Table 2).

Within-Country Correlations

To provide a standardized effect size for each bivariate relationship as Pearson correlation coefficient, r, we begin our analyses by estimating the within-country correlations by using function *StatsBy* from package *psych* (Version 2.1.3; Revelle, 2020) in R 4.0.5 (R Core Team, 2021) on R Studio (Version 1.4) for *macOS* (Version 10). The within-country correlations are estimated by centering each person's score by the country mean, thus removing any between-country variance (Pedhazur, 1997). This is conceptually similar to computing a sample-size-weighted meta-analytic correlation. See Table 2 for the within-country Pearson correlations between predictors and outcomes, as well as between different predictors and controls.

Life satisfaction predicted monthly prosocial behavior with a potentially consequential effect size, $r = .09$. PA predicted greater monthly prosocial behavior with an effect size of $r = .11$. In contrast, the bivariate relationship between NA and prosocial behavior was virtually nonexistent, $r = .0048$. Similar to the PA composite, learning something new, $r = .15$, predicted more prosocial behavior. Similar to the NA composite, stress, $r = .02$, and pain, $r = -.0005$, were negligent predictors of prosocial behavior (see Table 2 for further details). Supplementary analyses in which we computed correlations between each component item of our PA, NA, and prosocial indices showed a similar pattern, whereby PA items predicted more of each prosocial behavior, whereas the NA items did not (see Tables S2 and S3).

Multilevel Models

Next, we estimated the associations of prosocial behavior with each of the three SWB components in a series of mixed linear models (see Table 3). For all models, we entered the fixed effects of the predictors, the fixed intercept, and the random intercept. Due to nonconvergence issues with some models, we did not estimate random effects in all models. We used restricted maximum likelihood (REML) to fit the models and centered all predictors within country. We used package *lme4* (Version *1.1-26*; Bates et al., 2015), function *lmer*, in R 4.0.5 (R Core Team, 2021) on R Studio (Version 1.4) for *macOS* (Version 10).

When PA, NA, and life satisfaction were entered as simultaneous predictors of prosocial behavior (see Model 2, Table 3), PA, $\beta = .10$, and life satisfaction, $\beta = .09$, independently predicted more prosocial behavior. However, after controlling for PA and life satisfaction, NA also predicted more prosocial behavior, $\beta = .05$. Thus, only after accounting for the inverse relationship of NA with PA and life satisfaction, more NA predicts more prosocial behavior. Even after including all additional psychological and demographic predictors as covariates (Model 4), this overall pattern of relationships remained: PA, $\beta = .07$, life satisfaction, $\beta = .06$, and NA, $\beta = .04$ (see also Table S4 in the supplementary online material).

Between-Country Variation

Next, we leverage the GWP data to examine whether the within-country correlations vary between countries. To ensure that any differences are not due to missing data, we only included data from a subsample of 161 nations, where all component items of prosocial behavior, PA, and NA were measured ($N = 1,433,078$). To provide an overall picture of the variation, we use color-coded maps to visualize the strength of the associations of prosocial behavior with PA (Figure 1), life satisfaction (Figure 2), and NA (Figure 3). The raw data corresponding to the figures—that is, the country-by-country correlations—are available on the Open Science Network (OSF): https://osf.io/a9gkq/?view_only=df2d2381d91f482 cb09ecd6b2c259e64.

As shown in Figure 1, PA is associated with more prosocial behavior across the majority of countries with correlations varying from $r = .01$ in Congo and Ecuador to $r = .22$ in Macedonia. The only countries with no correlation between PA and prosocial behavior ($r = .00$) were Syria and Swaziland. Notably, we did not find a negative relationship between PA and prosocial behavior in any country. Life satisfaction was also consistently correlated with more prosocial behavior, with the correlation ranging from $r = .01$ in Mexico and Haiti to $r = .29$ in Somaliland (Figure 2). Again, in no country across the globe, did higher life satisfaction predict less prosocial behavior. In contrast, NA was inconsistently associated with prosocial behavior, with correlations varying from $r = -.11$ in Afghanistan to $r = .08$ in Madagascar. As shown in Figure 3, NA tended to be associated with less prosocial behavior in many countries across Africa and Eastern Europe, with more prosocial behavior in countries across South America and Western Europe and no associations in Canada and the United States.

Decomposing our prosocial composite into its component items also revealed some notable patterns. First, just as with the

Table 3. Multilevel Models of Subjective Well-Being Components Predicting Prosocial Behavior With and Without Controls.

Fixed Components	Model 0			Model 1a			Model 1b			Model 1c			Model 2			Model 3			Model 4		
	b	95%CI	β	b	95%CI	β	b	95%CI	β	b	95%CI	β	b	95%CI	β	b	95%CI	β	b	95%CI	β
Intercept	.34	[.33, .36]		.34	[.33, .36]		.34	[.33, .36]		.35	[.33, .36]		.35	[.33, .36]		.35	[.33, .36]		.12	[.10, .13]	
Negative affect				.00	[.00, .01]	.00							.06	[.05, .06]	.05	.04	[.04, .04]	.04	.04	[.04, .05]	.04
Positive affect							.09	[.08, .09]	.10				.09	[.09, .09]	.10	.06	[.06, .06]	.07	.06	[.06, .06]	.07
Life satisfaction										.01	[.01, .01]	.09	.01	[.01, .01]	.08	.01	[.01, .01]	.07	.01	[.01, .01]	.06
Stress																.02	[.02, .02]	.03	.02	[.02, .03]	.03
Pain																.01	[.01, .01]	.01	.01	[.01, .01]	.01
Treated with respect																.01	[.01, .02]	.01	.01	[.01, .01]	.01
Well-rested																−.01	[−.01, −.01]	−.02	−.01	[−.02, −.01]	−.02
Learned something new																.08	[.08, .08]	.12	.08	[.07, .08]	.11
Count for help																.03	[.03, .03]	.03	.02	[.02, .02]	.03
Religion important																.05	[.05, .06]	.06	.06	[.06, .06]	.08
Sex																			−.02	[−.02, −.02]	−.03
Age																			.00	[.00, .00]	.02
Income (log10)																			.05	[.05, .06]	.13
Random components																					
σ²	.09			.09			.09			.09			.09			.09			.09		
τ00	.01			.01			.01			.01			.01			.01			.01		
ICC_country	.11			.11			.11			.11			.11			.11			.11		
Model details																					
N_country	163			163			163			163			163			161			157		
N_observations	1,598,371			1,569,108			1,587,273			1,577,848			1,545,416			1,263,297			1,017,887		
R² (fixed effects)	.000			.000			.010			.008			.018			.036			.052		
Akaike information criterion	732,127.7			719,368.9			708,806.4			708,644.2			677,997.9			542,889.9			415,330.5		

Note. σ^2 indicates the residual variance; τ_{00} indicates the random intercept variance; ICC is the intraclass correlation, indicating variance in prosocial behavior due to country. Sex was coded as 1 = *male*, 2 = *female*. Stress, pain, well-rested, treated with respect, and learned something new, count for help, and religion important are all coded 0 = *no*, 1 = *yes*. Income is log10 (Income + 1) in international dollars per household member. All predictors were centered within country. The models were fitted using package *lme4* (Version 1.1-26), function *lmer* for R 4.0.5 on *R Studio* (Version 1.4) for *macOS* (Version 10). Significance, standardized coefficients, and marginal R^2 (i.e., R^2 for fixed effects) were derived via R package *sjPlot* (Version 2.8.7; Lüdecke, 2021), function tab_model. See Table S4 for a multilevel model where each component item of the positive affect and negative affect composites was entered as separate predictors in the model.
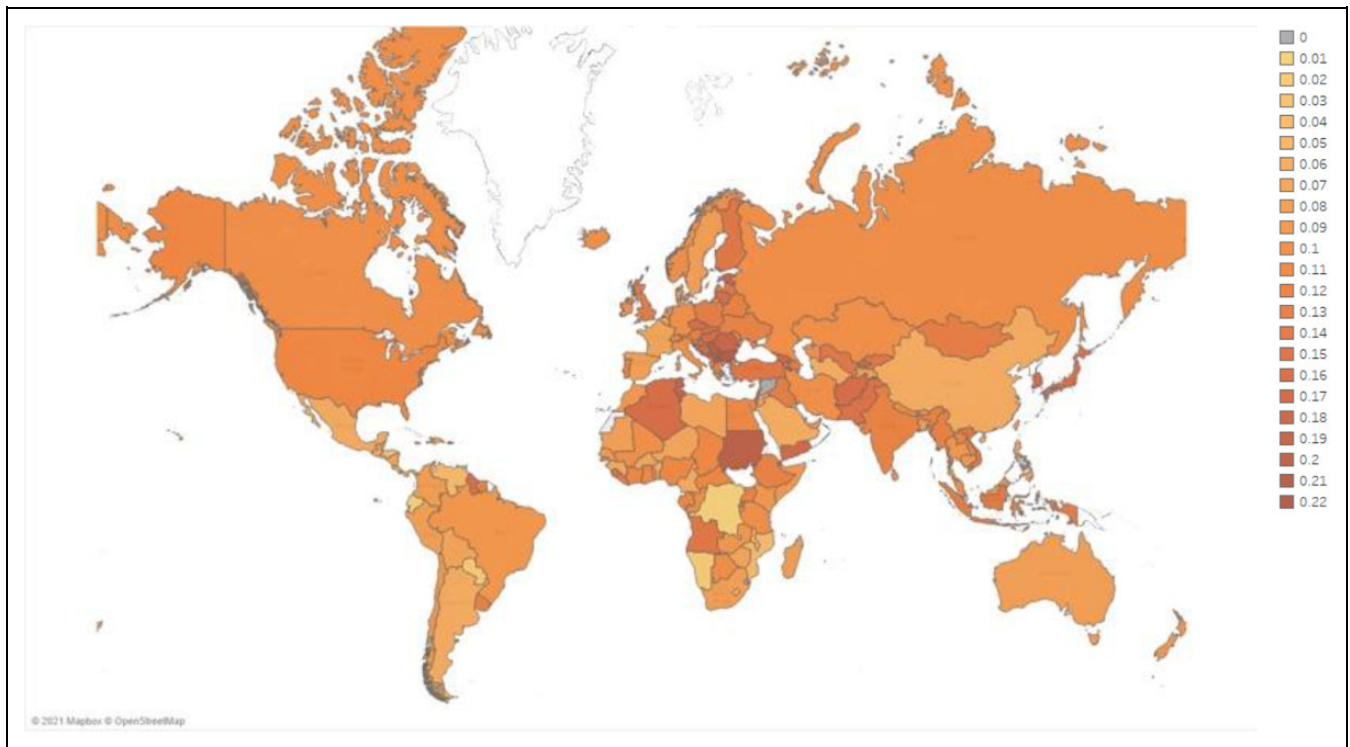
Figure 1. Correlation between positive affect and prosocial behavior across the world. *Note.* Lighter colors represent a weaker correlation, while darker colors represent a stronger correlation. Countries with zero correlation are marked gray. All correlations are either null or positive, with no negative correlations. Countries and regions with no data are shown in white.

overall composite of prosocial behavior, PA was a much more consistent predictor of more donating, volunteering, and helping others than NA. PA had one negative correlation and 160 positive correlations with donating, two negative and 155 positive correlations with volunteering, and three negative and 156 positive correlations with helping others. NA had much more variability across countries, showing 108 negative and 34 positive correlations with donating, 69 negative and 74 positive correlations with volunteering, and 44 negative and 108 correlations with helping others. Second, the effect sizes for NA remained too minute ($r < .05$) to be of consequence in most countries. In the United States, however, NA had a notable relationship with less donating, $r = -.07$, and more helping others, $r = .09$. We found a similar pattern in Canada. (For a full table of correlations within each country, see https://osf.io/a9gkq/?view_only=df2d2381d91f482cb09ecd6b2c259e64)

Cultural and Economic Moderators

What factors might explain the heterogeneity of the associations between SWB components and prosocial behavior in different countries? In an exploratory analysis, we predicted the correlation coefficients between SWB and prosocial behavior within each country from key country-level economic indicators (GDP and Gini coefficient) and cultural factors (Hofstede et al., 2010; see Table 4 for details). Predicting the variability in the correlations between SWB components and prosocial

behavior within different countries is conceptually akin to treating the factors as moderators of the relationship between SWB and prosocial behavior (Carlson & Miller, 1987).

Table 4 provides a descriptive picture of the estimated effect sizes of these moderation effects as Pearson correlation coefficients. Because of the exploratory nature of the analyses and the different number of countries for each effect size, however, we again refrain from reporting or interpreting the significance of these effects. After exploring each factor as an individual predictor of the size of the observed relationships in different countries (Table 4), we entered all economic and cultural factors simultaneously as predictors in three multiple regressions. Thus, we separately predicted the strength of the within-country associations of prosocial behavior with PA, NA, and life satisfaction from the same set of between-country predictors (Gini, GDP, power distance, individualism, masculinity, uncertainty avoidance, long-term orientation, and indulgence). To account for the multiple tests across eight predictors and three outcomes, we used Bonferroni adjustments by multiplying the p values by 24.

After controlling for all other economic and cultural factors and adjusting for multiple comparisons, indulgence emerged as the only significant moderator of the within-country associations of prosocial behavior with PA, $\beta = -.52$, $p = .002$, $p_{\text{Bonferroni.24}} = .048$, $n = 56$; life satisfaction, $\beta = -.63$, $p < .001$, $p_{\text{Bonferroni.24}} < .0024$, $n = 56$; and NA, $\beta = .61$, $p < .001$, $p_{\text{Bonferroni.24}} < .017$, $n = 56$ (Figure 4). In cultures
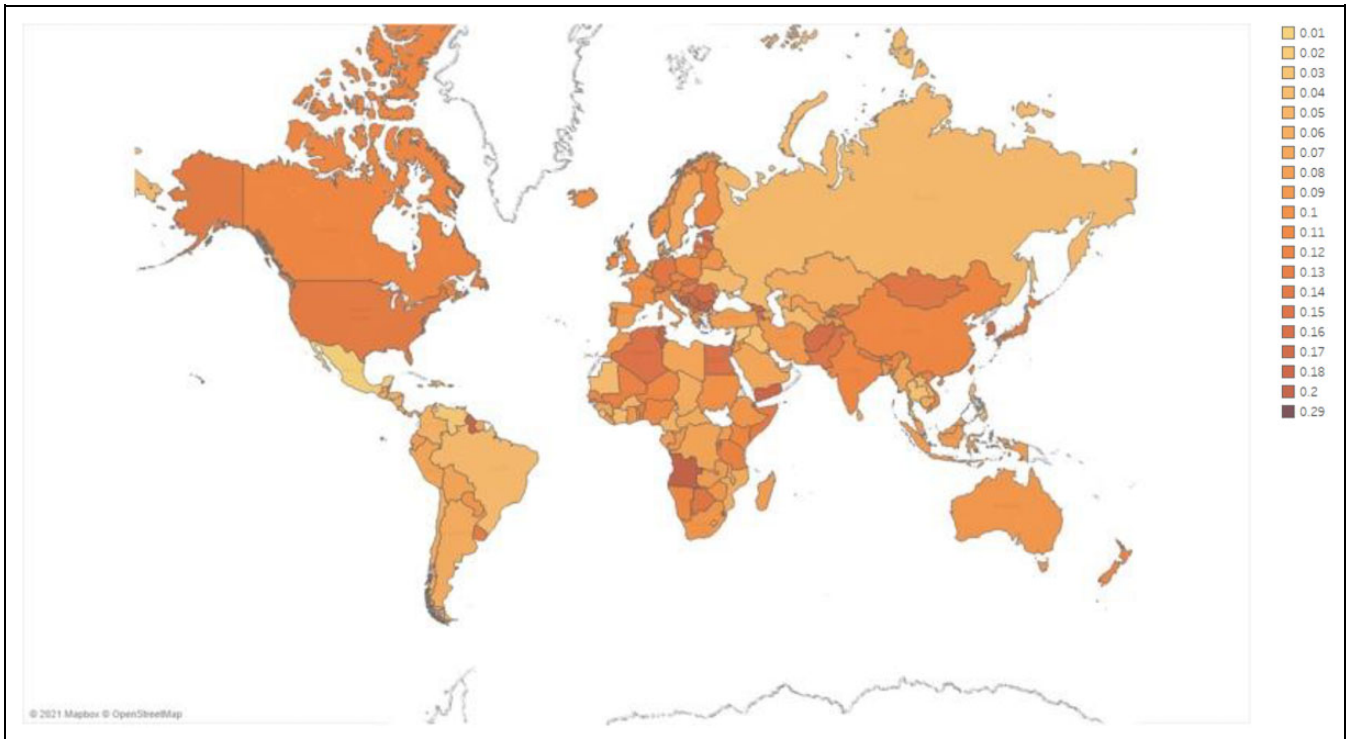
Figure 2. Correlations between life satisfaction and prosocial behavior across the world. *Note.* Lighter colors represent a weaker correlation and darker colors represent a stronger correlation. All correlations are positive. Countries and regions with no data are shown in white.
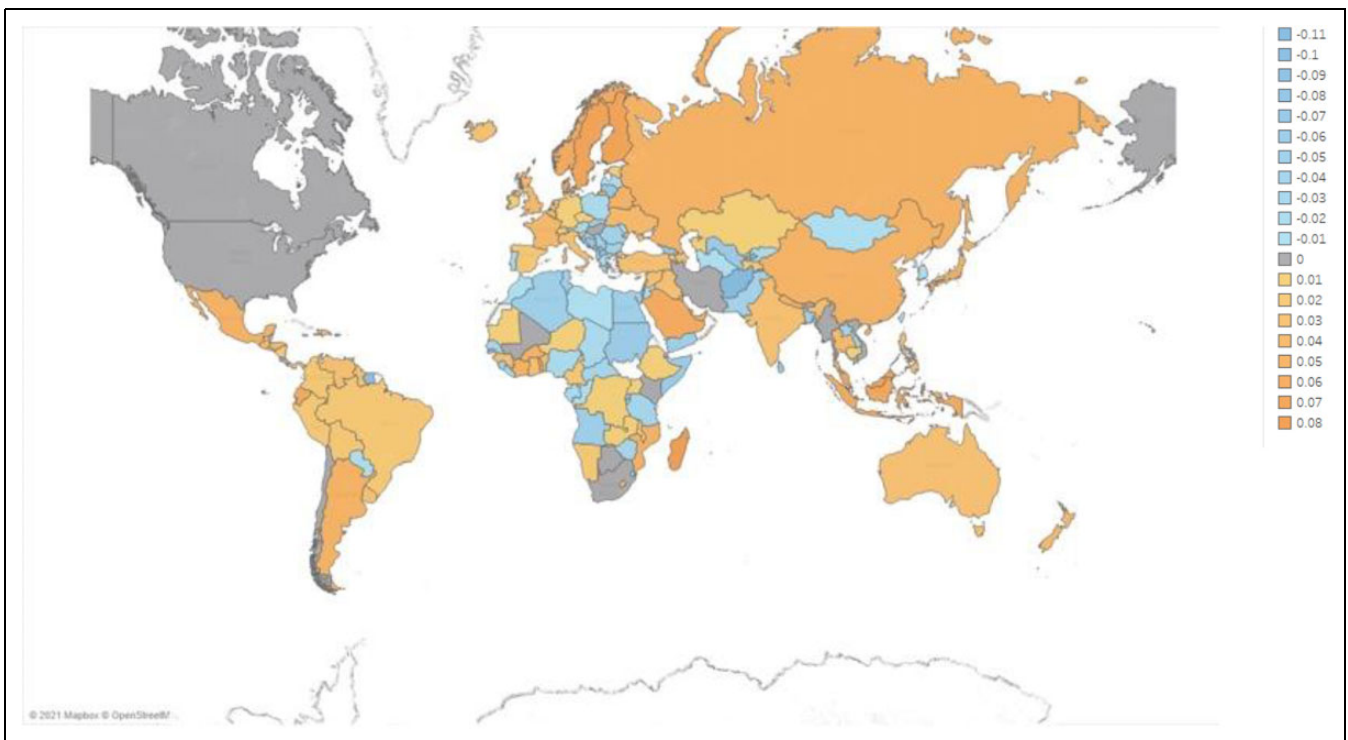

Figure 3. Correlation between negative affect and prosocial behavior across the world. *Note.* Negative correlations are shown in blue, while positive correlations are shown in orange. Lighter colors represent a weaker correlation and darker colors represent a stronger correlation. Countries with zero correlations are shown in gray. Countries and regions with no data are shown in white.

Table 4. Country-Level Economic and Cultural Predictors of the Within-Country Relationships of Negative Affect, Positive Affect, and Life Satisfaction to Prosocial Behavior.

	N	1	2	3	4	5	6	7	8	9	10
1. Cor: NA-prosocial	161	—									
2. Cor: PA-prosocial	161	−.50	—								
3. Cor: LS-prosocial	161	−.48	.61	—							
4. GDP	155	.26	.09	.07	—						
5. Gini	138	.10	−.46	−.27	−.43	—					
6. Power distance	69	−.05	−.03	−.11	−.53	.42	—				
7. Individualism	69	.08	.11	.24	.58	−.59	−.62	—			
8. Masculinity	69	−.05	−.01	.06	−.01	.06	.15	.05	—		
9. Uncertainty avoidance	69	−.26	−.01	−.07	−.24	.22	.23	−.22	−.06	—	
10. Long-term orientation	92	−.09	.41	.41	.26	−.46	.05	.08	.03	−.04	—
11. Indulgence	92	.40	−.51	−.44	.34	.29	−.30	.16	.07	−.07	−.45

Note. The GDP and Gini = Gini coefficient (an index of inequality) were averaged for each country from 2006 to 2017 (*source.* World Bank, https://data.worldbank.org). The cultural dimensions (Rows 6–11) were based on Hofstede's six-dimensional model of national culture (Hofstede et al., 2010; *source.* https://geerthofstede.com/research-and-vsm/dimension-data-matrix/). *N* for the correlation coefficients (Rows 1–3) represents the number of countries in the Gallup World Poll, where all component items of prosocial behavior, PA, and NA were measured. The *N*s for the economic and cultural indices (Rows 4–11) show the number of countries for which these indices were available that were also available in the Gallup World Poll. The aggregated data set is available on OSF: https://osf.io/a9gkq/?view_only=df2d2381d91f482cb09ecd6b2c259e64. NA = negative affect; PA = positive affect; LS = life satisfaction; GDP = gross domestic product.

higher in indulgence, greater NA tends to be associated with more prosocial behavior, whereas more PA and life satisfaction tend to be associated with less prosocial behavior.[1]

Discussion

In more than 1 million individuals across 163 countries, we found that both life satisfaction and PA were consistently associated with more prosocial behavior. These associations varied considerably across countries but remained consistently positive. In contrast, NA was an inconsequential and less consistent predictor of prosocial behavior, predicting more prosocial action in some countries but less in others.

Our findings extend emerging evidence from the United States showing that PA, more so than NA, is associated with being socially, politically, and environmentally active (Kushlev et al., 2020). Our results are also consistent with the broader literature on affect and interpersonal helping, which shows that the association between NA and prosocial behavior depends on culture, socialization, and subjective construal (Carlson & Miller, 1987; Cialdini & Kenrick, 1976; Manucia et al., 1984). In contrast, positive indicators of SWB might act as a psychological resource that directly promotes a willingness to give one's time and money to others (cf. Fredrickson, 2013; Rhoads et al., in press; Thoits & Hewitt, 2001). Another possibility is that the relationship between NA and prosocial behavior varies more across countries because the factors that predict NA vary more between countries. In Anna Karenina, Leo Tolstoy observed that: "All happy families are alike; each unhappy family is unhappy in its own way." Tolstoy's intuition seems to be that it only takes one negative factor to spoil happiness. If people in different countries are unhappy for different reasons—from poverty and pollution to racial inequity and economic stagnation—but only some of these factors also impact prosocial behavior, this could explain the variability in the relationship. This is an important area for future research.

Indulgent Cultures and WEIRD Samples

We leveraged our worldwide data set to explore whether the variability in the associations between prosocial behavior and SWB between countries depends on key economic and cultural factors. We found that the associations between all three SWB components and prosocial behavior depended on cultural differences on the indulgence continuum—the extent to which cultures value pleasure and hedonic gratification (Hofstede et al., 2010). In cultures higher in indulgence, greater NA tends to be associated with more prosocial behavior. This pattern of moderation is consistent with a key prediction of the negative-state relief model (NSRM; Cialdini & Kenrick, 1976), which posits that people help others when feeling bad to make themselves feel better. To the extent that cultures higher in indulgence value the pursuit of pleasure, people in those cultures might view helping as one way to reduce negative emotional states. The NSRM also predicts, however, that PA should promote helping regardless of instrumental motives to seek pleasure (e.g., Manucia et al., 1984). Yet, we found that indulgence predicted a weaker association between PA and prosocial behavior.

Our findings are also relevant to the ongoing debate of whether people are truly altruistic, as proposed by the empathy-altruism hypothesis (Batson & Shaw, 1991), or fundamentally selfish, as proposed by the NSRM (Cialdini & Kenrick, 1976). Our examination of multiple types of prosocial behaviors across the globe does suggest that this debate cannot be settled by only examining one type of prosocial behavior in WEIRD samples alone (Henrich et al., 2010). Consistent with a mega-analysis of 85 samples primarily drawn from the U.S. population (Carlson, & Miller, 1987), we found an overall positive relationship between NA and interpersonal helping of
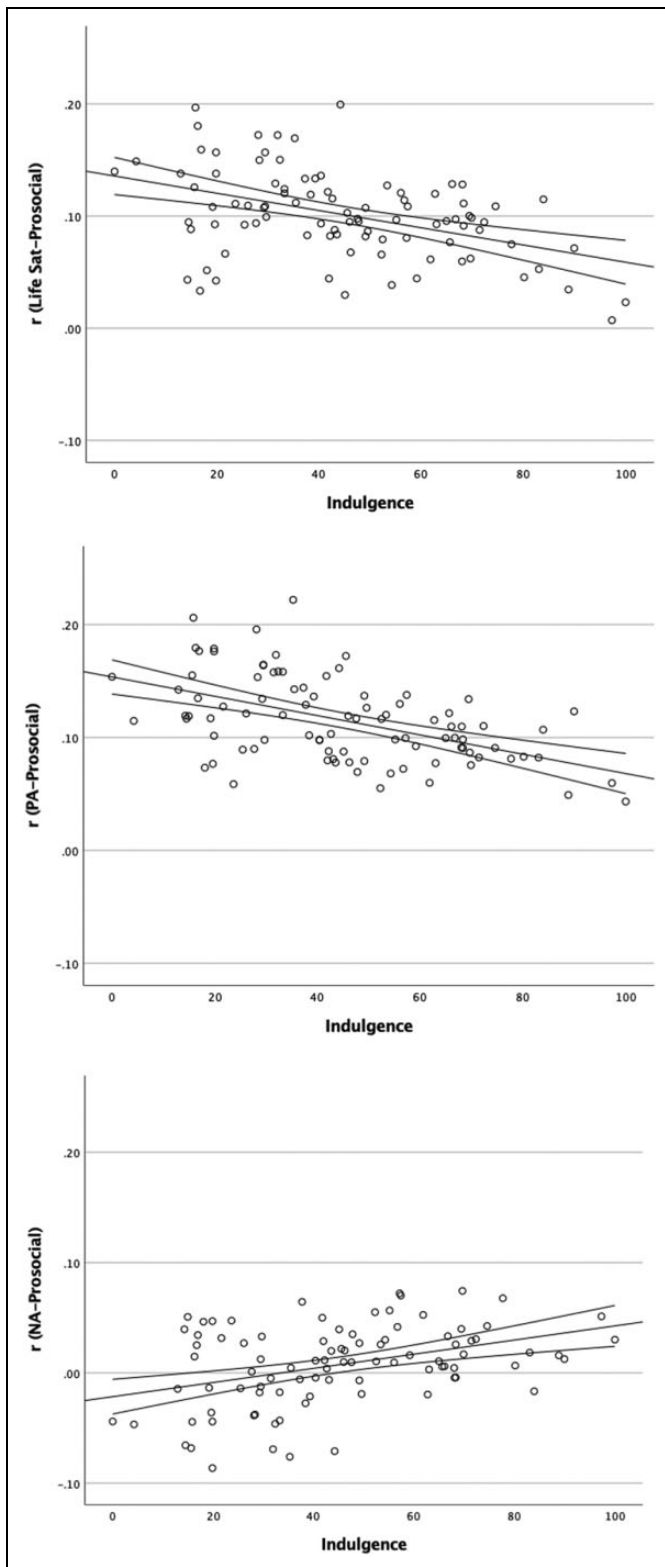
Figure 4. Country-level indulgence moderates the within-country relationship (Pearson correlation coefficient, *r*) of prosocial behavior with positive affect, negative affect, and life satisfaction.

others in the United States and Canada. But in those same countries, more NA was associated with donating less. Looking at

overall prosocial behavior, the United States and Canada also stood out as countries high in indulgence where NA was not associated with prosocial behavior.

Limitations and Implications for Future Research

The associations we observed between SWB and prosocial behavior were small to very small (Funder & Ozer, 2019). The size of the observed associations may be due, in part, to limitations in the measures employed in the GWP. For example, all prosocial behaviors were measured on dichotomous yes–no scales. In addition, the mismatch between the period referenced in the questions about affect (yesterday) and prosocial behavior (in the past month) may further contribute to an underestimation of the size of the associations. Of course, statistically small effects are not necessarily practically insignificant, especially when applied on a global scale. Taking daily aspirin, for example, has a statistically tiny effect on reducing the risk of heart attack, explaining only a 10th of a percentage in the variance; yet, when prescribed to millions of people, aspirin saves thousands of lives—a practically large effect (Rosenthal, 1990). In our case, even the statistically small effect between PA and prosocial behavior suggests, for example, that each month the billions of happy people across the globe likely spend thousands of hours volunteering more than unhappy people.

The present research neither intends to, nor can it, provide any evidence of causality. Even though we used the three components of SWB as "predictors" and prosocial behavior as an "outcome," our findings should not be taken to provide any evidence of causality between predictors and outcomes. Our findings simply show that happy people engage in more prosocial behavior around the globe and across demographically and culturally distinct populations. Happier people are slightly but consistently more likely to give their time and money to others.

Declaration of Conflicting Interests

Funding

ORCID iD

Kostadin Kushlev https://orcid.org/0000-0003-1025-3258

Supplemental Material

The supplemental material is available in the online version of the article.

Note

1. Indulgence was higher in most countries across the Americas (e.g., Canada = 68, United States = 68, Mexico = 97, and Argentina = 62) and lower across Eastern Europe and Asia (e.g., Bulgaria = 16, Russia = 20, China = 24, and India = 26).

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Author Biographies

Kostadin Kushlev is an assistant professor at Georgetown University, where he is the director of the Digital Health and Happiness Laboratory; his main research program explores how digital communication technology impacts social behavior and well-being. He received his PhD in 2015 at the University of British Columbia (Vancouver, BC), where he received the prestigious Vanier Scholarship. He received his BA at Reed College in Portland, OR.

Nina Radosic is a graduate student at the University of California, Riverside, where she is completing her PhD with Dr. Sonja Lyubomirsky.

Ed Diener was a professor for 45 years, serving as the president of three scientific societies and the editor of three journals. Since his seminal paper on the importance of studying subjective well-being in 1984, his work has been cited over 140,000 times. He passed away in 2021.

Handling Editor: Lisa Libby