Prosociality During COVID-19: Pathways Through Affect, Financial Stress, Well-being, and Collective Disempowerment across 39 Countries[*]

Prosocialidad durante COVID-19: Rutas a través del afecto, estrés financiero, bienestar y desempoderamiento colectivo en 39 países

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ABSTRACT

Overcoming the COVID-19 pandemic, which resulted in great loss of life worldwide and shook the global economy, required individuals' willingness and ability to behave prosocially. To contribute to the understanding of predictors of prosociality, we used multilevel models to test three previously established pathways to prosocial behavior, which we call the "broaden and build", compensation, and incapacity pathways. We also tested whether these three paths are mediated by general well-being, and moderated by collective disempowerment, i.e., individuals' belief that external societal forces have made it harder for people like them to function effectively. Participants from 39 countries ($N = 59987$) were surveyed on their willingness to engage in prosocial behaviors in the context of the pandemic. The "broaden and build" pathway was supported: positive affect was associated with willingness to engage in prosocial behavior via higher well-being. Two (in)capacity paths were also supported: financial strain and negative affect were both negatively associated with prosociality via lower well-being. A compensation pathway was also observed: Controlling for lower well-being, negative affect was associated with greater prosociality. Finally, differences in disempowerment moderated the affective pathways: higher disempowerment strengthened the positive association of positive affect with prosociality via well-being, and buffered the negative affect incapacity path.

Keywords
COVID-19; prosocial behavior; well-being; affect; collective disempowerment.

RESUMEN

La superación de la pandemia de COVID-19, que provocó una gran pérdida de vidas en todo el mundo y sacudió la economía global, requirió la disposición y capacidad de las personas para comportarse de forma prosocial. Para contribuir a la comprensión de los predictores de la prosocialidad, utilizamos modelos multinivel para probar tres vías previamente establecidas hacia el comportamiento prosocial, que denominamos vías de ampliar y construir, de compensación y de incapacidad. También probamos si estas tres vías están mediadas por el bienestar general y moderadas por el desempoderamiento colectivo. Se encuestó a 59 987 participantes, de 39 países, sobre su disposición a adoptar conductas prosociales en el contexto de la pandemia. Los resultados respaldan la vía de ampliar y construir: el afecto positivo se asoció con la disposición a participar en conductas prosociales a través de un mayor bienestar. También se corroboraron dos vías de (in)capacidad: la presión financiera y el afecto negativo se asociaron negativamente con la prosocialidad a través de un menor bienestar. También se observó una vía de compensación: Controlando el menor bienestar, el afecto negativo se asoció con una mayor prosocialidad. Por último, las diferencias en desempoderamiento colectivo moderaron las vías afectivas.

Palabras clave
COVID-19; comportamiento prosocial; bienestar; afecto; desempoderamiento colectivo.

On March 11, 2020, the World Health Organization declared COVID-19 a pandemic. The disease had a detrimental impact on lives and livelihoods across the globe, particularly

affecting those who were disadvantaged and vulnerable (Kantamneni, 2020). The global pandemic posed an unprecedented challenge to human solidarity (Derviş, 2020), yet responses varied considerably. It would appear that fear, insecurity, and stress prompted some individuals to engage in self-focused behaviors, including the hoarding of goods and the maintenance of ongoing social contact, which serve to increase the risk of contagion. Notwithstanding, there were also noteworthy prosocial behaviors directed towards helping others. These included strict adherence to hygiene protocols, self-isolation to safeguard others, and acts of solidarity such as volunteering and assisting neighbors, which illustrate the human capacity for cooperation in times of crisis (Haller et al., 2022). Mitigating the health and economic consequences of collective emergencies, such as a pandemic, may ultimately depend on individuals' willingness and ability to engage in such prosocial behavior.

In response to emergencies, communities of victims, professionals and citizens come together to rescue, protect and help each other (Kaniasty, 2012). These acts of generosity and cooperation foster individual and community resilience (Lim & DeSteno, 2016) and may be instrumentalized to foster a positive mood (Snippe et al., 2018). As prosocial behavior has significant outcomes for individual and social functioning (Maccagnan et al., 2019), understanding the predictors of prosociality is a key scientific challenge (Pennisi, 2005). Theoretically, prosocial intentions arise from at least three different psychological processes ("pathways"), and it is unclear which pathways are most relevant for predicting prosocial intentions in the context of the COVID-19 pandemic. Moreover, it is unclear whether each pathway applies cross-culturally and across individuals—especially those who perceive themselves to be part of a disadvantaged group in society.

The present research tests three prevailing psychological pathways of prosociality in the context of the COVID-19 pandemic, which we call the "broaden and build", compensation, and incapacity pathways. As illustrated in

Figure 1, we also tested whether these three paths are mediated by general well-being, and moderated by collective disempowerment – that is, individuals' belief that external societal forces have made it harder for people like them to function effectively (Leander et al., 2019; Leander et al., 2020).
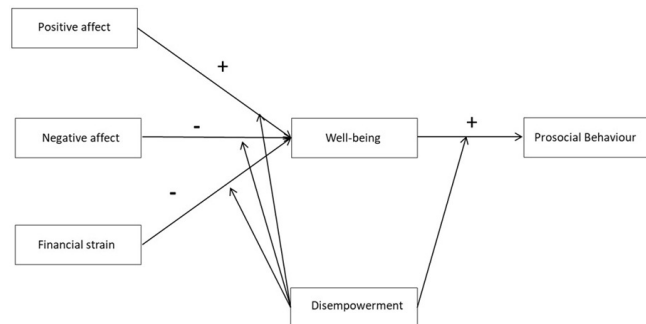
Figure 1.
A conceptual model that integrates the effects of three distal predictors on prosocial behavior mediated by well-being and moderated by collective disempowerment.

We define prosocial behavior as voluntary actions that are intended to help or benefit another individual or group (Eisenberg & Mussen, 1989); and we have opted for a broad definition of well-being, integrating subjective (Diener et al., 1999) and psychological (Ryff, 1989) well-being. It implies that in evaluating their life, a person examines its different aspects, weighs the good and bad, and arrives at a judgment of overall well-being. As Lucas et al. (1996) demonstrated, although often highly correlated, well-being is discriminable from both positive and negative affect.

Research shows that greater well-being is associated with more willingness to show behaviors that help others (Thoits & Hewitt, 2001), and also, that affect is an important predictor of prosocial behavior (Carlson et al., 1988, Lim & DeSteno, 2016). The findings of Haller et al. (2022) reinforce this perspective, demonstrating that prosocial behavior was consistently associated with greater well-being in various regions during the period of social distancing associated with the global pandemic of 2020. Furthermore, they found that positive

affect was a significant predictor of prosociality, suggesting that positive emotions may drive individuals to act on behalf of others even in times of crisis.

Paradoxically, both positive and negative affect can elicit prosociality. People experiencing good mood are more willing to help others; but those experiencing bad moods are also likely to helping others, if they believe that giving will improve their mood (Baumann et al., 1981; Cialdini et al., 1997). Considering that intense positive and negative affect may arise in disaster situations (Rimé, 2007), the present research seeks to test the effects of positive and negative affect on willingness to act prosocially, within the context of the COVID-19 pandemic.

The broaden-and-build theory postulates that positive affective states enhance individuals' psychological and physical well-being (Fredrickson, 2016). We hypothesize that positive affect will be associated with willingness to act prosocially, not only directly as shown in previous research, but also indirectly, via well-being [i]. There is also considerable evidence showing that negative affect is inversely related to well-being (Kuppens et al., 2008). Consequently, we hypothesize that negative affect will have opposing effects on prosociality: a positive direct effect, as people seek to compensate for adverse circumstances, but also a negative indirect effect via lower well-being, due to reduced psychological capacity to act. We test similar compensation and incapacity effects for perceived financial strain, which has also been shown to be associated with reduced well-being (Selenko & Batinic, 2011). With respect to disempowerment, there are competing hypotheses about its relationship with prosocial behavior. While disempowered individual may be disinclined to help others because they hold grievances against society at large (Leander et al., 2020), prior research has also found evidence suggesting that those who are more disempowered relative to the mainstream society are more likely to act prosocially (e.g., Piff et al., 2010). To explain these contradictory findings, we test disempowerment's moderation patterns. Those experiencing disempowerment

may feel less constrained by the social norms that elicit prosocial behavior, which may increase the relevance of personal factors in guiding their behavior. Hence, relative to those who experience a lower degree of disempowerment, individuals who perceive themselves as more disempowered may be more likely to selectively use prosocial behavior to regulate negative affect, or fulfil personally empowering, prosocial narratives of protecting the community (Leander et al., 2019; Leander et al., 2020). According to the negative state relief model (Cialdini & Kenrick, 1976), disempowerment may also motivate prosocial behavior as a means to enhance one's own well-being Alternatively, negative moderation could occur because perceived discrimination, which is conceptually similar to disempowerment, tends to lower prosocial tendencies (Brittian et al., 2013; Smart-Richman & Leary, 2009). Thus, within the context of the pandemic, disempowerment could either facilitate reliance on affect to motivate prosociality, or could directly attenuate the willingness to engage in prosocial behavior.

Finally, there are country-level differences in how positive and negative affect relate to well-being (Kuppens et al., 2008), and in prosocial behavior generally (Luria et al., 2015). Therefore, to test the proposed model, we conducted an international survey assessing individual willingness to perform prosocial behaviors in the context of COVID-19. Through a multi-level model, we both controlled for country-level differences and explored the proposed prosociality pathways at the country (group) level of analysis.

The contribution of this work is, therefore, two-fold: To test three parallel processes involved in prosocial behaviour in a large multi-level sample during a time of crisis, establishing the unique effects of each pathway, and to test competing hypotheses about the impact of disempowerment on prosocial behavior.

Method

Ethics Information

We used data from the PsyCorona Study (Agostini et al., 2022), a multinational project concerning the COVID-19 pandemic (see also https://www.rug.nl/rudolf-agricola-school/research/previous-themes/psycorona/). This study complies with ethical regulations for research on human subjects as approved by the Ethics Committee of Psychology at the University of Groningen (protocol PSY-1920-S-0390) and the Institutional Review Board at New York University Abu Dhabi (protocol HRPP-2020-42). All participants gave informed consent.

Data source and participants

Worldwide, 62142 respondents completed the PsyCorona survey between March 19 and May 25, 2020. The survey was distributed online through a combination of convenience sampling, snowball sampling and paid procedures. Members of the research team used several means like social media campaigns, academic networks, and press releases, among others, to distribute the survey in their respective countries. Upon completing the survey and being debriefed, the final screen invited respondents to distribute the survey link within their networks. Qualtrics Panels were used to incentivize approximately 1 000 additional respondents in 23 countries: Argentina, Australia, Brazil, Canada, France, Germany, Greece, Indonesia, Italy, Japan, Netherlands, Philippines, Romania, Russia, Saudi Arabia, Serbia, South Africa, South Korea, Spain, Turkey, Ukraine, United Kingdom, and the United States of America. In 19 countries, the paid samples were representative of the country's population in terms of age and gender, and in four countries they were representative of gender (due to insufficient access to the 55+ age group in Greece, Indonesia, Saudi Arabia, and Ukraine). Qualtrics Panels uses national census data to determine representativeness. In China, the panel service WJX supplemented the Chinese sample ($n = 1$ 000, representative by age and geography, but higher average education). In the United States, Amazon's MTurk supplemented the sample ($n = 5$ 500). For the purposes of this paper, we excluded countries with sample sizes below 200, leaving 39 countries and a final sample of 59 987 participants.

Translation process

The PsyCorona survey was available in 30 languages. The survey, including the informed consent form, was developed in English and was translated into these languages as PsyCorona was developed. Due to the rapid escalation of the PsyCorona project, team members performed translations of the surveys independently. Most translations were done by at least two people using the following methods: a) backward translation (one person translated from English into the language, another person translated that version back into English), b) one person translated the survey from English into the language and another person (or persons) reviewed and revised it, c) different people took turns translating and revising the surveys. The translations were intended to be not only linguistically accurate, but also culturally appropriate for the target audiences, so the translators considered cultural nuances, idiomatic expressions and social norms to avoid bias and misinterpretation.

Measures [ii]

Willingness to engage in prosocial behavior. To measure pro-sociality in the context of the pandemic, four items were presented to respondents, beginning with the phrase "I am willing to...". The items were: "help others that suffer from coronavirus", "make donations to help others that suffer from coronavirus", "protect vulnerable groups from coronavirus even at my own expense", and "make personal sacrifices to prevent the spread of coronavirus".

Respondents indicated their agreement with these items using 7-point scales (-3 = strongly disagree to 3 = strongly agree). Ordinal alpha coefficients were in the range of 0.70 to 0.90 for the different countries.

Well-being. The survey integrated the most common indicators of subjective well-being: Happiness and satisfaction with life (Dolan et al., 2008), along with purpose in life, which has been identified by Ryff (1989) as part of psychological well-being. Subsequently, three items were adapted to assess well-being: "In general, how happy would you say you are?" (Abdel-Khalek, 2006), on a 10-point scale; "In general, how satisfied are you with your life?" (WHOQOL Group, 1995), on a 6-point scale, from very dissatisfied to very satisfied; and "My life has a clear sense of purpose" (Steger et al., 2006), on a 7-point scale, from strongly disagree to strongly agree. Due to variation in scaling, items were transformed into Z-scores before they were added, and a constant was added to avoid negative scores (α = 0.67 to 0.91).

Collective Disempowerment. To measure disempowerment, two items were adapted from Leander et al. (2019): "Not a lot is done for people like me in this country" and "If I compare people like me against other people in this country my group is worse off". Thus, the reference group was specified as "people like me", allowing each participant to select their most salient ingroup(s) when responding. Participants responded on a 5-point scale ranging from strongly disagree to strongly agree. Polychoric correlations ranged from 0.27 to 0.65.

Positive and Negative Affect. Our measure of affect was drawing on Russell (1980) circumplex model. For positive affect, participants were asked "How did you feel over the last week?" and rated the extent to which they felt calm, content, energetic, inspired, and relaxed on scales from 1 (very slightly or not at all) to 5 (extremely). These scores were summed into a positive affect scale (Cronbach α=0.72 to 0.86). For negative affect, participants responded on the same scale to the extent they felt: anxious, depressed, nervous, and exhausted over the past week (α = 0.74 to 0.88).

Perceived Financial Strain. Three items were adapted from Selenko and Batinic (2011) to measure financial strain: "I am financially strained", "I often think about my current financial situation", and "Due to my financial situation, I have difficulties paying for my expenses". Respondents indicated agreement using 5-point scales (strongly disagree to strongly agree), α =0.79 to 0.92.

Analysis Plan

Multilevel modelling was used to test the proposed model, which was a first-and seconds-tage conditional process model (Hayes & Rockwood, 2020). Multilevel models were used to adjust standard errors for the nested data structure. Participants were treated as nested within country. Intercepts and slopes for individual-level predictors were modeled as randomly varying across countries. Individua-llevel predictors were country-mean centered. Thus, effects of these predictors reflect differences between people within the same country, relative to the country's average, and are independent of between-country differences. Country-level predictors were centered on the grand mean, and effects of these predictors reflect differences between countries. Degrees of freedom were calculated using the default Satterthwaite method in SPSS 24.

Results

The expected positive relationships were found among positive affect, prosociality, and well-being, as well as negative relationships of these three variables with collective disempowerment, negative affect, and financial strain.

To summarize the key findings of the three identified pathways to prosociality, Table 1 presents how positive and negative affect, along with financial strain, influence well-being and, in turn, prosocial behavior. The table also shows how collective disempowerment moderates these effects.

Table 1

Summary of Pathways to Prosociality

Pathway	Key Factor	Impact on Well-being	Impact on Prosociality	Effect of Disempowerment
Broaden-and-Build	Positive affect	Increases	Increases prosociality via higher well-being	Strengthens positive relationship
Incapacity	Negative affect and financial strain	Decreases	Decreases prosociality via lower well-being	Weakens the negative relationship
Compensation	Negative affect	No impact	Increases prosociality (when controlling for well-being)	Strengthens the effect of negative affect

Table 2

Descriptive statistics and intercorrelations for the pooled sample

Scale	Descriptive			Correlation				
	α	M	SD	2	3	4	5	6
1. Prosocial Behavior	0.80	4.85	1.22	0.22*	-0.15*	0.09*	0.02*	-0.08*
2. Well-being	0.82	7.19	2.01	1	-0.27*	0.44*	-0.37*	-0.30*
3. Collective Disempowerment	0.55†	2.77	0.98		1	0.16*	0.22*	0.44*
4. Positive Affect	0.83	2.66	0.83			1	-0.46*	-0.19*
5. Negative Affect	0.84	2.51	0.97				1	0.29*
6. Perceived Financial Strain	0.88	3.11	1.05					1

Note. M: mean; *SD*: standard deviation; α ordinal alpha; † two item polychoric correlation;
*$p < 0.01$. Range: Prosocial Behavior [1,7]; Well-being [1,11]; Collective Disempowerment [1,5]; Positive Affect [1,5]; Negative Affect [1,5]; Perceived Financial Strain [1,5].

Table 1 provides an overview of the key findings regarding the three pathways to prosociality identified in this study. As shown, positive affect follows a broaden-and-build pathway, where higher well-being leads to greater prosocial behavior. Conversely, negative affect and financial strain are associated with lower well-being, resulting in decreased prosociality through the incapacity pathway. However, negative affect can also drive prosocial behavior through a compensation pathway, particularly when well-being is controlled. The role of collective disempowerment as a moderating factor further emphasizes the complexity of these relationships, as it strengthens or weakens the effects of affect and financial strain on prosociality. In the following sections, we delve into the detailed statistical analysis, which confirms these patterns across individual and country-level data. Table 2 presents the descriptive statistics for the pooled sample (see Tables 1 and 2 in the Supplemental Material for results for each country).

Individual and country level coefficients are presented in Tables 3 and 4 [iii] and semi-partial correlations are reported as index of effect-size (Funder & Ozer, 2019).

For the purposes of this paper, the focal results (using alpha < 0.01) are the following: At the individual level, all three of the pathways (indirect effects) were supported. Consistent with past research, positive affect was associated with higher prosociality via higher well-being (the "broaden and build" pathway), whereas negative affect and financial strain were associated with lower pro-sociality via lower well-being (the incapacity pathway). In addition, controlling for well-being, negative affect was associated with higher prosociality (the compensation pathway). Financial strain did not have a significant direct effect on prosociality. With regards to moderation, at the individual level, disempowerment moderated two of the focal pathways: from positive affect to well-being, and from well-being to prosociality.

According to the benchmarks proposed by Funder and Ozer (2019) for the interpretation of correlations, the observed effect sizes are between small and medium as they relate to the explanation of single events, but potentially consequential in the medium term.

Table 3

Individual- and country-level predictors of well-being: positive and negative affect, perceived financial strain, and collective disempowerment

Parameter	β	Standard Error	p	95% CI Lower Bound	95% CI Upper Bound	sr
Individual Level						
Intercept	0.154	0.071	0.034	-0.035	0.343	–
Positive affect (GC)	0.195	0.007	0.000	0.176	0.214	0.275
Negative affect (GC)	-0.109	0.005	0.000	-0.122	-0.096	-0.132
Perceived financial strain (GC)	-0.120	0.007	0.000	-0.139	-0.102	-0.137
Collective Disempowerment (GC)	-0.158	0.008	0.000	-0.180	-0.135	-0.107
Positive affect (GC)* Disempowerment (GC)	0.017	0.001	0.000	0.014	0.020	0.052
Negative affect (GC)* Disempowerment (GC)	0.001	0.001	0.585	-0.003	0.004	0.006
Perceived financial strain (GC)*Disempowerment (GC)	-0.005	0.001	0.001	-0.009	-0.001	-0.011
Country Level						
Positive affect (CM)	0.199	0.062	0.002	0.037	0.361	0.072
Negative affect (CM)	-0.019	0.072	0.794	-0.207	0.170	0.003
Perceived financial strain (CM)	-0.105	0.075	0.166	-0.301	0.092	-0.012
Disempowerment (CM)	-0.025	0.094	0.788	-0.270	0.219	-0.024
Positive affect (CM) * Disempowerment (CM)	0.000	0.057	0.994	-0.146	0.174	0.008
Negative affect (CM) * Disempowerment (CM)	-0.030	0.066	0.650	-0.201	0.141	-0.009
Perceived financial strain (CM) * Disempowerment (CM)	0.008	0.057	0.882	-0.139	0.156	-0.012

Note.*β*: Unstandardized regression coefficients; sr: Semipartial correlation; (GC): Within-Country Group-Centered; (CM): Country Mean.

Table 4

Individual- and country-level predictors of prosociality: positive and negative affect, perceived financial strain, well-being and collective disempowerment

Parameter	β	Standard Error	p	99% CI Lower Bound	99% CI Upper Bound	sr
Individual Level						
Intercept	3.669	0.175	0.000	3.201	4.132	–
Positive affect (GC)	0.058	0.008	0.000	0.036	0.080	0.039
Negative affect (GC)	0.116	0.013	0.000	0.080	0.151	0.101
Perceived financial strain (GC)	0.000	0.016	0.999	-0.042	0.042	-0.005
Collective Disempowerment (GC)	-0.204	0.024	0.000	-0.268	-0.140	-0.076
Well-being (GC)	0.368	0.017	0.000	0.322	0.413	0.168
Positive affect (GC) * Disempowerment (GC)	0.012	0.003	0.000	0.005	0.019	0.021
Negative affect (GC) * Disempowerment (GC)	0.009	0.003	0.001	0.002	0.017	0.015
Perceived financial strain (GC) * Disempowerment (GC)	0.007	0.003	0.029	0.001	0.015	0.004
Well-being (GC) * Disempowerment (GC)	-0.015	0.004	0.000	-0.026	-0.005	-0.014
Country Level						
Positive affect (CM)	-0.039	0.150	0.796	-0.431	0.353	-0.062
Negative affect (CM)	0.428	0.168	0.012	-0.011	0.866	0.052
Perceived financial strain (CM)	0.092	0.175	0.600	-0.363	0.546	0.054
Disempowerment (CM)	-0.672	0.217	0.002	-1.237	-0.108	-0.102
Well-being (CM)	0.551	0.221	0.014	0.025	1.128	0.119
Positive affect (CM) * Disempowerment (CM)	0.067	0.128	0.600	-0.263	0.398	0.017
Negative affect (CM) * Disempowerment (CM)	0.370	0.161	0.022	0.048	0.787	0.057
Perceived financial strain (CM) * Disempowerment (CM)	0.012	0.132	0.929	-0.331	0.354	-0.009
Well-being (CM) * Disempowerment (CM)	0.407	0.210	0.054	-0.138	0.951	0.033

Note. *β*: Unstandardized regression coefficients; sr: Semipartial correlation; (GC): Within-Country Group-Centered; (CM): Country Mean.

Disempowerment moderated the strength of the indirect effects (Table 5): Higher disempowerment (compared to lower) is associated with a slightly stronger relationship between positive affect and prosociality via well-being, and a slightly weaker incapacity pathway for negative affect. Disempowerment did not moderate the indirect effect of financial strain.

Table 5

Conditional within-country indirect effects

Parameter	99% CI
Low Disempowerment (-1 SD)	
Positive affect⇨ Well-Being⇨ Prosocial Behavior	(0.006, 0.07)
Negative affect⇨ Well-Being⇨ Prosocial Behavior	(-0.05, -0.04)
Financial Strain⇨ Well-Being⇨ Prosocial Behavior	(-0.05, -0.04)
Mean Disempowerment	
Positive affect⇨ Well-Being⇨ Prosocial Behavior	(0.06, 0.08)
Negative affect⇨ Well-Being⇨ Prosocial Behavior	(-0.05, -0.03)
Financial Strain⇨ Well-Being⇨ Prosocial Behavior	(-0.05, -0.04)
High Disempowerment (+ 1 SD)	
Positive affect⇨ Well-Being⇨ Prosocial Behavior	(0.06, 0.09)
Negative affect⇨ Well-Being⇨ Prosocial Behavior	(-0.04, -0.03)
Financial Strain⇨ Well-Being⇨ Prosocial Behavior	(-0.05, -0.04)

Note. Values represent the lower and upper confidence intervals of the indirect effect (Yzerbyt et al., 2018).

The interaction patterns for disempowerment are illustrated in Figure 2; simple slopes for all significant interactions are reported in Table 6. Notably, higher disempowerment is associated with a stronger relationship between affect and well-being. Controlling for well-being, disempowerment exacerbates the compensation pathway of negative affect to prosociality, and attenuates the effect of well-being on prosociality.
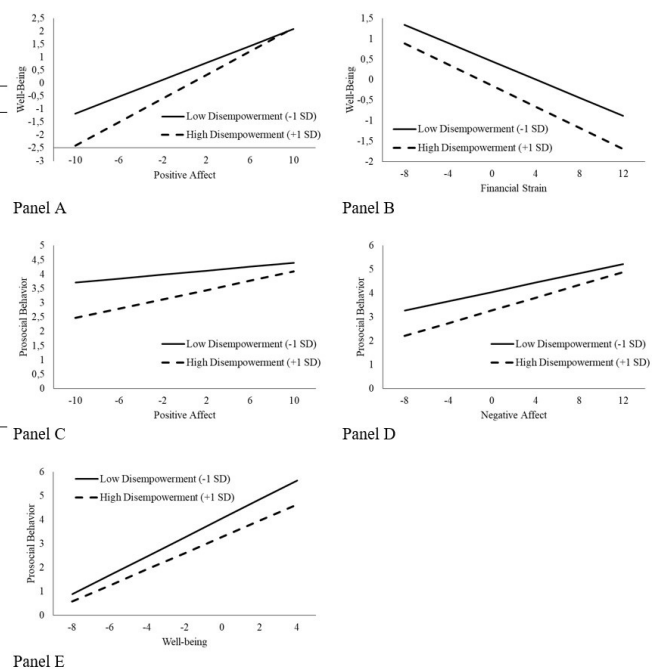
Figure 2.
Within-country moderating effects of disempowerment.

Note. Panel A: positive affect x disempowerment on well-being; Panel B: financial strain x disempowerment on well-being; Panel C: positive affect x disempowerment on prosociality; Panel D: negative affect x disempowerment on prosociality; Panel E: well-being x disempowerment on prosociality.

Table 6

Conditional simple slopes at high (1 SD above the country mean) and low (1 SD below the country mean) levels of disempowerment for interactions

Interaction	Low Disempowerment	High Disempowerment
On well-being		
Positive Affect (GC)	[0.143, 0.183]	[0.207, 0.247]
Financial Strain (GC)	[-0.131, -0.092]	[-0.149, -0.109]
On prosocial behavior		
Well-being (GC)	[0.347, 0.447]	[0.290, .0387]
Positive Affect (GC)	[0.009, 0.060]	[0.057, 0.161]
Negative Affect (GC)	[0.060, 0.136]	[0.096, 0.171]
Financial Strain (GC)	[-0.058, 0.031]	[-0.031, 0.058]
Negative Affect (country-level)	[-0.250, 0.715]	[0.125, 1.121]

Note. (GC): Within-Country Group-Centered lower and upper confidence limits (99%) for the unstandardized coefficients.

Finally, the country level findings, as presented in Tables 3 and 4 indicate a positive association

between positive affect and well-being, and between well-being and prosociality. The indirect effect of positive affect on prosociality via higher well-being, however, is observed to not be reliable, 99% CI [-0.01, 0.29]. There is also a country-level negative association between of disempowerment and prosocial behavior, controlling for well-being (Table 4).

The previously identified paths to prosociality, therefore, were most consistently observed at the individual-level of analysis, but the results were different at the country-level of analysis. Note that country-level effects are theoretically and statistically independent of individual-level effects; they are completely orthogonal, implying that between-country effects only explain why countries are different from each other, whereas the individual-level effects focus on why people are different from each other within the same country.

Discussion

In this large-scale cross-country study of prosocial behaviors in the context of the COVID-19 pandemic, we tested three pathways to prosociality: The "broaden and build" (positive affect), compensation (negative affect), and incapacity (financial strain and negative affect) pathways. At the individual level, positive affect was associated with prosociality via higher well-being (Fredrickson, 2016; Snippe et al., 2018) and negative affect was associated with lower prosociality via lower well-being (Thoits & Hewitt, 2001). A compensation pathway was also observed: Controlling for well-being, negative affect was associated with higher prosociality (Surana & Lomas, 2014). To our knowledge, these effects have not been tested jointly, and it is both theoretically and socially important to observe that each holds independently and at scale. The lack of support for a compensation effect of financial strain on prosociality differs from past findings (e.g., Piff et al., 2010), suggesting the possibility of unmeasured moderators to be explored in future research.

Regarding the role of collective disempowerment, there were direct negative associations between disempowerment and prosociality and well-being (Brittian et al., 2013; Smart-Richman & Leary, 2009). It is a novel finding to show that controlling for affective effects, disempowerment seems to harm individuals and damage the social fabric in a time of crisis (Leander et al., 2020).

Although disempowerment predicted lower prosociality overall, disempowerment nevertheless moderated the strength of the prosociality pathways at these lower levels: Higher disempowerment strengthened the "broaden and build" positive impact of positive affect on prosociality via well-being, and buffered the negative affect incapacity pathway. More specifically, we observed that at higher levels of disempowerment, the impact of affect on well-being is stronger, and the compensation pathway from negative affect to prosociality, when controlling for well-being, is also stronger. Disempowered individuals were the least prosocial when they felt low positive or negative affect. Although the present research does not speak directly to the underlying processes, future research can test theoretically-relevant contenders such as responsiveness to internal states (Cialdini & Kenrick, 1976), identity threat (Dovidio et al., 2010), and psychological need deprivation (e.g., Fritsche, et al. 2017; Leander et al., 2019).

It should also be noted that the three pathways tested here are theorized at the individual level, as psychological processes, and were not observed at the country level. At the country-level of analysis, we observed a positive association between positive affect, well-being and prosociality, and a negative association between disempowerment and prosocial behavior, controlling for well-being. These results are of concern, as they suggest that precisely in the contexts in which prosocial behavior would be most necessary to face a disaster—such as among social groups with reduced well-being and greater disempowerment, it may be less likely. The possible associated

cultural, political, and group processes would make for interesting future investigation.

A limitation of the current research is that, due to the cross-sectional design, we cannot be certain about the direction of causality. There is evidence for a bidirectional relationship between well-being and prosocial behavior, both in everyday life (Snippe et al., 2018), in work contexts (Conway et al., 2009), and in primary school children (Chen et al., 2020). More longitudinal or experimental studies to investigate this would prove valuable in the future. However, the present approach highlights three possible levers for policy level efforts to increase prosocial behavior during disasters: generate positive affect. For example, through ceremonies of gratitude for first responders, (Glasgow et al., 2016); mitigate financial strain, for example, through the public welfare systems (Yur'yev et al., 2012); and channel the collective experience of negative affect to compensatory action (for example, emphasizing the self-affirming functions of prosociality in media releases or public statements to the nation).

Another limitation of this work is the measurement of prosociality. Firstly, the measure is specific to the COVID-19 pandemic context, so the results may not be generalizable to other contexts. Secondly, the measure captures self-reported willingness and not actual behavior. Thirdly, the items do not distinguish between helping members of one's own group and helping society in general. Past research suggests that disempowerment increases the willingness to help one's own group (Leander et al., 2020), and more broadly, that group norms create and strengthen the association between affect and particular targets (Louis et al., 2019). Since the measure of collective disempowerment used "people like me" as the reference group, the possibility that participants had different groups in mind could suggest additional moderators to explore in future research. It would also be useful in the future to test the role of specific emotions associated with doing good, such as guilt and hope (Cohen-Chen et al., 2020).

Mention also needs to be made that in absolute terms, most of the observed effect sizes are small; nevertheless, it has been argued that in psychological research, small effects are not only typical but also meaningful, especially when aggregated across individuals (Funder & Ozer, 2019; Gignac & Szodorai, 2016). With larger samples, smaller effect sizes are also more likely to have been estimated correctly (Funder & Ozer, 2019). The COVID-19 pandemic affects almost every human on this planet; hence, small effects affecting almost 7.8 billion humans are arguably meaningful.

In conclusion, this study of over fifty thousand respondents across 39 countries suggests three paths to prosociality in the context of the COVID-19 pandemic: broaden and build, incapacity, and compensation. Each pathway operates independently at the individual level, when other pathways are controlled. In addition, a higher degree of disempowerment is found to exacerbate the "broaden and build" and compensation pathways, and to attenuate the incapacity pathway. From a theoretical and applied perspective, examining mechanisms and directions of causality – both longitudinally and in response to strategically targeted interventions – emerge as critical directions of future research in this field.

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Supplementary material

Supplementary Table 1

Lamdas of each item, ordinal alpha, mean and standard deviation for all scales

Country	Prosocial Behaviour							Wellbeing						Collective Disempowerment		
	λ1	λ2	λ3	λ4	α	M	SD	λ1	λ2	λ3	α	M	SD	ρ:	M	SD
Algeria	0.68	0.62	0.79	0.81	0.81	5.45	1.95	0.58	0.84	0.50	0.67	7.27	1.95	0.35	3.13	0.97
Argentina	0.69	0.75	0.83	0.61	0.81	4.82	1.27	0.74	0.84	0.79	0.84	7.45	2.01	0.40	2.94	0.94
Australia	0.75	0.72	0.85	0.52	0.80	4.71	1.19	0.83	0.97	0.82	0.91	6.76	2.90	0.60	2.78	0.99
Brazil	0.79	0.77	0.78	0.59	0.82	5.30	1.14	0.78	0.87	0.72	0.83	7.52	2.13	0.40	2.92	0.89
Canada	0.70	0.66	0.81	0.52	0.76	4.86	1.14	0.74	0.94	0.76	0.85	6.90	2.15	0.57	2.60	0.97
Chile	0.64	0.72	0.82	0.36	0.72	5.37	0.99	0.77	0.91	0.69	0.83	7.35	1.98	0.49	3.18	0.97
China	0.76	0.74	0.81	0.69	0.84	5.12	1.08	0.81	0.92	0.66	0.84	7.21	1.89	0.56	2.23	0.93
Croatia	0.64	0.54	0.85	0.54	0.73	4.82	1.14	0.88	0.93	0.70	0.87	8.04	1.80	0.52	2.48	0.88
Egypt	0.75	0.73	0.86	0.78	0.86	5.02	1.21	0.75	0.88	0.39	0.70	6.99	2.01	0.27	3.05	0.83
France	0.72	0.58	0.81	0.52	0.75	4.59	1.12	0.41	0.90	0.64	0.67	7.11	1.85	0.49	2.63	0.93
Germany	0.73	0.64	0.78	0.70	0.81	4.74	1.27	0.76	0.89	0.61	0.79	7.09	1.98	0.62	2.50	1.02
Greece	0.63	0.60	0.78	0.45	0.70	4.77	1.06	0.76	0.87	0.61	0.79	7.21	1.85	0.53	2.73	0.89
Hong Kong	0.72	0.80	0.81	0.57	0.81	4.46	1.15	0.79	0.91	0.61	0.81	5.95	1.89	0.38	2.94	0.82
Hungary	0.74	0.58	0.76	0.50	0.74	4.64	1.16	0.87	0.93	0.52	0.81	7.46	1.80	0.46	2.51	0.90
Indonesia	0.71	0.63	0.77	0.69	0.80	5.24	1.04	0.80	0.91	0.70	0.84	7.99	1.83	0.40	2.67	0.81
Iran	0.65	0.88	0.92	0.74	0.87	4.59	1.47	0.85	0.84	0.84	0.88	6.38	2.28	0.45	3.73	0.98
Italy	0.58	0.77	0.82	0.52	0.77	4.98	1.14	0.65	0.98	0.59	0.77	6.71	1.94	0.52	2.89	0.91
Japan	0.70	0.84	0.88	0.65	0.85	3.81	1.17	0.89	0.94	0.56	0.83	6.39	2.02	0.52	3.14	0.78
Kazakhstan	0.62	0.84	0.88	0.63	0.83	4.15	1.28	0.77	0.85	0.59	0.78	7.26	1.95	0.45	2.74	0.89
Kosovo	0.61	0.78	0.88	0.53	0.79	5.06	1.07	0.80	0.75	0.65	0.78	8.01	1.84	0.36	2.61	0.83
Malaysia	0.68	0.71	0.79	0.59	0.79	5.32	0.95	0.79	0.90	0.73	0.85	7.20	1.93	0.56	2.30	0.90
Netherlands	0.62	0.42	0.80	0.68	0.72	4.82	1.14	0.82	0.93	0.63	0.83	7.61	1.80	0.64	2.32	1.00
Pakistan	0.75	0.77	0.74	0.75	0.84	5.41	1.02	0.58	0.87	0.69	0.75	7.42	1.83	0.35	2.71	0.79
Philippines	0.78	0.77	0.82	0.60	0.83	5.34	1.05	0.71	0.92	0.68	0.81	7.33	1.97	0.41	2.93	0.89
Poland	0.64	0.60	0.84	0.66	0.78	4.51	1.24	0.82	0.93	0.57	0.81	6.43	2.07	0.57	3.18	1.00
R. of Serbia	0.67	0.76	0.85	0.58	0.80	4.45	1.31	0.85	0.89	0.77	0.87	7.62	2.10	0.46	3.01	0.94
Romania	0.61	0.74	0.79	0.53	0.76	4.55	1.18	0.75	0.92	0.67	0.82	7.39	1.90	0.52	3.15	0.88
Russia	0.62	0.84	0.90	0.97	0.90	3.86	1.29	0.77	0.93	0.59	0.80	6.89	1.97	0.54	3.01	1.01
Saudi Arabia	0.75	0.82	0.83	0.76	0.87	5.04	1.32	0.77	0.95	0.66	0.83	7.71	2.24	0.50	2.55	1.03
Singapore	0.72	0.54	0.89	0.64	0.79	5.29	0.95	0.81	0.91	0.72	0.85	6.86	2.00	0.63	1.95	0.90
South Africa	0.66	0.75	0.84	0.51	0.78	4.89	1.18	0.74	0.92	0.76	0.85	6.91	2.17	0.56	3.08	1.00
South Korea	0.83	0.89	0.88	0.64	0.88	4.49	1.15	0.88	0.91	0.55	0.81	6.82	1.86	0.51	2.86	0.88
Spain	0.76	0.66	0.83	0.55	0.79	5.30	1.12	0.75	0.92	0.76	0.85	7.51	1.96	0.49	2.78	1.64
Turkey	0.79	0.78	0.68	0.62	0.81	4.85	1.22	0.72	0.99	0.48	0.76	6.94	2.05	0.53	2.85	1.02
Ukraine	0.63	0.82	0.87	0.66	0.83	4.01	1.25	0.78	0.86	0.55	0.77	6.92	1.93	0.49	3.17	0.90
UK	0.68	0.69	0.88	0.57	0.79	4.88	1.22	0.79	0.94	0.79	0.88	6.98	2.20	0.62	2.68	0.98
USA	0.74	0.68	0.81	0.57	0.79	5.07	1.17	0.84	0.95	0.77	0.89	7.05	2.24	0.65	2.74	1.03
Vietnam	0.63	0.69	0.87	0.66	0.80	5.30	0.98	0.80	0.93	0.59	0.81	7.73	1.83	0.50	2.33	0.87

Note. *M*: mean; *SD*: standard deviation; α ordinal alpha; ρ: polychoric correlation. Range: Prosocial Behaviour [1,7]; Well-being [1,11]; Collective Disempowerment [1,5].

Supplementary Table 1 (Continuation)

Country	Positive Affect								Negative Affect							Perceived Financial Strain					
	λ1	λ2	λ3	λ5	λ6	α	M	SD	λ1	λ3	λ4	λ5	α	M	SD	λ1	λ2	λ3	α	M	SD
Algeria	0.75	0.54	0.49	0.67	0.73	0.77	2.55	0.72	0.76	0.61	0.69	0.57	0.74	2.61	0.79	0.91	0.81	0.87	0.90	3.17	1.11
Argentina	0.69	0.67	0.65	0.59	0.69	0.79	2.56	0.79	0.69	0.72	0.83	0.61	0.80	2.39	0.91	0.92	0.75	0.89	0.89	3.36	1.05
Australia	0.79	0.80	0.66	0.64	0.84	0.86	2.61	0.87	0.88	0.80	0.90	0.66	0.88	2.36	1.01	0.99	0.65	0.85	0.87	3.13	1.02
Brazil	0.74	0.77	0.63	0.77	0.74	0.85	2.45	0.88	0.75	0.79	0.84	0.63	0.83	2.59	0.99	0.96	0.54	0.80	0.80	3.47	0.93
Canada	0.74	0.74	0.64	0.65	0.77	0.84	2.44	0.79	0.86	0.73	0.83	0.60	0.84	3.55	0.97	0.96	0.68	0.90	0.88	3.07	1.04
Chile	0.77	0.53	0.72	0.61	0.68	0.80	2.26	0.70	0.86	0.71	0.82	0.48	0.80	2.95	0.88	0.96	0.71	0.90	0.89	3.11	1.05
China	0.51	0.78	0.73	0.64	0.69	0.80	3.14	0.75	0.82	0.85	0.70	0.63	0.83	2.23	0.85	0.92	0.70	0.83	0.85	3.03	0.95
Croatia	0.76	0.79	0.57	0.54	0.71	0.81	2.64	0.71	0.88	0.80	0.86	0.66	0.87	2.64	0.71	0.95	0.67	0.84	0.86	2.72	0.96
Egypt	0.62	0.52	0.47	0.42	0.63	0.66	2.67	0.62	0.75	0.62	0.83	0.55	0.78	3.11	0.86	0.93	0.76	0.82	0.87	3.39	0.96
France	0.64	0.75	0.69	0.61	0.79	0.82	2.70	0.79	0.79	0.77	0.84	0.57	0.83	2.24	0.90	0.95	0.77	0.94	0.92	2.78	1.12
Germany	0.66	0.76	0.62	0.61	0.76	0.81	2.79	0.75	0.73	0.77	0.80	0.62	0.82	2.23	0.86	0.98	0.82	0.86	0.92	2.62	1.10
Greece	0.76	0.70	0.67	0.65	0.66	0.82	2.86	0.79	0.77	0.72	0.76	0.60	0.80	2.59	0.91	0.96	0.74	0.90	0.90	3.29	0.96
Hong Kong	0.46	0.61	0.64	0.54	0.62	0.71	2.51	0.62	0.89	0.71	0.81	0.64	0.85	2.69	0.92	0.99	0.66	0.84	0.86	3.11	0.86
Hungary	0.72	0.79	0.74	0.72	0.54	0.83	2.77	0.84	0.88	0.72	0.88	0.48	0.82	2.68	0.99	0.94	0.62	0.93	0.86	2.62	0.97
Indonesia	0.73	0.73	0.74	0.60	0.76	0.84	2.95	0.89	0.68	0.73	0.69	0.55	0.76	2.49	0.88	0.84	0.76	0.88	0.87	3.31	0.93
Iran	0.62	0.72	0.91	0.85	0.61	0.86	2.60	0.79	0.69	0.74	0.69	0.55	0.76	2.68	0.83	0.88	0.54	1.01	0.84	3.31	0.98
Italy	0.68	0.69	0.68	0.68	0.72	0.82	2.34	0.79	0.75	0.80	0.80	0.64	0.84	2.43	0.95	0.94	0.62	0.93	0.86	2.96	0.96
Japan	0.71	0.65	0.71	0.09	0.81	0.72	2.55	0.68	0.64	0.74	0.82	0.70	0.82	2.64	0.90	1.01	0.60	0.66	0.79	3.19	0.84
Kazakhstan	0.72	0.68	0.68	0.68	0.61	0.81	2.68	0.77	0.84	0.81	0.83	0.64	0.86	2.19	0.90	0.92	0.61	0.93	0.85	3.10	0.96
Kosovo	0.77	0.52	0.76	0.67	0.79	0.83	3.06	0.76	0.75	0.79	0.73	0.61	0.81	2.20	0.85	0.91	0.74	0.90	0.89	2.90	0.96
Malaysia	0.71	0.70	0.61	0.63	0.70	0.80	2.97	0.73	0.85	0.72	0.82	0.56	0.82	2.36	0.91	0.95	0.65	0.88	0.86	2.95	0.94
Netherlands	0.69	0.80	0.68	0.60	0.80	0.84	3.03	0.79	0.82	0.72	0.86	0.60	0.84	2.14	0.89	0.90	0.63	0.83	0.83	2.44	0.94
Pakistan	0.69	0.50	0.64	0.55	0.79	0.77	2.70	0.77	0.75	0.76	0.73	0.50	0.78	2.72	0.97	0.84	0.81	0.92	0.89	3.07	0.96
Philippines	0.76	0.64	0.66	0.73	0.75	0.83	2.91	0.83	0.77	0.71	0.73	0.61	0.80	2.50	0.92	0.89	0.76	0.88	0.88	3.40	0.98
Poland	0.71	0.82	0.73	0.59	0.79	0.85	2.43	0.83	0.76	0.86	0.79	0.60	0.84	2.80	1.01	1.01	0.69	0.85	0.88	2.94	1.05
R. of Serbia	0.77	0.80	0.69	0.69	0.79	0.86	2.66	0.84	0.69	0.78	0.84	0.60	0.82	2.57	0.91	0.93	0.81	0.86	0.90	3.13	1.05
Romania	0.63	0.71	0.69	0.61	0.71	0.80	2.96	0.79	0.81	0.84	0.71	0.62	0.83	2.32	0.96	0.94	0.69	0.91	0.88	3.00	0.98
Russia	0.68	0.68	0.67	0.69	0.61	0.80	2.60	0.76	0.85	0.83	0.87	0.70	0.89	2.37	0.99	0.99	0.73	0.90	0.90	3.01	1.02
Saudi Arabia	0.67	0.57	0.64	0.61	0.69	0.77	2.92	0.77	0.76	0.76	0.80	0.61	0.82	2.66	0.97	0.92	0.72	0.88	0.88	3.10	1.08
Singapore	0.72	0.78	0.57	0.45	0.80	0.79	2.52	0.74	0.87	0.71	0.80	0.74	0.86	2.83	0.93	0.99	0.66	0.88	0.88	2.56	0.90
South Africa	0.74	0.63	0.61	0.65	0.78	0.81	2.77	0.85	0.83	0.78	0.77	0.57	0.83	2.54	1.01	0.95	0.72	0.88	0.88	3.71	0.98
South Korea	0.83	0.81	0.72	0.32	0.81	0.82	2.55	0.76	0.85	0.78	0.83	0.65	0.86	2.42	0.93	0.95	0.72	0.85	0.88	3.20	0.96
Spain	0.71	0.25	0.60	0.60	0.78	0.72	2.42	0.71	0.83	0.74	0.85	0.61	0.84	2.41	0.94	0.95	0.77	0.92	0.89	2.85	1.09
Turkey	0.62	0.77	0.73	0.59	0.80	0.83	2.50	0.80	0.73	0.77	0.87	0.53	0.81	2.89	0.92	0.91	0.75	0.93	0.90	3.19	1.03
Ukraine	0.65	0.73	0.66	0.69	0.52	0.79	2.71	0.75	0.80	0.81	0.83	0.65	0.86	2.22	0.90	0.94	0.69	0.91	0.88	3.39	0.98
UK	0.78	0.76	0.58	0.57	0.80	0.83	2.52	0.84	0.88	0.76	0.86	0.61	0.86	2.49	1.02	0.96	0.68	0.88	0.87	2.86	1.02
USA	0.80	0.80	0.69	0.66	0.82	0.87	2.48	0.85	0.88	0.73	0.87	0.63	0.86	2.72	1.01	0.98	0.67	0.90	0.88	3.26	1.06
Vietnam	0.63	0.86	0.51	0.59	0.58	0.77	3.12	0.72	0.73	0.84	0.81	0.75	0.86	2.01	0.86	0.93	0.71	0.77	0.84	3.27	0.95

Note. M: mean; SD: standard deviation; α ordinal alpha. Range: Positive Affect [1,5]; Negative Affect [1,5]; Perceived Financial Strain [1,5].

Supplementary Table 2

Scale intercorrelations for each country

Country	Scale	1	2	3	4	5	6	Country	Scale	1	2	3	4	5	6
Algeria	PB	1						Hong Kong	PB	1					
	W	0.20*	1						W	0.28*	1				
	CD	-0.02	-0.21*	1					CD	-0.26*	-0.24*	1			
	PA	0.25*	0.39*	-0.15	1				PA	0.02	0.36*	-0.11	1		
	NA	0.13	-0.24*	0.15	-0.45*	1			NA	-0.14	-0.43*	0.15	-0.30*	1	
	PFS	-0.05	-0.21*	0.38*	-0.05	0.25*	1		PFS	-0.15	-0.32*	0.25*	-0.06	0.19	1
Argentina	PB	1						Hungary	PB	1					
	W	0.27*	1						W	0.11	1				
	CD	-0.07*	-0.12*	1					CD	-0.03	-0.23*	1			
	PA	0.12*	0.32*	-0.17*	1				PA	0.02	0.47*	-0.23*	1		
	NA	0.02	-0.29*	0.14*	-0.38*	1			NA	0.03	-0.39*	0.21*	-0.70*	1	
	PFS	0.01	-0.12*	0.39*	-0.22*	0.24*	1		PFS	-0.03	-0.18*	0.40*	-0.19*	0.23*	1
Australia	PB	1						Indonesia	PB	1					
	W	0.25*	1						W	0.18*	1				
	CD	-0.19*	-0.32*	1					CD	-0.07	-0.28*	1			
	PA	0.16*	0.56*	-0.15*	1				PA	0.12*	0.45*	-0.17*	1		
	NA	-0.01	-0.46*	0.25*	-0.39*	1			NA	-0.01	-0.32*	-0.26*	-0.34*	1	
	PFS	-0.09*	-0.38*	0.47*	-0.23*	0.34*	1		PFS	-0.04*	-0.27*	0.30*	-0.15*	0.26*	1
Brazil	PB	1						Iran	PB	1					
	W	0.26*	1						W	0.24*	1				
	CD	0.03	-0.18*	1					CD	-0.22*	-0.24*	1			
	PA	0.07*	0.35*	-0.06	1				PA	0.17*	0.59*	-0.19*	1		
	NA	0.05	-0.32*	0.22*	-0.39*	1			NA	-0.09	-0.55*	0.26*	-0.51*	1	
	PFS	0.04	-0.24*	0.36*	-0.16*	0.27*	1		PFS	-0.27*	-0.24*	0.43*	-0.18*	0.17*	1
Canada	PB	1						Italy	PB	1					
	W	0.24*	1						W	0.20*	1				
	CD	-0.18*	-0.31*	1					CD	-0.19*	-0.25*	1			
	PA	0.12*	0.40*	-0.15*	1				PA	0.10*	0.40*	-0.16*	1		
	NA	0.03	-0.41*	0.20*	-0.40*	1			NA	-0.03	-0.35*	0.20*	-0.45*	1	
	PFS	-0.10*	-0.38*	0.46*	-0.20*	0.33*	1		PFS	-0.14*	-0.28*	0.44*	-0.16*	0.25*	1
Chile	PB	1						Japan	PB	1					
	W	0.16*	1						W	0.23*	1				
	CD	-0.11	-0.11*	1					CD	-0.11*	-0.32*	1			
	PA	0.1	0.44*	-0.15*	1				PA	0.13*	0.33*	-0.21*	1		
	NA	-0.03*	-0.40*	0.14	-0.61*	1			NA	0.02	-0.24*	0.26*	-0.24*	1	
	PFS	-0.16*	-0.33*	0.46*	-0.21*	0.29*	1		PFS	-0.02	-0.32*	0.51*	-0.19*	0.30*	1
China	PB	1						Kazakhstan	PB	1					
	W	0.35*	1						W	0.21*	1				
	CD	-0.32*	-0.39*	1					CD	-0.18*	-0.26*	1			
	PA	0.25*	0.54*	-0.28*	1				PA	0.15*	0.42*	-0.18*	1		
	NA	-0.18*	-0.46*	0.35*	-0.52*	1			NA	-0.09	-0.37*	0.23*	-0.56*	1	
	PFS	-0.17*	-0.45*	0.41*	-0.28*	0.38*	1		PFS	-0.25*	-0.29*	0.39*	-0.25*	0.24*	1
Croatia	PB	1						Kosovo	PB	1					
	W	0.11	1						W	0.23*	1				
	CD	-0.1	-0.19*	1					CD	-0.08	-0.19*	1			
	PA	0.06	0.41*	-0.11	1				PA	0.20*	0.49*	-0.15*	1		
	NA	-0.04	-0.37*	0.14*	-0.71*	1			NA	-0.18*	-0.46*	0.17*	-0.64*	1	
	PFS	0.01	-0.20*	0.36*	-0.18*	0.21*	1		PFS	-0.12*	-0.29*	0.35*	-0.26*	0.26*	1
Egypt	PB	1						Malaysia	PB	1					
	W	0.15*	1						W	0.18*	1				
	CD	0.02	-0.15*	1					CD	-0.21*	-0.27*	1			
	PA	0.07	0.49*	-0.12*	1				PA	0.08	0.54*	-0.20*	1		
	NA	-0.01	-0.41*	0.13*	-0.41*	1			NA	0.02	-0.48*	0.14*	-0.48*	1	
	PFS	-0.04	-0.28*	0.30*	-0.20*	0.30*	1		PFS	-0.11*	-0.38*	0.32*	-0.19*	0.31*	1
France	PB	1						Netherlands	PB	1					
	W	0.17*	1						W	0.17*	1				
	CD	-0.14*	-0.22*	1					CD	-0.23*	-0.31*	1			
	PA	0.06	0.31*	-0.13*	1				PA	0.07*	0.46*	-0.15*	1		
	NA	0.03	-0.30*	0.17*	-0.47*	1			NA	0.09*	-0.37*	0.20*	-0.53*	1	
	PFS	-0.11*	-0.25*	0.46*	-0.15*	0.20*	1		PFS	-0.16*	-0.31*	0.51*	-0.15*	0.25*	1
Germany	PB	1						Pakistan	PB	1					
	W	0.23*	1						W	0.24*	1				
	CD	-0.22*	-0.33*	1					CD	-0.17*	-0.33*	1			
	PA	0.09*	0.44*	-0.15*	1				PA	0.20*	0.40*	-0.06	1		
	NA	0.06	-0.36*	0.19*	-0.41*	1			NA	0.16	-0.27*	0.25*	-0.51*	1	
	PFS	-0.15*	-0.36*	0.50*	-0.18*	0.28*	1		PFS	-0.08	-0.32*	0.39*	-0.12	0.06	1
Greece	PB	1						Philippines	PB	1					
	W	0.18*	1						W	0.22*	1				
	CD	-0.12*	-0.29*	1					CD	-0.05	-0.25*	1			
	PA	0.12*	0.43*	-0.19*	1				PA	0.13*	0.44*	-0.19*	1		
	NA	0.0	-0.37*	0.23*	-0.58*	1			NA	-0.02	-0.36*	0.21*	-0.41*	1	
	PFS	-0.07*	-0.28*	0.47*	-0.21*	0.22*	1		PFS	-0.03	-0.24*	0.32*	-0.12*	0.22*	1

Supplementary Table 1 (Continuation)

Country	Scale	1	2	3	4	5	6	Country	Scale	1	2	3	4	5	6
Poland	PB	1						South Korea	PB	1					
	W	0.18*	1						W	0.36*	1				
	CD	-0.16*	-0.25*	1					CD	-0.18*	-0.37*	1			
	PA	0.08	0.49*	-0.22*	1				PA	0.18*	0.43*	-0.19*	1		
	NA	-0.04	-0.47*	0.22*	-0.61*	1			NA	-0.05	-0.34*	0.24*	-0.33*	1	
	PFS	-0.06	-0.31*	0.46*	-0.27*	0.34*	1		PFS	-0.11*	-0.41*	0.44*	-0.25*	0.25*	1
Republic of Serbia	PB	1						Spain	PB	1					
	W	0.17*	1						W	0.20*	1				
	CD	-0.14*	-0.30*	1					CD	-0.14*	-0.26*	1			
	PA	0.13*	0.41*	-0.21*	1				PA	0.05	0.31*	-0.15*	1		
	NA	-0.11*	-0.38*	0.18*	-0.61*	1			NA	0.04	-0.33*	0.21*	-0.45*	1	
	PFS	-0.10*	-0.33*	0.43*	-0.23*	0.25*	1		PFS	-0.11*	-0.31*	0.44*	-0.15*	0.23*	1
Romania	PB	1						Turkey	PB	1					
	W	0.17*	1						W	0.19*	1				
	CD	-0.01	-0.20*	1					CD	-0.14*	-0.30*	1			
	PA	-0.09*	0.42*	-0.20*	1				PA	0.09*	0.43*	-0.19*	1		
	NA	-0.01	-0.37*	0.19*	-0.52*	1			NA	0.04	-0.34*	0.21*	-0.45*	1	
	PFS	0.01	-0.25*	-0.43*	-0.22*	0.26*	1		PFS	-0.02	-0.31*	0.44*	-0.17*	0.24*	1
Russia	PB	1						Ukraine	PB	1					
	W	0.20*	1						W	0.21*	1				
	CD	-0.21*	-0.32*	1					CD	-0.12*	-0.24*	1			
	PA	0.10*	0.39*	-0.21*	1				PA	0.10*	0.35*	-0.21*	1		
	NA	-0.08*	-0.35*	0.24*	-0.46*	1			NA	-0.04	-0.31*	0.16*	-0.49*	1	
	PFS	-0.17*	-0.30*	0.45*	-0.24*	0.29*	1		PFS	-0.12*	-0.26*	0.44*	-0.20*	0.22*	1
Saudi Arabia	PB	1						UK	PB	1					
	W	0.28*	1						W	0.18*	1				
	CD	0	-0.21*	1					CD	-0.14*	-0.32*	1			
	PA	0.21*	0.44*	-0.10*	1				PA	0.02	0.48*	-0.13*	1		
	NA	-0.01	-0.33*	0.32*	-0.31*	1			NA	0.04	-0.44*	0.20*	-0.48*	1	
	PFS	0.08*	-0.22*	0.45*	-0.06*	0.34*	1		PFS	-0.04	-0.35*	0.46*	-0.16*	0.31*	1
Singapore	PB	1						USA	PB	1					
	W	0.15	1						W	0.22*	1				
	CD	-0.23*	-0.31*	1					CD	-0.11*	-0.28*	1			
	PA	0.17	0.60*	-0.24*	1				PA	0.08*	0.51*	-0.09*	1		
	NA	-0.05	-0.47*	0.15	-0.53*	1			NA	0.06*	-0.39*	0.24*	-0.44*	1	
	PFS	-0.09	-0.27*	0.34*	-0.21*	0.26*	1		PFS	-0.11*	-0.36*	0.45*	-0.20*	0.32*	1
South Africa	PB	1						Vietnam	PB	1					
	W	0.16*	1						W	0.23*	1				
	CD	-0.05	-0.23*	1					CD	-0.12	-0.23*	1			
	PA	0.10*	0.45*	-0.10*	1				PA	0.07	0.54*	-0.12	1		
	NA	0.07*	-0.37*	0.11*	-0.46*	1			NA	-0.17*	-0.47*	0.14	-0.42*	1	
	PFS	-0.04	-0.31*	0.37*	-0.25*	0.26*	1		PFS	-0.06	-0.27*	0.29*	-0.11	0.23*	1

Note. PB: Prosocial behavior; W: Well-being; CD: Collective disempowerment; PA: Positive affect; NA: Negative affect; PFS: Perceived financial strain. $^* p < 0.01$

Supplementary Table 3

Reverse model parameters for individual- and country-level affect, perceived financial stress, and collective disempowerment predicting prosocial behavior

Parameter	β	SE	df	t	p	95% CI Lower Bound	95% CI Upper Bound	sr
Individual Level								
Intercept	3.777	0.182	93.060	20.714	.000	3.297	4.256	
Positive affect (GC)	0.130	0.009	31.927	13.821	.000	0.101	0.156	0.096
Negative affect (GC)	0.075	0.013	44.887	5.743	.000	0.039	0.110	0.075
Perceived financial strain (GC)	-0.042	0.015	39.849	-2.705	.010	-0.083	-0.000	-0.033
Collective Disempowerment (GC)	-0.258	0.025	49.432	-10.246	.000	-0.325	-0.190	-0.100
Positive affect (GC)* Disempowerment (GC)	0.016	0.003	58662.052	6.040	.000	0.009	0.022	0.028
Negative affect (GC) * Disempowerment (GC)	0.012	0.003	58876.172	4.045	.000	0.004	0.019	0.017
Perceived financial strain (GC)* Disempowerment (GC)	0.008	0.003	60135.093	2.656	.008	0.000	0.016	0.006
Country Level								
Positive affect (CM)	0.056	0.149	158.249	0.373	.710	-0.334	0.445	-0.015
Negative affect (CM)	0.391	0.174	145.773	2.249	.026	0.062	0.844	0.051
Perceived financial strain (CM)	0.024	0.179	199.423	0.133	.895	-0.442	0.489	0.048
Disempowerment (CM)	-0.688	0.224	186.857	-3.063	.003	-1.272	-0.103	-0.143
Positive affect (CM)* Disempowerment (CM)	0.101	0.130	611.141	0.775	.438	-0.234	0.439	0.034
Negative affect (CM)* Disempowerment (CM)	0.235	0.152	449.287	1.543	.124	-0.159	0.629	0.049
Perceived financial strain (CM) * Disempowerment (CM)	-0.053	0.133	309.349	-0.403	.688	-0.397	0.290	-0.03

Note. GC): Within-Country Group-Centered; (CM): Country Mean; b: Unstandardized regression coefficients; sr: semi partial correlation.

Supplementary Table 4

Reverse model parameters for individual- and country-level affect, perceived financial stress, prosocial behavior and collective disempowerment predicting well-being

Parameter	β	SE	df	t	p	95% CI Lower bound	95% CI Upper bound	sr
Individual Level								
Intercept	0.132	0.069	66.383	1.905	0.061	-0.052	0.316	
Positive affect (GC)	0.185	0.007	53.095	26.635	0.000	0.166	0.203	0.258
Negative affect (GC)	-0.116	0.005	28.321	-23.922	0.000	-0.129	-0.102	-0.144
Perceived financial strain (GC)	-0.118	0.007	42.724	-18.056	0.000	-0.136	-0.100	-0.132
Collective Disempowerment (GC)	-0.137	0.007	28.410	-19.152	0.000	-0.157	-0.117	-0.091
Prosocial behavior (GC)	0.078	0.004	41.839	19.357	0.000	0.067	0.089	0.148
Positive affect (GC) * Disempowerment (GC)	0.016	0.001	59268.795	13.111	0.000	0.013	0.018	0.047
Negative affect (GC) * Disempowerment (GC)	-0.000	0.001	59293.459	-0.208	0.835	-0.003	0.002	0.003
Perceived financial strain (GC) * Disempowerment (GC)	-0.006	0.001	59220.681	-3.951	0.000	-0.009	-0.002	-0.012
Prosocial behavior (GC) * Disempowerment (GC)	-0.001	0.001	59523.643	-0.71	0.478	-0.003	0.002	0.000
Country Level								
Positive affect (CM)	0.018	0.059	104.337	3.035	0.003	0.024	0.337	0.079
Negative affect (CM)	-0.078	0.071	101.938	-1.105	0.272	-0.263	0.107	-0.009
Perceived financial strain (CM)	-0.108	0.072	143.298	-1.500	0.136	-0.296	0.080	-0.027
Disempowerment (CM)	0.023	0.099	139.664	0.232	0.817	-0.236	0.282	0.018
Prosocial behavior (CM)	0.110	0.039	93.836	2.858	0.005	0.009	0.211	0.054
Positive affect (CM) * Disempowerment (CM)	-0.024	0.056	421.909	-0.427	0.669	-0.170	0.122	-0.010
Negative affect (CM) * Disempowerment (CM)	-0.074	0.066	317.068	-1.118	0.264	-0.244	0.097	-0.030
Perceived financial strain (CM) * Disempowerment (CM)	0.014	0.055	221.168	0.247	0.805	-0.128	0.155	0.000
Prosocial behavior (CM) * Disempowerment (CM)	0.037	0.039	186.178	0.962	0.337	-0.063	0.137	0.021

Note. (GC): Within-Country Group-Centered; (CM): Country Mean; b: Unstandardized regression coefficients; sr: semi partial correlation.

Notes

*Research article.

i We ascribe causality based on our theoretical model, but for interested readers, results for a reverse causal model are presented in Tables 3 and 4 in the Supplemental Material.

ii Some of these measures have been previously reported in papers on different issues: *Willingness to engage in prosocial behavior* (Enea et al., 2023; Han, Zheng, Cristea et al., 2021; Jin et al., 2021; Resta et al., 2022; Romano et al., 2021); *Collective Disempowerment* (Han et al., 2023), *Positive and Negative Affect* (Han, Zheng et al., 2021; Reitsema et al., 2023).

iii The coefficients for the direct effects in models that dropped the interaction terms are highly similar and the substantive conclusions do not change.