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The perceived conditions for living well: Positive perceptions of primary goods linked with basic psychological needs and wellness

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Abstract

We integrate Rawls' (1971/2009, 1993, 2001) concept of *primary goods* with *self-determination theory* (Ryan & Deci, 2017), to examine the links between people's perceptions of primary goods (i.e., views of society as providing access to the necessities of a meaningful life), basic psychological needs, and well-being. In Study 1 (N=762, countries = Australia, the United States, South Africa, India, and the Philippines) and Study 2 (N=1479, groups = ethnic minority, sexual minority, political group, religious group), we used partial least squares structural equation modelling to assess associations between primary goods' perceptions and wellness, and the intermediary role of basic psychological needs. Across groups, primary goods' perceptions linked positively to well-being (average effect size = 0.48), and negatively to ill-being (average effect size = -0.46), mediated strongly by basic psychological needs (average percentage mediated: 53% Study 1, 68% Study 2). Results signify the importance of primary goods' perceptions to individuals' wellness.

Keywords: SDT, capabilities, autonomy, social justice, positive psychology

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Societies and their governments are rightly judged by their success in enabling people to achieve and sustain a desirable quality of life (Curren, 2013; Curren & Metzger, 2017; Radcliff, 2013). Although governments and development policy are often focused on economic outcomes such as gross domestic product, it is increasingly clear that economic factors alone are inadequate measures of social progress and well-being (Dolan, Peasgood, & White, 2006; Stiglitz, Sen, & Fitoussi, 2010). Anchored by philosophy, several theories offer a more detailed specification of the constitutional requirements for societal and individual flourishing, such as freedoms and other prerequisites for engaging in meaningful pursuits (Dworkin, 2002; Nussbaum, 2006; Rawls, 1971/2009, 1993, 2001; Sen, 1999). These affordances arguably permit individuals to more readily meet physiological needs and, and may also relate to the fulfilment of individuals' *basic psychological needs* for autonomy (agency and choice), competence (capability and effectiveness), and relatedness (closeness with others) (DeHaan et al., 2016), which are considered the basis of human wellness within *self-determination theory* (SDT; Ryan & Deci, 2017). In the present paper we report two studies linking people's perceptions of access to fundamental rights and freedoms with their wellness, as mediated by basic psychological need satisfactions and frustrations.

Primary Goods

Rawls (1971/2009, 1993, 2001) specified the societal ingredients necessary for optimal functioning, arguing that the proper focus of a just constitutional system is an adequate distribution of the conditions necessary for free and equal citizens to live in accordance with fair terms of cooperation, and to discover and pursue their own personal conceptions of a good life. These conditions are referred to as social *primary goods*, of which Rawls proposed five: 1) basic rights and liberties; 2) freedom of movement and occupation; 3) responsible positions of authority and responsibility; 4) income and wealth, "understood as all-purpose means… to achieve a wide range of ends"; and 5) the social bases of self-respect

(Rawls, 2001, pp. 58-59). These goods are considered *social* (or *institutional*) in the sense that, unlike natural goods (e.g., health and intelligence), their distribution can be directly shaped by principles of justice embodied in constitutions, laws, and policies. They are also *primary* in the sense that they are "social conditions and all-purpose means that are generally necessary" for cooperative citizenship and the individual pursuit of a good life (Rawls, 2001, pp. 57).

Arguably, Rawls' (2001) primary goods represent societal level supports for individuals' basic psychological needs for autonomy, competence, and relatedness. For example, freedom of movement provides opportunities to travel or relocate if necessary or desired, thus supporting individuals' autonomy. Similarly, having sufficient income to support one's needs, would likely bolster experiences of competence. As we discuss below, SDT specifies that basic psychological need satisfaction is essential to human flourishing (Ryan & Deci, 2017). Thus, the ability of various social supports to support human wellness is likely a function of the degree to which such supports satisfy basic psychological needs.

While some governments and international development agencies have moved toward measures and policies that support access to primary goods, others have not (Barry, 2005; Sen, 1999; UNDP, 1990-2007/8). In addition, regardless of laws and policies, not all people *experience* their societies as fair or as supportive of their intrinsic pursuits (DeHaan, Hirai, & Ryan, 2016). People and groups may differ in the degree to which they perceive access to primary goods and thus 'the good life', and inequality of this kind is likely detrimental to basic psychological need satisfaction, thereby compromising well-being (Kachanoff, Kteily, Khullar, Park, & Taylor, 2020).

While the link between perceived access to primary goods and wellness may seem intuitive, when the well-being of entire communities, societies, and countries is at stake, such intuitions require empirical support. Therefore, an analysis of the links between perceptions

of primary goods and indices of wellness, and the underpinning mechanistic role of basic psychological needs are at the central aims of the current study.

Perceived Access to Primary Goods

From a psychological standpoint, the benefit of primary goods is, in part, dependent on whether people *perceive* primary goods as truly available to themselves. It is not sufficient that access to primary goods is enshrined in law, they must also be perceived as practically accessible. The issue of perceived primary goods is crucial both because citizens' rights and freedoms vary across the world, and because, even within societies with just and inclusive laws and policies, members of marginalized and minority groups may nonetheless experience or perceive exclusion from 'the good life'.

Understanding the interplay between people's perceptions of primary goods and their well-being is critical for two reasons. First, objective indicators of primary goods, such as income, safety net provisions, or voting rights, may miss extrajudicial limits on access to primary goods. Second, people's perceptions are influenced by aspirations, adaptation, social comparison, and coping strategies (Frey & Stutzer, 2010). Thus, while objective primary goods indicators appear to be linked with well-being (Oishi, Schimmack, & Diener, 2012; Radcliff, 2013), a focus on such macro metrics can miss nuances associated with people's perceptions. Therefore, whilst bearing in mind Rawls' definition of primary goods as the societally afforded conditions required for all people to be able to pursue a meaningful life, for the purposes of our study, we focus on the extent to which people *perceive* these primary goods as accessible to them, and how those perceptions affect wellness.

Primary Goods and SDT's Basic Psychological Needs

Over the last three decades, research guided by SDT has consistently found that autonomy, competence, and relatedness comprise a limited set of *basic psychological needs*, the satisfaction of which, along with physiological needs, are *necessary* and *sufficient* for

human flourishing (Ryan & Deci, 2017). Building on this theory of basic psychological needs (Ryan & Deci, 2017), we propose that primary goods are important for the wellness of individuals and groups because they represent the societally provided ingredients required for basic psychological need satisfaction. In support of our claim, evidence already indicates that people's perceptions of ambient basic psychological need supports are associated with enhanced need satisfaction and well-being.

For example, the degree to which children perceive their fathers as being autonomy-supportive is positively linked with their basic psychological need satisfaction (Nishimura, Bradshaw, Ryan, & Deci, 2021). Basic psychological need satisfaction and frustration have also been shown to play a mediating role in the positive link between perceived organizational support and employee wellness (Gillet, Fouquereau, Forest, Brunault, & Colombat, 2012). Beyond proximal environments such as the family and the workplace, recent research has also highlighted the important role that societal affordances play in basic psychological need fulfilment and the promotion of well-being (e.g., DeHaan et al., 2016; Di Domenico & Fournier, 2014). In some of this research, basic psychological need satisfaction and frustration have been shown to mediate the link between primary goods-related metrics—such as socioeconomic status—and wellness (González, Swanson, Lynch, & Williams, 2016). People with more socioeconomic means have higher well-being because of the degree to which those means support basic psychological needs. This evidence represents an emerging field of interest within SDT that is examining the intermediary role of basic psychological needs in the link between people's wellness and the societal conditions in which they are embedded. Taken together, theory and evidence suggest that perceived access to the necessities for living well supports basic psychological needs and, in so doing, bolsters people's well-being.

The Current Research

Across two studies, we had two primary aims. First, we examined primary goods' perceptions across participants drawn from five countries, namely Australia, the United States, South Africa, India, and the Philippines (Study 1), and across self-identified groups including sexual minorities, ethnic minorities, religious groups, and political groups within the United States (Study 2). By recruiting such varied participants, our aim was primarily to examine differences in perceptions of primary goods across heterogeneous, "non-WEIRD" samples drawn from both developed and developing nations. Second, we provide an illustration of our proposed model in which basic psychological need satisfaction (BPNS) and basic psychological need frustration (BPNF) are major mechanisms explaining the links between primary goods' perceptions and indicators of wellness. Across the two studies, we hypothesized that perceived access to primary goods would link positively with BPNS and indices of well-being (Hypothesis 1), and negatively with BPNF and ill-being measures (Hypothesis 2), and that BPNS and BPNF would strongly mediate the links between primary goods' perceptions and wellness outcomes (Hypothesis 3).

In both studies, we comprehensively operationalized well-being and ill-being using a considered selection of reliable measurement scales. In Studies 1 and 2, we assessed satisfaction with life and affect because these variables are thought to be the core elements of subjective well-being (Diener, Suh, Lucas, & Smith, 1999; Martela & Sheldon, 2019). We indexed subjective vitality in Study 1 because it is argued to be a consequence of basic psychological need satisfaction and intrinsic motivation (Ryan & Frederick, 1997). To index ill-being across the two studies, we used short-forms of the Centre for Epidemiologic Studies Depression Scale, the Spielberger State-Trait Anxiety Inventory, and the General Health Questionnaire. We selected these scales because they are commonly used in self-determination theory research (i.e., Bradshaw et al., 2021; Chen et al., 2015; Martela et al.,

2019), thus the associations between these variables and basic psychological need satisfaction and frustration are known and consistent, which was essential for the purposes of our study.

Study 1 obtained ethical clearance from the University of Rochester Research Subjects Review Board (RSRB00065940) and Study 2 obtained ethical approval from the Australian Catholic University Human Research Ethics Committee (2018-114E) prior to data collection. All participants gave informed consent as a part of their online participation. Study 1 was funded by the Department of Clinical and Social Sciences in Psychology at the University of Rochester, and Study 2 was funded by a Discovery Early Career Researcher Award (DE140100080) granted to the third author. The authors confirm that we have no relevant financial or non-financial competing interests to report. For the purposes of open science, we have made our data freely available on the Open Science Framework (NOTE: anonymized link will be made public prior to publication https://osf.io/vn7mw/?view_only=a962b94e97274cbdae25949e2bda87eb). The data for Study 1 also included Lorgelly, Lorimer, Fenwick, Briggs, and Anand's (2015) 18-item measure of Nussbaum's (2006) capabilities. We have not made the responses from the Lorgelly et al. (2015) measure available as these data are core to separate future research. To date, research using these data has not been published nor submitted for publication elsewhere and appears only in the second author's PhD thesis (DeHaan, 2018).

STUDY 1

In Study 1, we primarily tested the hypothesized positive links between primary goods' perceptions and life satisfaction, vitality, and positive affect, as well as the hypothesized negative links with negative affect, depression, and anxiety, and the hypothesized mediating role of BPNS and BPNF. Authors on this paper—experts in philosophy and self-determination theory—developed a set of face-valid items designed to assess participants' perceptions of primary goods' access (Curren, DeHaan, & Ryan,

originally published in DeHaan, 2018). We used this measure in our studies. While the purpose of Study 1 was not to provide a comprehensive validation of Perceptions of Primary Goods Scale, below we nonetheless include a structural analysis of the measure, and an assessment of its measurement invariance. We include these analyses prior to the reporting of the intercorrelations between the variables and the tests of our hypotheses because confidence regarding the scale's structure is crucial to ensuring our substantive results are meaningful.

Method

Participants

Data were gathered from participants across five countries. The countries were selected based on the following criteria: (1) an adequate number of English-speaking participants could be secured; (2) the countries were varied on their United Nations Human Development Index and Inequality-Adjusted Human Development Index; and (3) the countries had diverse scores on The Economist Intelligence Unit's Democracy Index. These samples are not argued to be representative, rather we hoped to ensure a diversity of respondents and social conditions. English-speaking participants were recruited from the United States, Australia, South Africa, India, and the Philippines through Survey Sampling International. Participants were excluded from the analysis if they were missing greater than 10% of responses on key study variables, or if they were 'straight-liners'—selecting the same response for each item on a scale—leaving a total of 762 in the final sample. The final sample was 53% female, 46% male, 1% transgender, and three participants did not report their gender. The participants ranged in age from 18 to 84 (M=38.08, SD=15.11). The five countries were represented roughly equally with 21% of the participants being from South Africa (n=156), 20% (n=153) each from the United States, Australia, and India, and 19% from the Philippines (n=147). To retain maximal statistical power, our aim was to recruit as many participants as practical within our resource constraints for both studies. To achieve the

average effect size in psychology, which is 0.20, with 90% power, and using a 95% confidence interval, the recommended sample size is 263. Both of our samples are considerably large, and exceed the sample sizes recommended by our power analyses.

Measures

Perceptions of primary goods. Perceptions of Rawls' primary goods were measured using 17 items (note, as a result of the below structural analysis, one item was omitted from the primary analysis) designed by our team of psychological researchers and philosophers (Curren, DeHaan, & Ryan, originally published in DeHaan, 2018). Three items assessed *basic rights and liberties* (e.g., "My rights and freedoms are protected in this society"), four items indexed *freedom of movement and occupation* (e.g., "I am free to travel and live where I want to in this country"), two items measured *powers of office and authority* (e.g., "I am free to vote in elections, and participate in the civic life of my community"), six items assessed *income and wealth* or *living standards* (e.g., "I have access to enough healthy food and safe drinking water", one of these items was omitted following structural analysis), and two items measured the *social basis of self-respect* (e.g., "People like me are looked down on in this society", reversed scored). Participants responded to each item on a seven-point scale (1 = not at all to 7 = very much so). Critically, the measure of the primary goods is designed to be formative rather than reflective. The focus of formative measures is on conceptual breadth rather than item collinearity. Thus, we do not report Cronbach's alphas for this scale. All of the items from the scale, as well as formative scale-appropriate indices of the scale's psychometric properties are reported below and expanded upon in Online Supplementary Materials S1-S4.

Basic psychological need satisfaction and frustration. BPNS and BPNF were measured using the 24-item Basic Psychological Need Satisfaction and Frustration Scale (Chen et al., 2015). Items assessed autonomy satisfaction ("I feel a sense of choice and

freedom in the things I undertake"), autonomy frustration ("I feel forced to do many things I wouldn't choose to do"), relatedness satisfaction ("I feel connected with people who care for me, and for whom I care"), relatedness frustration ("I feel that people who are important to me are cold and distant towards me"), competence satisfaction ("I feel capable at what I do"), and competence frustration ("I feel insecure about my abilities"). Participants responded to each item on a five-point scale (1 = not at all true to 5 = very true). The three satisfaction variables formed one basic psychological need satisfaction variable, and the three frustration variables formed a basic psychological need frustration variable. Cronbach's alphas indicated excellent internal consistency for BPNS ($\alpha = 0.91$) and BPNF ($\alpha = 0.90$).

Subjective Vitality. The Subjective Vitality Scale (Ryan & Frederick, 1997) uses six items to assess subjective vitality in daily life. Participants responded to items such as "I feel alive and vital" on a seven-point scale (1 = not at all true to 7 = very true). Internal consistency for vitality was excellent ($\alpha = 0.92$).

Life satisfaction. The Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985) assesses life satisfaction via five items such as "I am satisfied with my life", all answered on a seven-point scale (1 = not at all true to 7 = very true). The SWLS has been shown to have favorable psychometric properties, including high internal consistency in this sample ($\alpha = 0.90$).

Positive and negative affect. Positive and negative affect were measured using an internationally validated short form of the Positive and Negative Affect Scale (Thompson, 2007). Five items assessed positive affect (e.g., "attentive") and negative affect (i.e., "upset") on a five-point scale (1 = never to 5 = always). Cronbach's alpha reliability for the positive and negative affect scales were 0.90 and 0.87, respectively.

Depression. Depressive symptoms were measured using a 10-item short-form (Björgvinsson, Kertz, Bigda-Peyton, McCoy, & Aderka, 2013) of the original Centre for

Epidemiologic Studies Depression Scale. Participants reported how frequently they had a variety of depressed experiences (e.g., "I was bothered by things that usually don't bother me" and "I felt fearful") on a four-point scale (1 = rarely or none of the time to 4 = most or all of the time). Cronbach's alpha reliability for this scale was 0.88.

Anxiety. Anxiety was measured using a short form (Marteau & Bekker, 1992) of the Spielberger State-Trait Anxiety Inventory (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983). Participants responded to six statements about themselves "in general" (e.g., "I feel tense" and "I am worried") on a four-point scale (1 = not at all to 4 = very much). Cronbach's alpha reliability for this scale was 0.86.

Accounting for common method variance. When predictor and outcome variables are self-reported by the same participant—as is the case in our studies—common method variance may be of concern. Common method variance is variation in the data attributable to the measurement method, rather than the variables of interest (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003), such instances are thought to inflate correlations. While there is considerable debate regarding how to effectively identify and deal with common method variance, Monte Carlo simulation studies have demonstrated that common method variance generally only inflates correlations when the common method variance is above 70% (Fuller, Simmering, Atinc, Atinc, & Babin, 2016). We used Harman's (1976) one-factor test to examine common method variance in Study 1. An unrotated factor analysis of all the items in the model indicated that a single factor solution accounted for 30% of the variance. This result is below the 50% cut-off recommended for Harman's (1976) test (Podsakoff & Organ, 1986), and below the 70% bias threshold identified by Fuller et al. (2016). However, Fuller et al. (2016) also point out that, the inclusion of multiple factors—as is the case in our studies—may downwardly bias the magnitude of the first factor. Taken together, the analysis of common method variance offered some degree of reassurance regarding common method

bias, though we acknowledge that common method variance is nonetheless a limitation of our studies.

Results

Structural analysis of the Perceptions of Primary Goods Scale. As we mentioned above, the perceived primary goods construct is both philosophically and conceptually formative (as opposed to reflective) in nature. Therefore, we assessed the scale's structure and invariance using partial least squares structural equation modeling (PLS-SEM) using the SmartPLS 3.0 software (Ringle, Wende, & Becker, 2015). PLS-SEM is recommended for the analysis of formative factors, especially when research is theoretically anchored, and exploratory or early-stage (Benitez, Henseler, Castillo, & Schuberth, 2019), as is the case with perceptions of primary goods.

To assess primary goods' perceptions as a second-order formative variable composed of five first-order formative subscales (according to Rawls' (1971/2009, 1982) theory), we followed the guidelines proposed by Becker, Klein, and Wetzels (2012). We used the repeated indicator approach using an inner factor weighting scheme with Mode B (formative-formative) measurement, which is intended for measures comprising formative first-order and formative second-order elements. In the repeated indicator approach, the second-order construct (in this case, general primary goods' perceptions) is constructed by specifying that the higher-order variable comprises the manifest first-order variables (Becker et al., 2012). Simulation studies have demonstrated that our approach is effective for accurate parameter recovery (Becker et al., 2012).

To maximize the variance explained in the latent variable(s), a formative variable should index a latent construct via a distributed set of indicators (i.e., items that are *not* highly correlated). We used two means of evaluating our scale's psychometric breadth. Namely, we assessed (a) multicollinearity and (b) indicator validity, or the extent to which individual

items link to the latent construct/s. First, we assessed multicollinearity by referring to the items' variable inflation factors (VIF); higher VIFs indicate items that are 'too' correlated with other items. Andreev, Heart, Maoz, and Pliskin (2009) suggest that items with a VIF above 3.3 are redundant. According to the VIFs in Study 1, there was no redundancy among the items on the Perceptions of Primary Goods Scale, with all VIFs well below 3.3. Second, we assessed indicator validity by ensuring the outer weights for each item linked with the latent construct/s to a statistically significant degree. For outer weights, a *p*-value cut-off of 0.1 (as opposed to 0.05, which is common in psychological research) is recommended, because omission of an item from a formative factor can be more consequential to the meaning of the construct than omitting an item from a reflective factor (Andreev et al., 2009). According to the 0.1 cut-off, 16 of the 17 items were statistically significantly associated with the appropriate subscale. Item 13 ("There are libraries, parks, and other recreational and cultural opportunities available to me"), did not load meaningfully on the perceptions of living standards subscale or, importantly, on the higher-order perceptions of primary goods variable, so we excluded it from the scale and from all subsequent analyses. Online Supplementary Materials S1-S4 outline and report the results of this structural analysis in extended detail. Taken together, these results suggest that the measure of the primary goods' perceptions is valid and sufficiently broad. Accordingly, we proceeded to evaluate the scale's measurement invariance.

Measurement invariance using the MICOM procedure. Models derived using PLS-SEM are conceptually different from common factor models (i.e., models with reflective variables), as such, invariance assessment criteria apply differently to the evaluation of models with formative elements (Henseler, Ringle, & Sarstedt, 2016). Specifically, we used the measurement invariance for composite models (MICOM; Henseler et al., 2016) approach,

which builds on non-parametric tests to establish (a) configural invariance, (b) compositional invariance, and (c) the equality of mean values and variances.

Configural invariance. In the context of formative model evaluation, configural invariance demands that the same methods of data collection and treatment apply across groups (Henseler et al., 2016). Configural invariance is established when; (a) each construct is indexed via the same set of items across the groups; (b) data are treated identically across groups (i.e., re-coding and item reversal, for example, are the same for all groups); and (c) the same algorithm settings and/or optimization criteria are used for all groups. Our data meet the three configural invariance criteria because all participants were English speakers, thus identical items were administered to all participants. The data were treated simultaneously for all groups, so processes of item reversal and re-coding were also identical. Finally, the data were also analyzed simultaneously, so all algorithm settings were the same across groups.

Compositional invariance. Step 2 of the MICOM procedure evaluates the scale's compositional invariance. In formative models, tests of compositional invariance assess whether the indicator weights (i.e., the loadings from items onto latent variables) or path estimates (i.e., the links between latent variables) are roughly equal across groups (Henseler et al., 2016). The degree to which an item loads on its latent variable, and/or the strength of the link between two latent variables should be similar across groups. We tested compositional invariance using a permutation algorithm. The permutation procedure first estimates the model for each group (for example, for males and females) and computes correlation *c*, which is the correlation between the two groups' indicator weights. Next, the data are randomly permutated in a process similar to bootstrapping. A selection of participants from a prespecified group (i.e., males) is randomly allocated to a 'Group A' while participants from a second group (i.e., females) are randomly selected and placed into a 'Group B'. The correlation between Group A's and Group B's indicator weights or path

estimates—referred to as correlation c_u— is calculated for each permutation. The c_u results are then stacked in descending order. If the original correlation c is larger than the 95% cutoff point of c_u, there is evidence of compositional invariance. We carried out the process of random sampling, group-specific path estimations, and calculation of c_u over 1,000 permutations as recommended by Hair et al. (2017). Our results indicated that general perceptions of primary goods and its five constituent subscales demonstrated compositional invariance across gender, age group, and country (we include supporting results in Online Supplementary Tables S6-S8). Our tests of configural and compositional invariance indicated that the Perceived Primary Goods Scale is at least partially invariant. Meeting the partial invariance criteria permits data to be pooled to the group level—in our case, the country-level is most relevant—and the groups can be compared in a multigroup analysis (Hair et al., 2017). Aggregation of the country-level groups would require that they have equal means and variances on perceptions of primary goods, which is Step 3 in the MICOM procedure, and was our next analytic step.

Equality of means and variances. Step 3 of the MICOM procedure tests the equality of means and variances (Hair et al., 2017; Henseler et al., 2016). In other words, Step 3 tests whether the means and variances for each perceptions of primary goods subscale, and for general perceptions of primary goods, are equivalent across groups. A permutation procedure, similar to that described above in MICOM Step 2, calculates the path model for the aggregated data and then examines whether means and variances on each of the variables differ across groups in a pairwise fashion. MICOM repeatedly permutes the group memberships—1,000 times in our case (Hair et al., 2017)—to generate the distribution of mean and variance differences. Means and variances are considered equal if the permuted confidence intervals for the differences between the groups include the original difference between the two groups.

Results of the permutation analysis demonstrated the equality of means across gender, though variance differed for the perceptions of basic rights and liberties subscale (see Supplementary Table S9). There were, however, several mean differences in the country-level group comparisons. South African participants had the lowest general perceptions of primary goods, scoring lower than the other four countries. Accordingly, South African participants also had the lowest scores on four of the five perceptions of primary goods subscales (there were no country-level differences on the perceptions of powers of office and authority subscale). The only other mean difference was between India and the Philippines, with India scoring higher on the perceptions of living standards subscale. Please see Online Supplementary Materials S11. Taken together, the MICOM procedure indicated that the measure of primary goods' perceptions is partially rather than fully invariant. In other words, participants were interpreting the perceptions of primary goods construct similarly across groups, despite group differences in the average levels of primary goods' perceptions. Partial invariance suggested that that pooling at the country-level in our PLS-SEM would be the least bias prone and therefore the most informative approach.

Inter-correlations. As shown in Table 1, specific primary goods' perceptions were all strongly positively correlated. As expected, the specific primary goods' perceptions were positively correlated with BPNS and the three well-being indices and negatively correlated with BPNF and the three ill-being variables. Thus, participants' sense that society conduces to a good life is associated with higher basic psychological need fulfillment and well-being.

PLS -SEM of primary goods' perceptions and multigroup analysis. For each country-level group, we estimated the direct effect of general primary goods perceptions on well-being and ill-being, as well as the indirect effects through basic psychological needs satisfaction and frustration. We then compared the estimates across the country-level groups,

using permutation-based multigroup analysis, applying an inner path weighting scheme (Chin & Dibbern, 2010; Sarstedt, Henseler, & Ringle, 2011)

Figure 1 is an illustrative depiction of the pattern of direct effects consistently observed across the five country-level groups. Figure 2 depicts the total, direct, and indirect effects appropriately pooled at the country-level, and Table 2 specifies the country-specific total, direct, and indirect effects in detail. Taken together, across the five country-level groups, our results support our hypotheses that primary goods perceptions link positively to well-being (Hypothesis 1) and negatively to ill-being (Hypothesis 2) strongly mediated by basic psychological need satisfaction and frustration (Hypothesis 3). The average percentage of variance in the outcome variables explained by BPNS and BPNF was 53%. Below we discuss the results in more detail with reference to the country-specific path estimates, and the differences across countries.

Well-being indices. As shown in Figure 2 and Table 2, Hypothesis 1 that perceptions of primary goods would link positively with indices of well-being was supported, though to slightly varying degrees across groups. Concordant with Hypothesis 3, BPNS and BPNF were statistically significant mediators of the positive links between perceptions of primary goods and life satisfaction, vitality, and positive affect in all five countries. Indeed, needs fully mediated the link between primary goods' perceptions and positive affect in all five countries, as well as the link between primary goods' perceptions and vitality in four of five countries (it was a partial mediator in the Australian sample). The multigroup permutation-based analysis (described in detail in Online Supplementary Materials S13 and reported in Online Supplementary Materials S14), showed that there were some country-level differences in the total, direct, and indirect effects. However, in all cases, the country-level differences were statistical rather than substantive. In other words, the link between primary goods' perceptions and basic psychological needs, and between primary goods' perceptions and

well-being was positive in all five country-level groups, the link was just more positive in some groups than others.

Ill-being indices. As shown in Figure 2 and Table 2, Hypothesis 2 that perceived primary goods access would link negatively with ill-being indices was support in all five country groups. Further, in line with Hypothesis 3, BPNS and BPNF mediated the links between primary goods' perceptions and indices of ill-being in all five country-level groups. The links between primary goods' perceptions and negative affect and depression were fully mediated by needs in four out of five countries, and the links between primary goods' perceptions and anxiety were fully mediated by needs in three out of five country-level groups. For participants in the South African sample there remained statistically significant direct paths from primary goods' perceptions to all three indices of ill-being, not accounted for by need fulfilments. For participants in the American sample, there remained a statistically significant direct path from primary goods to anxiety, accounting for needs.

Discussion

The results from Study 1 provide a robust empirical illustration of Rawls' theory of primary goods, demonstrating the importance of primary goods' perceptions to positive psychological functioning. We hypothesized that primary goods' perceptions would link positively to well-being (Hypothesis 1) and negatively with ill-being (Hypothesis 2), mediated strongly by BPNS and BPNF (Hypothesis 3). We found broad support for all three hypotheses, with the positive link between primary goods' perceptions and well-being and the negative link between primary goods and ill-being—both mediated by need satisfaction and frustration—being consistent across country-level groups. In Study 2 we zoom in from our cross-country perspective, to examine the links between primary goods' perceptions and positive psychological functioning across groups within a single country.

STUDY 2

Using a sample of Americans, Study 2 examined differences in perceptions of primary goods across self-identified groups including ethnic and sexual minority groups, and religious and political groups. In Study 2, we strove to replicate the results supporting our previous Hypotheses 1, 2, and 3. In addition, we were interested in how religious and political groups perceive their access to primary goods, compared to those who identify with racial and sexual minority groups. Below, we outline the relevance of these groups to our assessment of perceptions of primary goods:

Religious individuals. The relationship between religious identification and well-being is complex because while religious engagement tends to be positively associated with wellness across individuals, countries with more aggregate religiosity tend to have less well-being than countries that are less religious (Myers & Diener, 2018). However, Study 2 included individuals from one country, and in such samples, religiosity tends to be positively correlated with subjective well-being (Abdel-Khalek, 2010; Van Cappellen, Toth-Gauthier, Saroglou, & Fredrickson, 2016). Moreover, religious individuals—from a variety of religions—tend to report more well-being than nonreligious individuals (Myers & Diener, 2018). Religious individuals are thought to report more well-being because they have high perceived control (Jackson & Bergeman, 2011) and greater perceived social and environmental supports (Koenig, 2012), relative to nonreligious individuals.

Political individuals. Liberals and conservatives have been shown to report (Napier & Jost, 2008) and display (Wojcik, Hovasapian, Graham, Motyl, & Ditto, 2015) differing levels of subjective well-being, but we theorize that one who considers themselves politically engaged, at all, may feel part of a powerful in-group. Other groups may not feel as included or as socially powerful.

Ethnic and sexual minorities. Ethnic and sexual minorities have been shown to have lower wages (Black, Makar, Sanders, & Taylor, 2003), and less access to social resources

such as education (Ueno, Roach, & Peña-Talamantes, 2013). Combining these evidence bases, we hypothesized that members of ethnic and sexual minorities (i.e., minority group members) would have lower perceptions of primary goods than members of more socially powerful groups such as religious groups or political groups (Hypothesis 4). Though we expected the relevance of primary goods' perceptions to well-being, and the mediating effect of BPNS and BPNF, to hold across groups.

Method

Participants

The 1479 participants in Study 2 were recruited by a professional survey company, Qualtrics. The sample originally included 1500 participants, 21 were omitted due to non-response on the majority of items. The final sample comprised 1166 females, 293 males, and 20 participants who opted to self-describe or not disclose their gender. The disparity between female and male participants was an unfortunate function of females responding more frequently (than males) to participation requests from the survey company we used. Participants were asked the screening question: "We belong to many social groups. For the purpose of this research, we are interested in the different groups people identify with that fall under the categories of sexual minority, ethnic minority, political group, or religious group. Think of a group that you are a member of that is really important to you. Is this group either a sexual minority, ethnic minority, a political group, or a religious group?" If participants answered this question in the affirmative, they were included. Participants then specified the type of group with which they identify. The sample consisted of 334 members of a sexual minority, 259 of an ethnic minority, 262 of a political group, and 624 of a religious group.

Measures

Perceptions of primary goods. In Study 2, we used the 16-item Perceived Primary Goods Scale that we examined and used in Study 1 (and described in Online Supplementary

Materials S1-S4). As above, we do not report Cronbach's alphas for this scale, because such metrics are not appropriate for the assessment of formative measures. All items were answered on a ten-point scale (1 = not at all true to 10 = very much so).

Basic psychological needs satisfaction and frustration. As in Study 1, BPNS and BPNF were measured using the 24-item Basic Psychological Need Satisfaction and Frustration Scale (Chen et al., 2015). In Study 2, all needs items were answered on a ten-point scale (1 = not at all true to 10 = very much so). Cronbach's alphas indicated excellent internal consistency for BPNS ($\alpha = 0.90$) and BPNF ($\alpha = 0.92$).

Life satisfaction. As above in Study 1, we measured life satisfaction using the SWLS (Diener et al., 1985). In Study 2, the SWLS demonstrated high internal consistency ($\alpha = 0.89$). All items were answered on a seven-point scale (1 = strongly disagree to 10 = strongly agree).

Well-being. Well-being was measured using the 14-item Short General Well-being Scale (SGWS; Longo, Coyne, & Joseph, 2018), which includes items such as, "I feel happy". The SGWS was highly internally consistent ($\alpha = 0.89$) in our sample. We also used the Personal Well-being Index (PWBI; Tomyn, Tyszkiewicz, & Cummins, 2013). The PWBI poses the sentence stem "How satisfied are you with…?", and participants respond to eight items such as "your health". The Personal Well-being Index was also internally consistent ($\alpha = 0.85$). All well-being items were answered on a ten-point scale (1 = not at all true to 10 = very much so).

Physical symptoms. We measured physical symptoms, or physical ill-being, using the Physical Symptom Inventory (Spector & Jex, 1998). With reference to the previous month, the PSI assesses the frequency (on a 1 = not at all to 5 = every day scale) of 12 symptoms such as headaches and dizziness. The PSI showed acceptable internal consistency ($\alpha = 0.84$).

Depression and anxiety. Depressive symptoms were measured using six items from the Centre for Epidemiologic Studies Depression Scale. Cronbach's alpha reliability for these six depression items was 0.92. Anxiety was measured using six items from the General Health Questionnaire (Goldberg & Hillier, 1979). Internal consistency for the anxiety measure was 0.89. All depression and anxiety items were answered on a ten-point scale (1 = not at all true to 10 = very true). The depression and anxiety items we used are reported in Supplementary Materials S15.

Accounting for common method variance. In Study 2, we again used Harman's (1976) one-factor test to specify the common method variance. An unrotated factor analysis of all the items in the model indicated common method variance equating to 26%, which is below Harman's 50% cut-off and Fuller et al.'s (2015) 70% bias indicator threshold. However, as in Study 1, common method variance is a limitation our approach.

Results

Inter-correlations. As shown in Table 3, the inter-correlations between the variables in Study 2 closely matched those in Study 1. The perceptions of primary goods subscales were all positively correlated, though the correlation between the perceptions of living standards and the perceived social basis of self-respect subscales was lower than between the other subscales (the pattern was the same in Study 1). BPNS correlated positively with all of the primary goods' perceptions, and BPNF correlated negatively with all primary goods' perceptions, as in Study 1. Primary goods' perceptions also correlated positively with indices of well-being, and negatively with indices of physical and psychological ill-being, which was consistent with our expectations.

PLS-SEM of primary goods and multigroup analysis. As in Study 1, we assessed the paths between primary goods' perceptions, indices of well-being and ill-being, and the indirect effects of BPNS and BPNF. As shown in Table 4 and Figure 3, the results concurred

with those from Study 1. Across all four groups, perceived access to primary goods linked positively with indices of well-being (Hypothesis 1), and negatively with indices of ill-being (Hypothesis 2), strongly mediated by BPNS and BPNF (Hypothesis 3). Indeed, BPNS and BPNF mediated an average of 68% of the variance in the outcome variables.

Well-being indices. Table 4 includes, and Figure 3 depicts, the total and direct effects from primary goods to well-being indices, as well as the indirect paths via BPNS and BPNF. Consistent with Hypothesis 1, the paths from primary goods' perceptions to the three well-being indices were all positive. Online Supplementary Materials S17 reports the group-level differences on the PLS-SEM path estimates and shows that the direct effect of primary goods' perceptions on BPNS and BPNF was stronger for members of the religious and political groups than for the ethnic and sexual minorities.

As shown in Table 4 and Figure 3, support for Hypothesis 3 was mixed across groups. BPNF and BPNS partly mediated the link between primary goods' perceptions and life satisfaction and personal well-being only for the sexual minority group and for the religious group. There was no indirect effect of needs on the link between primary goods' perceptions and life satisfaction or personal well-being for the ethnic minority group or the political group. Basic psychological needs fully mediated the link between primary goods' perceptions and general well-being for members of the ethnic minority group and for the religious group and partly mediated the link for the other two groups.

Ill-being indices. Consistent with Hypothesis 2, all of the pathways from perceived primary goods to ill-being indices were negative. Hypothesis 3 was also fully supported with regards to indices of ill-being. The indirect pathways from primary goods' perceptions to the three ill-being metrics via BPNF and BPNS were statistically significant across all four groups. The results suggest that basic psychological needs play an important role in the link between primary goods and ill-being across groups.

Group mean differences. As shown in Table 5, and consistent with Hypothesis 4, members of ethnic minorities and sexual minorities had lower perceptions of general primary goods' perceptions, as well as all five specific primary goods' perceptions, compared to members of political groups and religious groups. Ethnic and sexual minority groups did not differ on any primary goods' perceptions, nor did political and religious group members. (We examined differences in primary goods' perceptions across males and females finding no substantive differences, as discussed and reported in Online Supplementary Materials S18-S20).

General Discussion

Several authors have noted the conceptual link between the SDT's definition of autonomy as representing choice and volition, and Rawls' emphasis on experiences of freedom and fairness (Arvanitis & Kalliris, 2017; Helwig & McNeil, 2011). Rawls' outlined the societal-level requirements for effective group functioning, while basic psychological need satisfaction is the individual-level manifestation of experiences of autonomy (and competence and relatedness) that such environments should afford. Together, our studies provide an empirical illustration of these previously only theoretical connections. Consistent with Rawls' philosophy and with SDT, we hypothesized that perceived access to primary goods would link positively with well-being (Hypothesis 1) and negatively with ill-being (Hypothesis 2) explained, at least in part, by the associations between perceptions of primary goods access and basic psychological needs (Hypothesis 3). In two studies, with samples drawn from diverse countries and groups, we found broad support for our expectations.

The Role of Basic Psychological Needs

Our study makes an important and novel contribution to research on social justice and well-being by demonstrating that BPNS and BPNF accounted substantially for the links between primary goods' perceptions and indices of positive functioning. According to SDT,

contexts that are autonomy-supportive (i.e., are non-controlling and support rights, choice, and freedoms) foster greater autonomy satisfaction. Similarly, perceived access to basic resources such as education is likely linked with competence satisfactions that are essential to agentic motivation, and freedom from prejudice and stigma are likely linked to a sense of inclusion and relatedness. Therefore, experiencing one's society as providing extensive liberties, equal opportunity, and a fair distribution of resources supports basic psychological needs satisfaction, which in turn is associated with greater psychological well-being.

Questions regarding the unique roles played by each of the three basic psychological needs, and by the individual (rather than aggregate) primary goods' perceptions, are opportunities for future research. Perhaps the association between perceived access to the social bases of self-respect and wellness is mediated primarily by feelings of relatedness. Meanwhile, freedom of movement and occupation may promote well-being primarily via feelings of autonomy. A more fine-grained analysis of these relations may provide useful specific direction to societies and communities looking to increase well-being via social and institutional reform.

Group Differences in Perceptions of Primary Goods

Our analyses in Study 2 focused on group-level differences in perceptions of primary goods within a single country. Sexual and ethnic minority group members reported lower primary goods' perceptions than members of religious or political groups, supporting our Hypothesis 4 that members of 'power groups' such as religions or political organizations would likely have higher perceptions of primary goods than those who belong to minorities.

Our results suggested that belonging to certain minority groups may drive down one's primary goods' perceptions. However, perceptions of primary goods across minority and majority groups should be further examined insofar as perceptions relate to actual access to primary goods. Some might argue that Westernized, democratic institutions afford people

equal access to many of the rights specified by Rawls, yet our research suggests that people differentially perceive such access. Perhaps, access is fundamentally unequal, which should be known and addressed, or maybe there are group characteristics that increase or decrease perceptions of access. These questions are paramount to forwarding this program of research.

Limitations

These studies are limited by the fact that the multi-national samples collected were not representative of country differences. We strove to demonstrate some possible variation in primary goods' perceptions at the country-level, though we are yet to examine this variation in samples that accurately reflect population characteristics. Similarly, the disparity between females and males in Study 2 meant that the results were derived from a sample that does not represent the broader population, which usually comprises a roughly equal number of males and females. Future research should strive for samples that are representative in terms of gender and other group-specific characteristics to enhance the generalizability of the results.

We attempted to examine the limiting presence of common method variance using Harman's (1976) one-factor test. Though, the volume of variables used in our studies compromised our ability be certain about the presence (or lack thereof) of common method bias. To address the limitation of common method variance, future studies will benefit from the inclusion of variables that are not self-reported. Questions regarding perceived versus actual access to primary goods will require objective metrics such as socioeconomic indicators and information regarding laws and legislation. Such data will not only increase the methodological rigor of the research but also further illuminate these theories.

Importantly, the cross-sectional nature of these data precludes testing the temporal precedence of our hypothesized mediation model. We have argued, based on theory and related evidence that primary goods' perceptions should enhance basic psychological need

satisfaction and therefore wellness, though longitudinal data are required to further assess our theoretical model. Our aim was to provide an empirical demonstration of Rawls' theory, and the connections between primary goods' perceptions and basic psychological need satisfaction, we will strive to pick up where these studies leave off with longitudinal research, as we hope others will too.

Conclusion

Using PLS-SEM in two large samples, recruiting participants from a variety of diverse countries and groups we found support for our expectation that perceptions of primary goods would link positively to well-being and negatively to ill-being primarily via BPNS and BPNF. We found large, statistically significant effect sizes, attesting to the strength and probable reliability of our hypothesized model. At this stage, our studies provide an empirical illustration of the importance of perceived primary goods for well-being, as hypothesized by Rawls (1971/2009, 1993, 2001), and their connections with basic psychological need satisfaction and frustrations as specified within SDT (Ryan & Deci, 2017).

Perceptions of adequate rights and the ability to freely participate in society are, quite rightly, assumed to contribute to people's wellness. Through our studies, we demonstrate *how* perceptions of rights and abilities might affect wellness. Thus, in addition to being the first published study, to our knowledge, to unite Rawls' philosophy with SDT, we are also contributing novel evidence regarding possible mechanisms underpinning the role of adequate rights and resources in the promotion of individual flourishing. As societies and communities support people's feelings of access to 'the good life', their needs are increasingly satisfied, and thus their well-being is enhanced. Our hope is that these studies spark interest in how these philosophically anchored variables may be associated with well-

tested psychological constructs, to shine new light on how perceptions of law, policy, equality, and inclusivity are associated with people's psychological well-being.

References

Abdel-Khalek, A. M. (2010). Religiosity, subjective well-being, and neuroticism. *Mental Health, Religion and Culture, 13*(1), 67-79. https://doi.org/10.1080/13674670903154167

Andreev, P., Heart, T., Maoz, H., & Pliskin, N. (2009). *Validating formative partial least squares (PLS) models: Methodological review and empirical illustration*. Paper presented at the ICIS 2009 Proceedings.

Arvanitis, A., & Kalliris, K. (2017). A self-determination theory account of self-authorship: Implications for law and public policy. *Philosophical Psychology*, *30*(6), 763-783. https://doi.org/10.1080/09515089.2017.1307333

Barry, B. (2005). *Why social justice matters*. Cambridge, UK: Polity Press.

Becker, J.-M., Klein, K., & Wetzels, M. (2012). Hierarchical latent variable models in PLS-SEM: Guidelines for using reflective-formative type models. *Long Range Planning*, *45*(5-6), 359-394. https://doi.org/10.1016/j.lrp.2012.10.001

Benitez, J., Henseler, J., Castillo, A., & Schuberth, F. (2020). How to perform and report an impactful analysis using partial least squares: Guidelines for confirmatory and explanatory IS research. *Information & Management*, *57*(2), 103168. https://doi.org/10.1016/j.im.2019.05.003

Björgvinsson, T., Kertz, S. J., Bigda-Peyton, J. S., McCoy, K. L., & Aderka, I. M. (2013). Psychometric properties of the CES-D-10 in a psychiatric sample. *Assessment*, *20*(4), 429-436. https://doi.org/10.1177/1073191113481998

Black, D. A., Makar, H. R., Sanders, S. G., & Taylor, L. J. (2003). The earnings effects of sexual orientation. *Industrial and Labor Relations Review*, *56*(3), 449-469. https://doi.org/10.1177/001979390305600305

Bradshaw, E. L., Sahdra, B. K., Ciarrochi, J., Parker, P. D., Martos, T., & Ryan, R. M. (2021). A configural approach to aspirations: The social breadth of aspiration profiles predicts well-being over and above the intrinsic and extrinsic aspirations that comprise the profiles. *Journal of Personality and Social Psychology*, *120*(1), 226–256. https://doi.org/10.1037/pspp0000374

Chen, B., Vansteenkiste, M., Beyers, W., Boone, L., Deci, E. L., Van der Kaap-Deeder, J., . . . Mouratidis, A. (2015). Basic psychological need satisfaction, need frustration, and need strength across four cultures. *Motivation and Emotion*, *39*(2), 216-236. https://doi.org/10.1007/s11031-014-9450-1

Chin, W. W., & Dibbern, J. (2010). A permutation based procedure for multi-group PLS analysis: Results of tests of differences on simulated data and a cross cultural analysis of the sourcing of information system services between Germany and the USA. In V. Esposito Vinzi, W. W. Chin, J. Henseler, & H. Wang (Eds.), *Handbook of partial least squares: Concepts, methods, and applications* (pp. 83-97). Heidelberg: Springer.

Curren, R. (2013). Aristotelian necessities. *The Good Society*, *22*(2), 247-263. https://doi.org/10.1353/gso.2013.0015

Curren, R., & Metzger, E. (2017). *Living well now and in the future: Why sustainability matters*. Cambridge, MA: MIT Press.

DeHaan, C. R. (2018). *Conditions of living well: Three models.* University of Rochester, Rochester, NY.

DeHaan, C. R., Hirai, T., & Ryan, R. M. (2016). Nussbaum's capabilities and self-determination theory's basic psychological needs: Relating some fundamentals of human wellness. *Journal of Happiness Studies*, *17*(5), 2037-2049. https://doi.org/10.1007/s10902-015-9684-y

Di Domenico, S. I., & Fournier, M. A. (2014). Socioeconomic status, income inequality, and health complaints: A basic psychological needs perspective. *Social Indicators Research*, *119*(3), 1679-1697. https://doi.org/10.1007/s11205-013-0572-8

Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment*, *49*(1), 71-75. https://doi.org/10.1207/s15327752jpa4901_13

Diener, E., Suh, E. M., Lucas, R. E., & Smith, H. L. (1999). Subjective well-being: Three decades of progress. *Psychological Bulletin, 125*(2), 276-302. https://doi.org/10.1037/0033-2909.125.2.276

Dolan, P., Peasgood, T., & White, M. (2006). *Review of research on the influences on personal well-being and application to policy making*. London, UK: DEFRA.

Dworkin, R. (2002). *Sovereign virtue: The theory and practice of equality*. Boston, MA: Harvard University Press.

Frey, B. S., & Stutzer, A. (2010). *Happiness and economics: How the economy and institutions affect human well-being*. Princeton, NJ: Princeton University Press.

Fuller, C. M., Simmering, M. J., Atinc, G., Atinc, Y., & Babin, B. J. (2016). Common methods variance detection in business research. *Journal of Business Research, 69*(8), 3192-3198. https://doi.org/10.1016/j.jbusres.2015.12.008

Gillet, N., Fouquereau, E., Forest, J., Brunault, P., & Colombat, P. (2012). The impact of organizational factors on psychological needs and their relations with well-being. *Journal of Business and Psychology, 27*(4), 437-450. https://doi.org/10.1007/s10869-011-9253-2

Goldberg, D. P., & Hillier, V. F. (1979). A scaled version of the General Health Questionnaire. *Psychological Medicine, 9*(1), 139-145. https://doi.org/10.1017/S0033291700021644

González, M. G., Swanson, D. P., Lynch, M., & Williams, G. C. (2016). Testing satisfaction of basic psychological needs as a mediator of the relationship between socioeconomic status and physical and mental health. *Journal of Health Psychology, 21*(6), 972-982. https://doi.org/10.1177/1359105314543962

Hair, J. F., Sarstedt, M., Ringle, C. M., & Gudergan, S. P. (2017). *Advanced issues in partial least squares structural equation modelin*g. Thousand Oaks, CA: Sage Publications.

Harman, H. H. (1976). *Modern factor analysis*. University of Chicago Press.

Helwig, C. C., & McNeil, J. (2011). The development of conceptions of personal autonomy, rights, and democracy, and their relation to psychological well-being. In V. I. Chirkov, R. M. Ryan, & K. M. Sheldon (Eds.), *Human autonomy in the cross-cultural context* (pp. 241-256). New York, NY: Springer.

Henseler, J., Ringle, C. M., & Sarstedt, M. (2016). Testing measurement invariance of composites using partial least squares. *International Marketing Review, 33*(3), 405-431. https://doi.org/10.1108/IMR-09-2014-0304

Jackson, B. R., & Bergeman, C. S. (2011). How does religiosity enhance well-being? The role of perceived control. *Psychology of Religion and Spirituality, 3*(2), 149-161. https://doi.org/10.1037/a0021597

Kachanoff, F., Kteily, N., Khullar, T., Park, H. J., & Taylor, D. (2020). Determining our destiny: Do restrictions to collective autonomy fuel collective action? *Journal of Personality and Social Psychology*, *119*(3), 600–632. https://doi.org/10.1037/pspi0000217

Koenig, H. G. (2012). Religion, spirituality, and health: The research and clinical implications. *International Scholarly Research Notices*, 2012. https://doi.org/10.5402/2012/278730

Longo, Y., Coyne, I., & Joseph, S. (2018). Development of the short version of the Scales of

General Well-Being: The 14-item SGWB. *Personality and Individual Differences*, *124*, 31-34. https://doi.org/10.1016/j.paid.2017.11.042

Lorgelly, P. K., Lorimer, K., Fenwick, E. A., Briggs, A. H., & Anand, P. (2015). Operationalising the capability approach as an outcome measure in public health: The development of the OCAP-18. *Social Science & Medicine*, 142, 68-81. https://doi.org/10.1016/j.socscimed.2015.08.002

Marteau, T. M., & Bekker, H. (1992). The development of a six-item short-form of the state scale of the Spielberger State-Trait Anxiety Inventory (STAI). *British Journal of Clinical Psychology*, *31*(3), 301-306. https://doi.org/10.1111/j.2044-8260.1992.tb00997.x

Martela, F., Bradshaw, E. L., & Ryan, R. M. (2019). Expanding the map of intrinsic and extrinsic aspirations using network analysis and multidimensional scaling: Examining four new aspirations. *Frontiers in Psychology,* 10. https://doi.org/https://doi.org/10.3389/fpsyg.2019.02174

Martela, F., & Sheldon, K. M. (2019). Clarifying the concept of well-being: Psychological need satisfaction as the common core connecting eudaimonic and subjective well-being. *Review of General Psychology*, *23*(4), 458-474. https://doi.org/10.1177/1089268019880886

Myers, D. G., & Diener, E. (2018). The scientific pursuit of happiness. *Perspectives on Psychological Science*, *13*(2), 218-225. https://doi.org/10.1177/1745691618765171

Napier, J. L., & Jost, J. T. (2008). Why are conservatives happier than liberals? *Psychological Science, 19*(6), 565-572. https://doi.org/10.1111/j.1467-9280.2008.02124.x

Nishimura, T., Bradshaw, E. L., Deci, E. L., & Ryan, R. M. (2021). Satisfaction of basic psychological needs in an interdependence model of fathers' own aspirations and

those of their adolescent children. *Social Development, 30*(1), 293-310. https://doi.org/10.1111/sode.12473

Nussbaum, M. C. (2006). *Frontiers of justice: Disability, nationality, species membership*. Cambridge, MA: Harvard University Press.

Oishi, S., Schimmack, U., & Diener, E. (2012). Progressive taxation and the subjective well-being of nations. *Psychological Science, 23*(1), 86-92. https://doi.org/10.1177/0956797611420882

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*(5), 879-903. https://doi.org/10.1037/0021-9010.88.5.879

Podsakoff, P. M., & Organ, D. W. (1986). Self-reports in organizational research: Problems and prospects. *Journal of Management, 12*(4), 531-544. https://doi.org/https://doi.org/10.1177/014920638601200408

Radcliff, B. (2013). *The political economy of human happiness: How voters' choices determine the quality of life*. Cambridge, UK: Cambridge University Press.

Rawls, J. (1971/2009). *A theory of justice*. Cambridge, MA: Harvard University Press.

Rawls, J. (1993). *Political liberalism*. New York, NY: Columbia University Press.

Rawls, J. (2001). *Justice as fairness: A restatement*. Cambridge, MA: Harvard University Press.

Ringle, C. M., Wende, S., & Becker, J. M. (2015). SmartPLS 3 [computer software]. Hamburg: SmartPLS. Retrieved from http://www.smartpls.com.

Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development and wellness*. New York, NY: Guilford Press.

Ryan, R. M., & Frederick, C. (1997). On energy, personality, and health: Subjective vitality as a dynamic reflection of well-being. *Journal of Personality*, *65*(3), 529-565. https://doi.org/10.1111/j.1467-6494.1997.tb00326.x

Sarstedt, M., Henseler, J., & Ringle, C. M. (2011). Multigroup analysis in partial least squares (PLS) path modeling: Alternative methods and empirical results. In M. Sarstedt, M. Schwaiger, & C. R. Taylor (Eds.), *Measurement and research methods in international marketing* (pp. 195-218). Bingley, UK: Emerald Publishing Limited.

Sen, A. K. (1999). *Development as freedom*. New York, NY: Knopf.

Spector, P. E., & Jex, S. M. (1998). Development of four self-report measures of job stressors and strain: Interpersonal conflict at work scale, organizational constraints scale, quantitative workload inventory, and physical symptoms inventory. *Journal of Occupational Health Psychology*, *3*(4), 356-367. https://doi.org/10.1037/1076-8998.3.4.356

Spielberger, C., Gorsuch, R., Lushene, R., Vagg, P., & Jacobs, G. (1983). *Manual for the state-trait anxiety inventory*. Palo Alto, CA: Consulting Psychologists Press.

Stiglitz, J. E., Sen, A., & Fitoussi, J.-P. (2010). *Mismeasuring our lives: Why GDP doesn't add up*. New York, NY: The New Press.

Thompson, E. R. (2007). Development and validation of an internationally reliable short-form of the positive and negative affect schedule (PANAS). *Journal of Cross-Cultural Psychology*, *38*(2), 227-242. https://doi.org/10.1177/0022022106297301

Tomyn, A. J., Tyszkiewicz, M. D. F., & Cummins, R. A. (2013). The personal wellbeing index: Psychometric equivalence for adults and school children. *Social Indicators Research*, *110*(3), 913-924. https://doi.org/10.1007/s11205-011-9964-9

Ueno, K., Roach, T. A., & Peña-Talamantes, A. E. (2013). The dynamic association between same-sex contact and educational attainment. *Advances in Life Course Research*, *18*(2), 127-140. https://doi.org/10.1016/j.alcr.2012.09.002

UNDP. (1990-2007/8). *Human development report*. Oxford, UK: Oxford University Press.

Van Cappellen, P., Toth-Gauthier, M., Saroglou, V., & Fredrickson, B. L. (2016). Religion and well-being: The mediating role of positive emotions. *Journal of Happiness Studies*, *17*(2), 485-505. https://doi.org/10.1007/s10902-014-9605-5

Wojcik, S. P., Hovasapian, A., Graham, J., Motyl, M., & Ditto, P. H. (2015). Conservatives report, but liberals display, greater happiness. *Science*, *347*(6227), 1243-1246. https://doi.org/10.1126/science.1260817

Table 1.

Means, standard deviations, and inter-correlations between perceptions of first- and second-order primary goods, basic psychological needs satisfaction and frustration, and well-being and ill-being outcomes in Study 1

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Primary goods	-													
2. Basic rights	.76***	-												
3. Freedoms	.85***	.55***	-											
4. Power of office	.62***	.30***	.49***	-										
5. Living standards	.81***	.52***	.63***	.34***	-									
6. Social respect	.65***	.41***	.43***	.47***	.30***	-								
7. BPNS	.57***	.37***	.52***	.30***	.58***	.24***	-							
8. BPNF	-.47***	-.28***	-.36***	-.42***	-.27***	-.55***	-.45***	-						
9. SWLS	.48***	.38***	.40***	.13***	.54***	.19***	.63***	-.32***	-					
10. Vitality	.39***	.31***	.34***	.13***	.41***	.17***	.64***	-.33***	.67***	-				
11. Positive affect	.31***	.22***	.28***	.11**	.36***	.09*	.61***	-.23***	.60***	.79***	-			
12. Negative affect	-.44***	-.29***	-.34***	-.28***	-.34***	-.38***	-.43***	.66***	-.39***	-.39***	-.29***	-		
13. Depression	-.45***	-.31***	-.36***	-.29***	-.33***	-.40***	-.51***	.65***	-.53***	-.61***	-.52***	.73***	-	
14. Anxiety	-.44***	-.35***	-.36***	-.20***	-.40***	-.28***	-.56***	.52***	-.61***	-.68***	-.60***	.65***	.81***	-
Mean	5.07	4.36	4.93	5.53	5.48	4.73	4.04	2.54	4.34	4.59	3.67	2.26	2.07	2.14
SD	0.94	1.30	1.17	1.23	1.11	1.67	0.71	0.88	1.48	1.44	0.93	0.98	0.67	0.71

Note. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. BPNS = basic psychological needs satisfaction; BPNF = basic psychological needs frustration; SWLS = satisfaction with life.

Table 2.

Total and direct path estimates from primary goods' perceptions to indices of well-being and ill-being, plus the indirect paths via basic psychological needs satisfaction and frustration from a partial least squares structural equation model pooled to the country-level in Study 1

		USA		Australia		South Africa		India		Philippines	
Pathway	Path type	b	SD	b	SD	b	SD	b	SD	b	SD
PPG - BPNS	Total	0.66***	[0.06]	0.68***	[0.04]	0.48***	[0.05]	0.62***	[0.06]	0.65***	[0.04]
PPG - BPNF	Total	-0.48***	[0.07]	-0.67***	[0.05]	-0.44***	[0.07]	-0.45***	[0.08]	-0.51***	[0.07]
PPG - SWLS	Total	0.66***	[0.04]	0.75***	[0.04]	0.53***	[0.06]	0.46***	[0.09]	0.61***	[0.05]
	Direct	0.38***	[0.07]	0.54***	[0.08]	0.30***	[0.07]	0.23*	[0.10]	0.32***	[0.08]
	Indirect	0.28***	[0.05]	0.21***	[0.06]	0.23***	[0.04]	0.23***	[0.07]	0.29***	[0.06]
PPG - Vitality	Total	0.53***	[0.06]	0.59***	[0.05]	0.34***	[0.08]	0.49***	[0.08]	0.52***	[0.07]
	Direct	0.11	[0.07]	0.19*	[0.09]	0.07	[0.09]	0.11	[0.09]	0.07	[0.10]
	Indirect	0.41***	[0.06]	0.40***	[0.06]	0.27***	[0.05]	0.38***	[0.07]	0.45***	[0.07]
PPG – Positive Affect	Total	0.44***	[0.08]	0.50***	[0.07]	0.32***	[0.08]	0.39***	[0.08]	0.43***	[0.07]
	Direct	0.02	[0.10]	0.24	[0.13]	0.05	[0.09]	0.03	[0.10]	-0.03	[0.11]
	Indirect	0.42***	[0.06]	0.26**	[0.09]	0.27***	[0.05]	0.37***	[0.08]	0.46***	[0.08]
PPG – Negative Affect	Total	-0.51***	[0.07]	-0.51***	[0.07]	-0.43***	[0.06]	-0.35***	[0.07]	-0.37***	[0.08]
	Direct	-0.15	[0.08]	0.07	[0.10]	-0.15*	[0.06]	-0.02	[0.09]	0.00	[0.09]
	Indirect	-0.36***	[0.07]	-0.58***	[0.08]	-0.27***	[0.05]	-0.32***	[0.07]	-0.37***	[0.08]
PPG - Depression	Total	-0.50***	[0.10]	-0.63***	[0.05]	-0.40***	[0.07]	-0.44***	[0.08]	-0.32***	[0.08]
	Direct	-0.08	[0.08]	-0.13	[0.08]	-0.15*	[0.07]	0.05	[0.08]	0.10	[0.09]
	Indirect	-0.42***	[0.06]	-0.50***	[0.05]	-0.24***	[0.05]	-0.49***	[0.08]	-0.42***	[0.09]
PPG - Anxiety	Total	-0.56***	[0.08]	-0.62***	[0.05]	-0.36***	[0.07]	-0.47***	[0.08]	-0.45***	[0.08]
	Direct	-0.18*	[0.08]	-0.14	[0.08]	-0.15*	[0.08]	-0.04	[0.09]	-0.03	[0.11]
	Indirect	-0.38***	[0.06]	-0.48***	[0.06]	-0.20***	[0.05]	-0.44***	[0.07]	-0.42***	[0.07]

Note. $p < .05$ = *, $p < .01$ = **, $p < .001$ = ***. All effects bootstrapped across 5000 samples. PPG = perceived primary goods access; BPNS = basic psychological needs satisfaction; BPNF = basic psychological needs frustration; SD = standard deviation; SWLS = satisfaction with life

Table 3

Means, standard deviations, and inter-correlations between perceptions of first- and second-order primary goods, basic psychological needs satisfaction and frustration, and well-being and ill-being outcomes in Study 2

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Primary goods	-													
2. Basic rights	0.75**	-												
3. Freedoms	0.85**	0.52**	-											
4. Power of office	0.67**	0.35**	0.50**	-										
5. Living standard	0.79**	0.45**	0.61**	0.41**	-									
6. Social respect	0.68**	0.51**	0.43**	0.51**	0.28**	-								
7. BPNS	0.50**	0.29**	0.51**	0.32**	0.52**	0.14**	-							
8. BPNF	-0.47**	-0.23**	-0.38**	-0.49**	-0.27**	-0.49**	-0.42**	-						
9. SWLS	0.46**	0.35**	0.44**	0.09**	0.49**	0.18**	0.46**	-0.19**	-					
10. General WB	0.49**	0.34**	0.48**	0.23**	0.51**	0.15**	0.70**	-0.37**	0.65**	-				
11. Personal WB	0.57**	0.49**	0.52**	0.17**	0.58**	0.22**	0.48**	-0.18**	0.67**	0.67**	-			
12. Symptoms	-0.36**	-0.20**	-0.27**	-0.35**	-0.24**	-0.38**	-0.20**	0.47**	-0.14**	-0.27**	-0.19**	-		
13. Depression	-0.45**	-0.30**	-0.36**	-0.36**	-0.32**	-0.41**	-0.40**	0.69**	-0.38**	-0.56**	-0.37**	0.55**	-	
14. Anxiety	-0.45**	-0.31**	-0.36**	-0.33**	-0.30**	-0.42**	-0.32**	0.65**	-0.32**	-0.48**	-0.34**	0.57**	0.84**	-
Mean	6.71	5.87	6.64	7.36	7.39	5.74	7.50	4.97	4.01	6.69	6.04	2.47	5.41	5.55
SD	1.43	1.97	1.83	1.91	1.58	2.56	1.45	2.03	1.47	1.75	1.80	0.77	2.58	2.45

Note. For the purposes of formatting, two stars ** (instead of three ***) have been used to indicate $p < 0.001$. BPNS = basic psychological needs satisfaction; BPNF = basic psychological needs frustration; SWLS – satisfaction with life; WB = well-being; Symptoms = physical symptoms/physical ill-being.

Table 4.

Total and direct path estimates from primary goods' perceptions to indices of well-being and ill-being, plus indirect paths via basic psychological needs satisfaction and frustration from a partial least squares structural equation model pooled to the group-level in Study 2

		Ethnic minority		Sexual minority		Religious group		Politics group	
Pathway	Path type	b	SD	b	SD	b	SD	b	SD
PPG - BPNS	Total	0.36***	[0.05]	0.36***	[0.05]	0.49***	[0.03]	0.51***	[0.05]
PPG - BPNF	Total	-0.45***	[0.05]	-0.39***	[0.05]	-0.52***	[0.03]	-0.67***	[0.03]
PPG - SWLS	Total	0.31***	[0.06]	0.36***	[0.05]	0.38***	[0.03]	0.36***	[0.06]
	Direct	0.25***	[0.06]	0.27***	[0.06]	0.16***	[0.04]	0.28***	[0.07]
	Indirect	0.06	[0.04]	0.09**	[0.03]	0.22***	[0.03]	0.08	[0.06]
PPG – GWB	Total	0.32***	[0.06]	0.38***	[0.05]	0.43***	[0.04]	0.46***	[0.05]
	Direct	0.08	[0.05]	0.12**	[0.05]	0.06	[0.04]	0.15*	[0.07]
	Indirect	0.24***	[0.04]	0.26***	[0.04]	0.37***	[0.03]	0.31***	[0.06]
PPG – PWB	Total	0.44***	[0.05]	0.50***	[0.04]	0.49***	[0.03]	0.51***	[0.05]
	Direct	0.39***	[0.06]	0.41***	[0.04]	0.32***	[0.04]	0.41***	[0.07]
	Indirect	0.05	[0.04]	0.10***	[0.03]	0.17***	[0.03]	0.10	[0.06]
PPG – Symptoms	Total	-0.39***	[0.05]	-0.31***	[0.05]	-0.39***	[0.03]	-0.54***	[0.04]
	Direct	-0.23***	[0.07]	-0.16**	[0.05]	-0.24***	[0.04]	-0.38***	[0.07]
	Indirect	-0.16***	[0.04]	-0.15***	[0.03]	-0.15***	[0.03]	-0.16**	[0.05]
PPG - Depression	Total	-0.44***	[0.05]	-0.39***	[0.05]	-0.44***	[0.03]	-0.58***	[0.04]
	Direct	-0.35***	[0.05]	-0.29***	[0.05]	-0.29***	[0.04]	-0.51***	[0.06]
	Indirect	-0.09***	[0.02]	-0.09***	[0.02]	-0.15***	[0.02]	-0.08*	[0.03]
PPG - Anxiety	Total	-0.47***	[0.05]	-0.40***	[0.05]	-0.42***	[0.03]	-0.56***	[0.04]
	Direct	-0.22***	[0.06]	-0.17***	[0.05]	-0.10**	[0.04]	-0.14***	[0.07]
	Indirect	-0.25***	[0.04]	-0.23***	[0.04]	-0.32***	[0.03]	-0.42***	[0.05]

Note. $p < .05$ = *, $p < .01$ = **, $p < .001$ = ***. All effects bootstrapped across 5000 samples. BPNS = basic psychological needs satisfaction; BPNF = basic psychological needs frustration; SD = standard deviation; PPG = perceived primary goods; SWLS = satisfaction with life; GWB and PWB = general and personal well-being.

Table 5.

Mean differences (and Bonferroni-corrected 99.2% confidence intervals) between the ethnic minority group (EM), the sexual minority group (SM), the religious group (RG), and the political groups' (PG) scores on perceptions of first- and second-order primary goods in Study 2

		EM-SM	EM-PG	EM-RG	SM-PG	SM-RG	PG-RG
PPG	Mean diff	-0.10	-0.70*	-0.71*	-0.62*	-0.63*	-0.01
	99.2% CI	[-0.21, 0.22]	[-0.23, 0.24]	[-0.21, 0.19]	[-0.22, 0.21]	[-0.19, 0.18]	[-0.19, 0.19]
Rights	Mean diff	0.16	-0.66*	-0.70*	-0.50*	-0.56*	-0.06
	99.2% CI	[-0.22, 0.21]	[-0.23, 0.24]	[-0.20, 0.19]	[-0.22, 0.21]	[-0.19, 0.18]	[-0.19, 0.19]
Freedoms	Mean diff	-0.03	-0.47*	-0.41	-0.44*	-0.39*	0.06
	99.2% CI	[-0.21, 0.22]	[-0.23, 0.26]	[-0.20, 0.20]	[-0.22, 0.21]	[-0.18, 0.18]	[-0.19, 0.19]
Power	Mean diff	-0.11	-0.53*	-0.53*	-0.44*	-0.44*	0.02
	99.2% CI	[-0.21, 0.22]	[-0.22, 0.23]	[-0.20, 0.19]	[-0.22, 0.21]	[-0.19, 0.18]	[-0.20, 0.19]
Standards	Mean diff	0.10	-0.27*	-0.31*	-0.32*	-0.37*	-0.05
	99.2% CI	[-0.22, 0.22]	[-0.24, 0.23]	[-0.20, 0.19]	[-0.22, 0.22]	[-0.19, 0.18]	[-0.20, 0.19]
Respect	Mean diff	-0.13	-0.75*	-0.76*	-0.66*	-0.66*	0.02
	99.2% CI	[-0.21, 0.22]	[-0.24, 0.24]	[-0.19, 0.19]	[-0.21, 0.22]	[-0.19, 0.18]	[-0.19, 0.19]

Note. diff = differences. PPG = general perceptions of primary goods. Means are considered statistically equivalent if the permuted confidence intervals for the differences between the groups include the original difference. Statistically significant differences are signified by the presence of *. A Bonferroni corrected 99.2% confidence interval has been used to account for multiple comparisons.

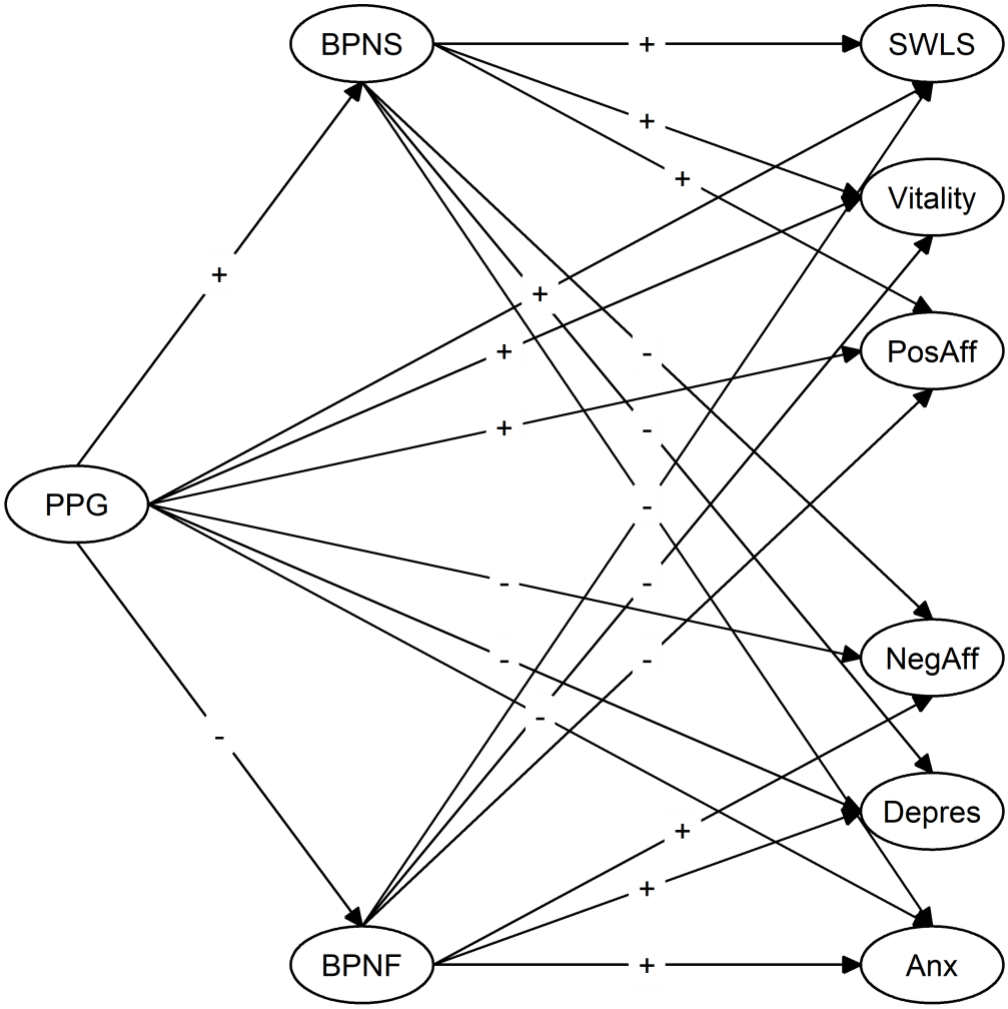

Figure 1.

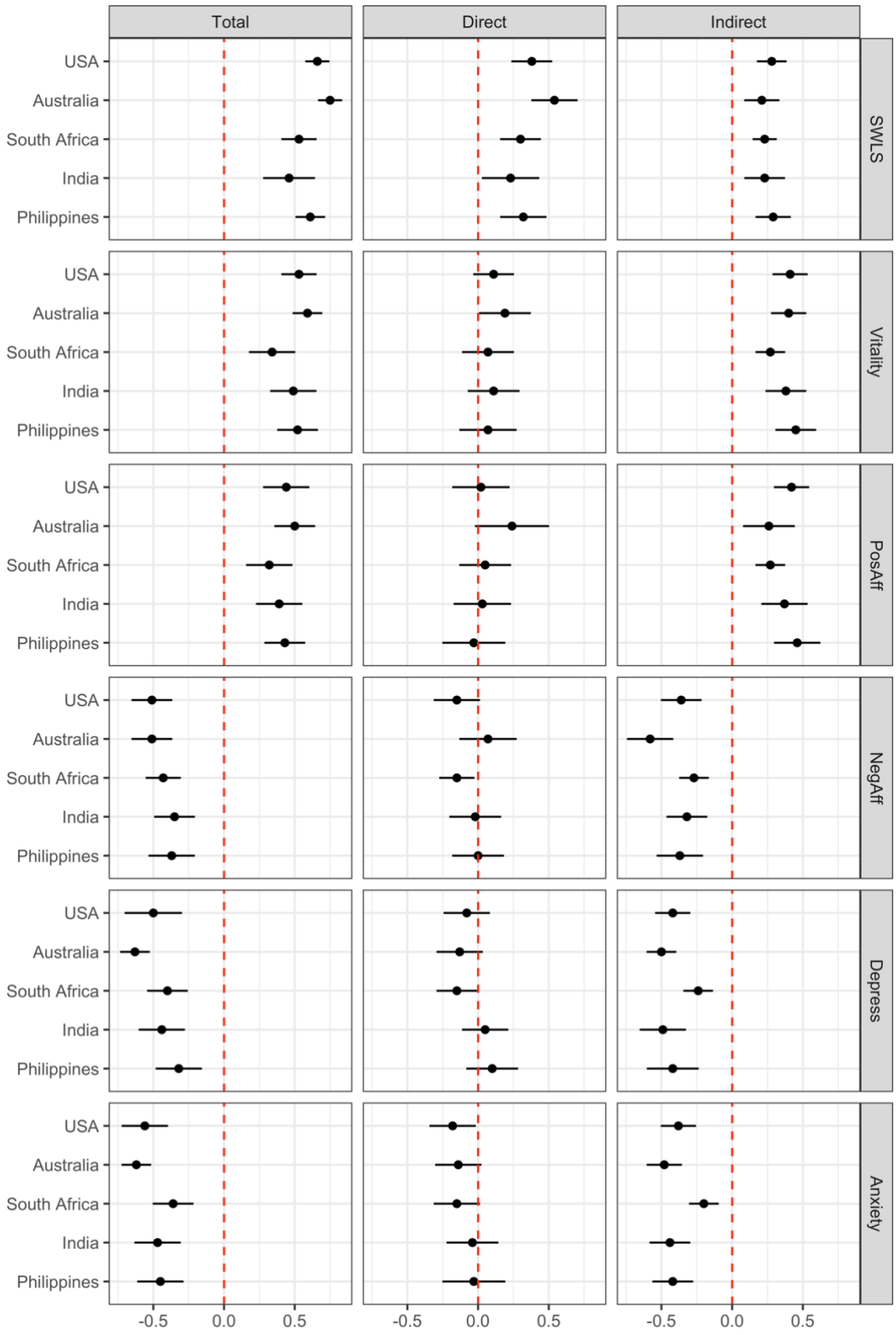
Total
Direct
Indirect
SWLS
Vitality
PosAff
NegAff
Depress
Anxiety
USA
Australia
South Africa
India
Philippines
-0.5
0.0
0.5

Figure 2.

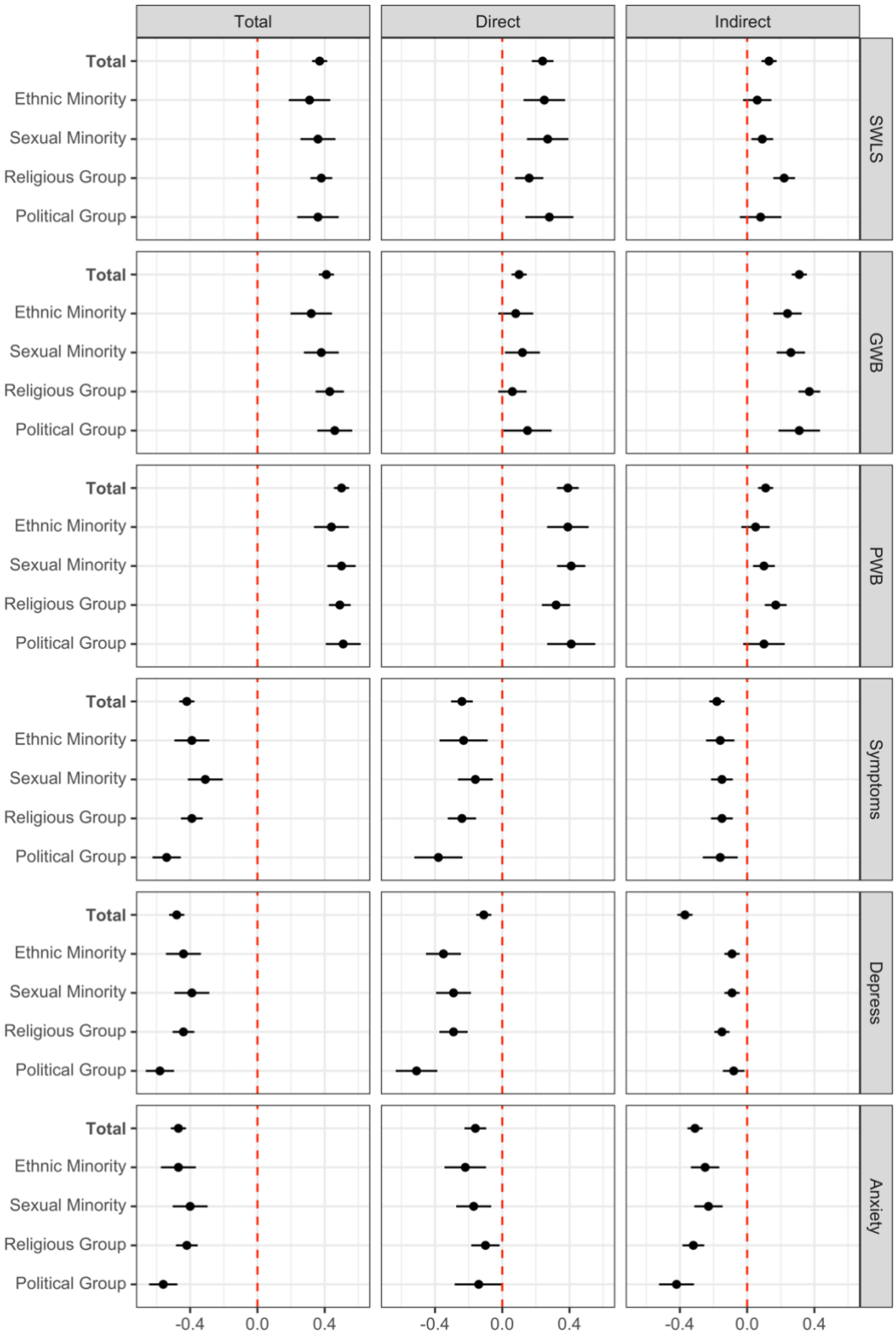
Total
Direct
Indirect
SWLS
GWB
PWB
Symptoms
Depress
Anxiety
Total
Ethnic Minority
Sexual Minority
Religious Group
Political Group
-0.4
0.0
0.4

Figure 3.

Figure 1.

An illustrative depiction of the general pattern of direct effects of perceived primary goods on basic psychological needs, well-being, and ill-being, which were consistently observed across the five country-level groups. Note. *See Table 2 for detailed effects reported at the country-group level.*

Figure 2.

Group-specific total and direct effects (and 95% confidence intervals) of primary goods' perceptions on life satisfaction (SWLS), vitality, positive (PosAff) and negative affect (NegAff), depression (Depress), and anxiety, and indirect effects via basic psychological needs satisfaction and frustration in Study 1. Effect sizes that cross the red dotted line are not statistically significant

Figure 3.

Group-specific total and direct effects (and 95% confidence intervals) of primary goods' perceptions on life satisfaction (SWLS), general well-being (GWB), personal well-being (PWB), physical symptoms (Symptoms), depression (Depress), and anxiety, and indirect effects via basic psychological needs satisfaction and frustration in Study 2. Effect sizes that cross the red dotted line are not statistically significant.

DeHaan, C. R., Hirai, T., & Ryan, R. M. (2016). Nussbaum's capabilities and self-determination theory's basic psychological needs: Relating some fundamentals of human wellness. *Journal of Happiness Studies*, *17*(5), 2037-2049. https://doi.org/https://doi.org/10.1007/s10902-015-9684-y

Hair, J. F., Sarstedt, M., Ringle, C. M., & Gudergan, S. P. (2017). *Advanced issues in partial least squares structural equation modeling*. Sage Publications.

Harman, H. H. (1976). *Modern factor analysis*. University of Chicago Press.

Podsakoff, P. M., & Organ, D. W. (1986). Self-reports in organizational research: Problems and prospects. *Journal of management*, *12*(4), 531-544. https://doi.org/https://doi.org/10.1177/014920638601200408

Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development and wellness*. Guilford Press.