



The PERMA-Profiler: A brief multidimensional measure of flourishing

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Abstract: In the book *Flourish* (2011), Seligman defined wellbeing in terms of five pillars: Positive emotion, Engagement, Relationships, Meaning, and Accomplishment, or PERMA. We developed the PERMA-Profiler as a brief measure of PERMA. We first compiled hundreds of theoretically relevant items. Three studies ($N = 7,188$) reduced, tested, and refined items, resulting in a final set of 15 questions (three items per PERMA domain). Eight additional filler items were added, which assess overall wellbeing, negative emotion, loneliness, and physical health, resulting in a final 23-item measure. A series of eight additional studies ($N = 31,966$) were conducted to test the psychometrics of the measure. The PERMA-Profiler demonstrates acceptable model fit, internal and cross-time consistency, and evidence for content, convergent, and divergent validity. Scores are reported visually as a profile across domains, reflecting the multidimensional nature of flourishing. The PERMA-Profiler adds to the toolbox of wellbeing measures, allowing individuals to monitor their wellbeing across multiple psychosocial domains.

Keywords: wellbeing, flourishing, assessment, measure development, positive psychology

1. Introduction

A growing number of individuals, organizations, and policy makers worldwide are focusing on wellbeing, and with good reason. Evidence indicates that subjective wellbeing, life satisfaction, optimism, happiness, and other positive constructs are associated with numerous desirable outcomes, including lower rates of divorce, greater educational and occupational success, stronger friendships, and better physical health (e.g., Diener & Chan, 2011; Huppert, 2009; Lyubomirsky, King, & Diener, 2005). Understanding and supporting wellbeing is increasingly envisioned as an interdisciplinary issue that should be addressed at multiple levels within a system, including individuals, organizations, communities, and nations (Huppert & So, 2013). A key element in the promotion of wellbeing is the need to measure and document levels and changes in wellbeing at individual, community, and national levels. We present the development, psychometrics, and potential applications of one such measure: the PERMA-Profiler.

2. Defining wellbeing

Definitions and theories of wellbeing abound (see Forgeard et al., 2011 and Hone, Jarden, Schofield, & Duncan, 2014 for reviews). Wellbeing can be defined and measured objectively (e.g.,



sufficient resources to meet basic needs, opportunities for education, lack of environmental pollutants) or subjectively; we focus here on the subjective side. In the literature, terms such as “happiness”, “subjective wellbeing”, “thriving”, and “flourishing” are often used interchangeably, and we use these terms interchangeably here.

Some theories focus on emotion (hedonic wellbeing), some emphasize eudaimonic elements (i.e., the good life), and others blend hedonic and eudaimonic domains (Ryan & Deci, 2001). For example, over 30 years ago, Diener (1984) noted that subjective wellbeing includes affective and cognitive elements. Ryff and Keyes (1995) define psychological wellbeing across six domains (self-acceptance, positive relationships with others, autonomy, environmental mastery, purpose in life, personal growth). Keyes (2002) suggests flourishing requires “symptoms” of high emotional, psychological, and social wellbeing. Seligman’s (2011) PERMA model advocates that flourishing arises from five wellbeing pillars (positive emotion, engagement, relationships, meaning, accomplishment). Huppert and So (2013) define 10 components of flourishing that are the opposite of the main symptoms of depression and anxiety (competence, emotional stability, engagement, meaning, optimism, positive emotion, positive relationships, resilience, self-esteem, vitality). Wong (2011) proposes that hedonic, prudential (being fully engaged in life), eudaimonic, and chaironic (feeling blessed) types of happiness all contribute to an overall sense of subjective wellbeing, but come together in different ways depending on the person, circumstances, and context. Through a quantitative analysis of studies with topics relevant to positive psychology, Rusk and Waters (2015) empirically derived a five-domain model of positive functioning (comprehension and coping, attention and awareness, emotions, goal and habits, virtues and relationships).

Most consistently, from the positive psychology perspective, wellbeing is not simply the absence of negative function, but rather is something more. That is, a lack of negative affect, depression, loneliness, insecurity, and illness is not the same as the presence of positive affect, happiness, social connection, trust, and wellness. Further, while different theories include different domains, theorists have increasingly recognized that multidimensional models are needed to adequately capture the complexity of optimal psychological functioning (e.g., Baltes & Baltes, 1990; Forgeard et al., 2011; Huppert & So, 2013; Friedman & Kern, 2014; Ryff & Keyes, 1995).

We define “flourishing” as a dynamic optimal state of psychosocial functioning that arises from functioning well across multiple psychosocial domains. We suggest that there is no single best model of wellbeing, but different conceptualizations can be helpful for taking the abstract construct of wellbeing and providing concrete domains that can be measured, developed, and sustained. Specifically, we focus here on the five domains defined by Seligman’s (2011) PERMA theory: positive emotion (P), engagement (E), relationships (R), meaning (M), and accomplishment (A).

2.1 Positive emotion

Emotions can be classified as a circumplex consisting of valence (negative to positive) and activation (low to high) dimensions (Cacioppo, Berntson, Norris, & Gollan, 2011; Huelsmann, Nemanick, & Munz, 1998). People can experience both negative and positive emotions simultaneously (Watson & Tellegen, 1985). Numerous reviews support the value of positive

emotion across a range of life outcomes (Howell, Kern, & Lyubomirsky, 2007; Huppert, 2009; Lyubomirsky et al., 2005). Valid and reliable measures, at the individual and national level, have existed for several decades (OECD, 2013).

2.2 Engagement

Research on engagement has occurred across several relatively disparate domains. In positive psychology, measures have focused on flow, or an extreme level of psychological engagement that involves intense concentration, absorption, and focus (Csikszentmihalyi, 1990). In the organizational domain, work engagement has been defined in terms of vigor, dedication, and absorption (Schaufeli, Bakker, & Salanova, 2006). Student engagement includes psychological, behavioral, cognitive, and academic domains (Appleton, Christenson, & Furlong 2008). Engagement is also an important component of successful aging (Rowe & Kahn, 1987), but little work has attempted to measure engagement in older age beyond activity involvement. Across these fields, engagement seemingly involves emotional, cognitive, and behavioral dimensions, but it is not clear how to succinctly capture these dimensions in a brief measure.

2.3 Relationships

Social relationships are fundamental to life (Berscheid & Reis, 1998). A review found over 18,000 articles published on social relationships and health in the past decade alone (Tay, Tan, Diener, & Gonzalez, 2012). Social support has been linked to less depression and psychopathology, better physical health, lower mortality risk, healthier behaviors, and other positive outcomes (Tay et al., 2012; Taylor, 2011). Sub-domains include social ties (number of persons in social sphere), social networks (number of ties and quality of those ties), received support (objective perspective of resources), perceived support (subjective perspective of resources), satisfaction with support, and giving support to others (Taga, 2006). The relationship dimension has a well-established place in most of the major existing wellbeing surveys used internationally.

2.4 Meaning

A sense of meaning has been defined in terms of having direction in life, connecting to something larger than oneself, feeling that one's life is valuable and worthwhile, and that there is a purpose to what one does (Steger, 2012). Meaning provides a sense that one's life matters. It has been linked to better physical health, reduced mortality risk, and higher life satisfaction (Boyle, Barnes, Buchman, & Bennett, 2009; Ryff, Singer, & Love, 2004; Steger, 2012). Several of the national surveys, including the experimental opinions survey developed by the UK Office for National Statistics (2011), have included single items assessing a sense of value or purpose.

2.5 Accomplishment

Superior performance is often recognized and acknowledged in Western societies. For example, each year Forbes magazine selects the 500 best companies in the US, and every two years Olympic events bring together the best athletes from around the world. However, objective success is also impacted by circumstances, opportunities, and personal ambitions. A mother who raises a connected, compassionate family might be considered a success, despite never receiving awards

for her efforts. Subjectively, accomplishment involves a sense of working toward and reaching goals, mastery, and efficacy to complete tasks. Indeed, Self-Determination Theory suggests that competence is a core basic human need (Ryan & Deci, 2000). Several of the existing wellbeing measures include items related to competence, mastery, or efficacy, whereas national surveys tend to focus on objective indicators of achievement.

3. Wellbeing measurement

Although some critics have raised theoretical and practical concerns as to whether maximizing happiness is the best object to pursue (e.g., Ford & Mauss, 2014; Lazarus, 2003; Miller, 2008), for those who do want to pursue happiness and wellbeing, adequate measures are needed. Well-developed measurement tools help us refine our theories and understanding of wellbeing. They can complement more objective measures by providing subjective perspectives, help to identify problematic policies that unintentionally cause harm, and inform cost and benefit analyses. Further, adequate measures are needed to evaluate the effectiveness of a growing number of interventions to improve wellbeing.

Of the various wellbeing theories, some have corresponding validated measures, whereas others do not (Huppert, 2014). As a whole, there are now valid measures of affect and life evaluations, but there is less evidence on the reliability and validity of eudaimonic and multidimensional measures (OECD, 2013). Key's Mental Health Continuum Short Form, Diener's Flourishing Scale, and Huppert and So's (2013) indicators of flourishing have been tested across multiple samples (Hone et al., 2014). Considerable research has occurred with satisfaction measures (Diener, Inglehart, & Tay, 2012). Ryff's (2014) Psychological Well-Being Scales have been tested and used across diverse samples and applications, although questions have been raised about the measure's psychometric properties (e.g., Abbott et al., 2006; 2009).

As a relatively new theory, to date there are no brief validated instruments that specifically measure the five PERMA domains. Some measures include one or two components, with the greatest emphasis on emotion and relationships. Others, such as the Flourishing Scale (Diener et al., 2010), the flourishing items (Huppert & So, 2013), and the Brief Inventory of Thriving (Su, Tay, & Diener, 2014) include all five constructs, but with only one or two items per domain. Huppert and So (2013) include emotional stability, optimism, resilience, self-esteem, and vitality in the flourishing items in addition to the five PERMA domains, with single items representing each domain. The 54-item Comprehensive Inventory of Thriving (Su et al., 2014) includes the PERMA components as well as a series of other domains (e.g., learning, self-worth, lack of autonomy, optimism).

We present the development and validation of the PERMA-Profiler, which involved three parts. First, we created a bank of items theoretically relevant to the five PERMA domains. Using a sample of over 3,500 participants, we reduced the items to 15 core items. Second, we confirmed the factor structure across two samples, and examined correlations with other constructs. We chose to add eight filler items, creating a final 23-item measure. Third, we tested the final measure in eight additional samples, providing psychometric and norm information. The new measure adds a tool specifically designed to assess PERMA for the toolbox of wellbeing measures.

4. Part 1: Measure development

Our goal in developing the measure was to create a brief valid measure of PERMA. In creating such a measure, there is a tension between robustly capturing each domain and keeping the number of items as low as possible. Shorter measures can more easily be incorporated into other surveys or be answered repeatedly over time, but they also generally have poorer psychometric properties and lower reliability than the reliability of longer form versions (Widaman, Little, Preacher, & Sawalini, 2011). Validity of the questionnaire matters more than reliability (John & Soto, 2007), but reliability provides an upper bound on validity. In estimating a structural model, at least three items are needed to identify a factor and calculate reliability. To make the scale as short as possible while maintaining evidence of validity and acceptable reliability, we purposely compromised extremely high reliability to more comprehensively capture each construct (i.e., multiple sub-domains, rather than repetitive questions; Little, Linderberger, & Nesselroade, 1999). Thus, our final measure aimed to include three items per domain that were adequately reliable, content valid, and demonstrated preliminary support for construct validity.

4.1 The PERMA item bank

We began by generating a large bank of items. Using Seligman's (2011) definitions of each domain, we defined specific sub-domains for each PERMA component.¹ We then reviewed measures of these constructs, searching existing sources for relevant items, and generated additional questions that theoretically tapped each domain or sub-domain. Items were combined into an initial item bank with over 700 items (see Butler, 2011 for additional details).

Repeated items were removed, and then three experts in positive psychology rated each of the compiled items, based on face valid relevance to the domains and sub-domains. If raters disagreed about an item, it was excluded from further consideration. After discussion, some revisions were made to wording, and the structure of some of the remaining items was adjusted to create consistency across items. The final item bank included 109 questions theoretically relevant to one of the PERMA components (33 emotion, 23 engagement, 21 relationships, 15 meaning, 17 accomplishment). Items and sub-domain labels are noted in Appendix 1; this constitutes the PERMA item bank and formed the foundation for the rest of our development process.

Questions were placed on a graduated 0 to 10 scale, with 0 indicating extremely low levels and 10 indicating extremely high levels, and labels appearing only on the endpoints as anchors, as suggested by OECD (2013) guidelines. This 11-point Likert scaling allows a person to indicate, for example, that they are 7/10 (70%) on a question about excitement and interest for life. Pilot testing indicated that people understood the response scale.

¹ Sub-domains: Positive emotion: valence and arousal for positive emotion; Engagement: absorption, interest, and involvement; Relationships: connection with others, satisfaction, and giving/receiving support; Meaning: sense of direction, transcendence (connecting to something bigger than oneself), and sense of value/worth; Accomplishment: self-efficacy, sense of accomplishment, and achieving personal goals.

4.2 Additional measures

Along with the main PERMA items, the initial questionnaire included several additional scales. These included the eight-item version of the Center of Epidemiological Studies-Depression Scale (CESD, Eaton, Muntaner, Smith, Tien, & Ybarra, 2004), the Satisfaction with Life Scale (SWLS, Diener, Emmons, Larsen, & Griffin, 1985), the Flourishing Scale (Diener et al., 2010), the Short Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS, Stewart-Brown et al., 2009), and the PAC-10 (Personal Action Constructs) rating scales (Little, Salmela-Aro, & Phillips, 2007). Four health-related questions (e.g., “In general, how is your health?”) and several general demographic questions (gender, age, country, education, employment, marital status) were also included. Three free-response questions, asking how the person would describe his or her personality, and additional comments, allowed participants to express themselves and aided evaluations of the quality of participant responses. The resulting questionnaire included 199 items, which took an average of 27 minutes to complete.

4.3 Participants

A set of participants (Sample 1, Development Sample) was recruited online through the Authentic Happiness website (www.authentichappiness.com). A link to the survey was posted on the site as a research study. Participants voluntarily completed the full 199-item questionnaire. Data were collected from 8 January 2012 through 16 August 2012. Sufficient responses (i.e., participants who completed the PERMA items) were received from 3,751 participants.² Demographic information is summarized in Table 1 below.

² The included responses are a self-selected sample of individuals who chose to complete the survey to help out with research, and completed the survey through the PERMA questions. 6,789 entries were begun. Many of the missing responses were due to people who started the survey, had computer troubles, and restarted the survey; we only included their full response. The survey was lengthy, so other participants dropped out before completing all of the PERMA items and thus were excluded. Demographic information was at the end, such that we could not examine characteristics of those who dropped out.

Table 1a. Participant demographics by sample

	Sample 1		Sample 2		Sample 3		Sample 4		Sample 5		Sample 6		Sample 7		Sample 8		Sample 9		Sample 10		Sample 11	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Total N	3751		3029		408		4717		23692		285		294		166	184	1846	782				
Gender																						
Male	1050	27.99	804	26.54	234	57.35	1434	30.40	15390	64.96	85	29.82	150	51.02	61	36.75	27	14.67	317	17.17	289	36.96
Female	2459	65.56	2014	66.49	167	40.93	3029	64.21	8184	34.54	195	68.42	144	48.98	99	59.64	150	81.52	1359	73.62	493	63.04
Other	242	6.45	211	6.97	7	1.70	254	5.38	118	0.50	5	1.80	0	0.00	6	3.61	7	3.80	170	9.21	0	0.00
Age group																						
Under 18	0	0.00	0	0.00	0	0.00	0	0.00	1495	6.31	0	0.00	0	0.00	1	0.60	3	1.63	1	0.05	0	0.00
18 to 24	509	13.57	562	18.55	112	27.45	736	15.60	6921	29.21	30	10.53	46	15.65	27	16.27	41	22.28	293	15.87	782	100
25 to 34	731	19.49	607	20.04	184	45.10	1006	21.33	4714	19.90	107	37.54	200	68.03	51	30.72	52	28.26	400	21.67	0	0.00
35 to 44	723	19.27	555	18.32	65	15.93	951	20.16	3992	16.85	37	12.98	24	8.16	35	21.08	33	17.93	352	19.07	0	0.00
45 to 54	778	20.74	577	19.05	24	5.88	924	19.59	3320	14.01	41	14.39	22	7.48	30	18.07	26	14.13	361	19.56	0	0.00
55 to 64	547	14.58	401	13.24	13	3.19	612	12.97	1802	7.61	34	11.93	0	0.00	12	7.23	15	8.15	224	12.13	0	0.00
65+	220	5.87	124	4.09	3	0.74	216	4.58	559	2.36	36	12.63	0	0.00	4	2.41	5	2.72	50	2.71	0	0.00
Unknown	243	6.48	203	6.70	7	1.72	272	5.77	889	3.75	0	0.00	2	0.68	6	3.61	9	4.89	165	8.94	0	0.00
World region																						
United States	1617	43.11	1384	45.69	62	15.20	2393	50.73	12001	50.70	285	100	290	79.00	10	6.02	184	100	--	--	182	100
United Kingdom	294	7.84	225	7.43	5	1.23	308	6.53	1465	6.20	0	0.00	6	1.60	14	8.43	0	0.00	--	--	0	0.00
Canada	192	5.12	148	4.89	7	1.72	246	5.22	1531	6.50	0	0.00	3	0.80	5	3.01	0	0.00	--	--	0	0.00
Central/ S. America	113	3.01	78	2.58	6	1.47	160	3.39	641	2.70	0	0.00	0	0.00	4	2.41	0	0.00	--	--	0	0.00
West Europe	132	3.52	122	4.03	6	1.47	222	4.71	913	3.90	0	0.00	21	5.70	6	3.61	0	0.00	--	--	0	0.00
N. Europe	73	1.95	48	1.58	1	0.25	117	2.48	358	1.50	0	0.00	0	0.00	1	0.60	0	0.00	--	--	0	0.00
S/E. Europe	77	2.05	61	2.01	11	2.70	130	2.76	368	1.60	0	0.00	0	0.00	2	1.20	0	0.00	--	--	0	0.00
Middle East	15	0.40	6	0.20	9	2.21	26	0.55	178	0.80	0	0.00	0	0.00	1	0.60	0	0.00	--	--	0	0.00
Africa	25	0.67	15	0.50	0	0.00	60	1.27	269	1.10	0	0.00	0	0.00	0	0.00	0	0.00	--	--	0	0.00
India/SE Asia	69	1.84	54	1.78	282	69.12	91	1.93	914	3.90	0	0.00	0	0.00	4	2.41	0	0.00	--	--	0	0.00
Asia	92	2.45	70	2.31	2	0.49	126	2.67	380	1.60	0	0.00	0	0.00	2	1.20	0	0.00	--	--	0	0.00
Australia/New Zealand	620	16.53	311	10.27	4	0.98	559	11.85	2686	11.40	0	0.00	5	1.30	20	12.00	0	0.00	--	--	0	0.00
Other	432	11.52	507	16.74	13	3.19	279	5.90	1988	8.40	0	0.00	42	11.40	97	58.43	0	0.00	--	--	0	0.00

Table 1b. Participant demographics by sample

	Sample 1		Sample 2		Sample 3		Sample 4		Sample 5		Sample 6		Sample 7		Sample 8		Sample 9		Sample 10		Sample 11	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Education																						
No high school	71	1.90	62	2.00	12	2.94	99	2.10	1628	6.87	--	--	0	0.00	1	0.60	2	1.09	14	0.80	--	--
High school or equivalent	254	6.77	194	6.40	31	7.60	297	6.30	1597	6.74	--	--	3	1.02	7	4.22	5	2.72	73	3.95	--	--
Some college	563	15.01	537	17.73	35	8.58	715	15.16	8827	37.26	--	--	16	5.44	13	7.83	41	22.28	252	13.65	--	--
Associates	246	6.56	196	6.47	12	2.94	282	5.98	2246	9.48	--	--	4	1.36	4	2.41	17	9.24	116	6.28	--	--
Bachelors	819	21.83	616	20.34	172	42.16	1024	21.71	6305	26.61	--	--	170	57.82	56	33.73	42	22.83	414	22.43	--	--
Some graduate	359	9.57	244	8.06	15	3.68	417	8.84	2994 ^a	12.64	--	--	16	5.44	20	12.05	25	13.59	133	7.20	--	--
Masters	803	21.41	661	21.82	99	24.26	1127	23.89	--	--	--	--	74	25.17	46	27.71	35	19.02	483	26.16	--	--
Doctorate/Professional	399	10.60	317	10.40	24	5.90	511	10.80	--	--	--	--	9	3.06	17	10.20	10	5.50	188	10.90	--	--
Other	237	6.32	202	6.67	8	1.96	245	5.20	95	0.40	--	--	2	0.70	2	1.20	7	3.80	173	9.40	--	--
Employment status																						
Full-time employment	1845	49.19	1398	46.15	153	37.50	2191	46.45	--	--	--	--	294	100	86	51.81	61	33.15	701	37.97	--	--
Part-time employment	456	12.16	386	12.74	86	21.08	533	11.30	--	--	--	--	0	0.00	14	8.43	22	11.96	223	12.08	--	--
Unemployed	176	4.69	127	4.19	34	8.33	198	4.20	--	--	--	--	0	0.00	5	3.01	7	3.80	124	6.72	--	--
Homemaker	113	3.01	80	2.64	36	8.82	117	2.48	--	--	--	--	0	0.00	3	1.81	5	2.72	81	4.39	--	--
Student	553	14.74	543	17.93	71	17.40	700	14.84	--	--	--	--	0	0.00	17	10.24	51	27.72	298	16.14	--	--
Retired	182	4.85	136	4.49	8	1.96	187	3.96	--	--	--	--	0	0.00	5	3.01	10	5.43	64	3.47	--	--
Other	191	5.09	163	5.38	14	3.43	546	11.60	--	--	--	--	0	0.00	34	20.60	21	11.40	195	10.60	--	--
Unknown	235	6.26	196	6.47	6	1.47	245	5.19	--	--	--	--	0	0.00	2	1.20	7	3.80	160	8.67	--	--

Note. Other includes unknown/ not reported. For location, N = north, S = south, E = east, W = west. For main norming sample, graduate work refers to any post graduate training and degree, including certificates, masters, doctorate, and professional degrees.

1 = Development sample, 2 = Validation sample, 3 = Mturk sample, 4 = Brief measure test set, 5 = Main norming sample, 6 = Compassion study, 7 = Online company employees, 8 = Values study, 9 = Harvard University students, 10 = positive intervention study, 11 = William & Mary University students.

4.4 Analyses and results

In generating the initial items, we included both general and specific time scales (i.e., “in general” versus “in the past week”). For analysis, we chose to focus on more stable aspects of wellbeing rather than transient mood. There is no agreement over the best response period for wellbeing questions (OECD, 2013). Specific periods (e.g., yesterday, currently) capture momentary states and are more susceptible to change, whereas a general response captures more stable reflections of one’s wellbeing. Arguably, emotion is more transient in nature compared to the other PERMA domains. Still, Seligman (2011) discusses the five domains, including emotion, as outcomes that people seek, suggesting a more stable reflection on one’s emotional balance. We follow this framing here with the general response format, such that items with the stem “in the past week” were excluded from the analysis, whereas items with the stem “in general” were included.

We also chose to only include positively worded items. It is often argued that inverse items are needed to deal with response set biases, but this assumes that positive and negative items measure the same construct, which both theoretically and empirically is not necessarily true. Numerous theorists in positive psychology have noted that it is misleading to interpret happiness as merely the opposite of unhappiness; one is not simply the lack of the other (e.g., Pawelski, 2013). Further, reversed-scored items often cluster on a separate factor, thus creating method-induced biases (e.g., Carlson et al., 2011; Dunbar, Ford, Hunt, & Der, 2000; Marsh, 1986). Marsh (1996) noted that additional analyses are needed to disentangle response versus method bias. Alternatively, additional negatively worded items can be included but not scored as part of the positive constructs, thus disrupting response biases but not introducing the method bias. We chose to follow this latter approach. As much of the psychological literature has focused on the negative end of psychological function, and the PERMA measure is intended to complement existing measures, we focus primarily on positively worded items, but add several negative emotion questions to the final measure.

These exclusions resulted in 70 positively worded items that specifically measured PERMA. To further reduce the number of questions, participants were randomly split into two halves (*Set 1*: $n = 1,877$ (65.1% female); *Set 2*: $n = 1,874$ (66.0% female)). In each set, we conducted an exploratory principal components analysis (Jolliffe, 2002), specifying a five-factor structure and direct oblimin rotation ($\Delta = 0$). We retained items that overlapped across the two sets. We examined response frequencies and item distributions. To ensure that items aligned with the PERMA theory, we returned to our original definitions. For the final set of items, we selected those that consistently appeared in the factor in both sub-samples in the principal components analyses, represented multiple sub-domains (e.g., absorption, effort, and interest for engagement), and had responses to the item that were normally distributed across the sample. Through these analyses, we narrowed the items down to the targeted three items for each domain (15 items total).

We then calculated four estimates of internal consistency (Cronbach’s α , Guttman’s λ_6 , minimum and maximum split half reliability (β and λ_4)), using the psych package (Revelle, 2015) in R (version 3.0.3), based on 10,000 random draws across the data. As summarized in Table 2 below, the factors demonstrated acceptable reliability in the two subsets.

In sum, through a combination of theory and empirical analyses, we first created a large pool of items containing questions theoretically relevant to each of the five PERMA domains, and then reduced these items to a brief measure that loaded on the expected factor and demonstrated adequate reliability. This set the stage for Part 2, in which we confirmed the factor structure in two additional samples and tested correlations with other constructs.

Table 2a. Internal and test-retest reliability for the PERMA factors by sample

	P	E	R	M	A	Overall	NE	H
Internal Reliability								
Sample 1a (<i>Development sample, subset 1, n = 1,877</i>)								
Cronbach's α	.82	.80	.82	.92	.84	.94	.74	.91
Guttman's λ_6	.75	.73	.77	.89	.81	.95	.66	.89
Minimum split half (β)	.74	.64	.66	.82	.79	.89	.66	.74
Maximum split half (λ_4)	.74	.73	.75	.84	.80	.97	.69	.85
Sample 1b (<i>Development sample, subset 2, n = 1,874</i>)								
Cronbach's α	.81	.79	.83	.92	.86	.95	.73	.90
Guttman's λ_6	.74	.73	.78	.89	.82	.95	.64	.88
Minimum split half (β)	.73	.65	.67	.82	.80	.88	.64	.73
Maximum split half (λ_4)	.74	.72	.75	.84	.80	.96	.67	.84
Sample 2 (<i>Validation sample, n = 3,029</i>)								
Cronbach's α	.81	.81	.83	.92	.85	.95	.73	.90
Guttman's λ_6	.75	.75	.78	.88	.81	.95	.64	.88
Minimum split half (β)	.74	.65	.68	.81	.79	.88	.63	.73
Maximum split half (λ_4)	.75	.74	.76	.84	.80	.97	.68	.85
Sample 3 (<i>Mturk sample, n = 408</i>)								
Cronbach's α	.71	.69	.79	.86	.82	.94	.76	.85
Guttman's λ_6	.63	.62	.72	.81	.77	.95	.68	.81
Minimum split half (β)	.61	.62	.66	.76	.75	.89	.66	.70
Maximum split half (λ_4)	.71	.72	.70	.81	.75	.96	.66	.79
Sample 4 (<i>Brief measure test set, N = 4,717</i>)								
Cronbach's α	.89	.72	.84	.91	.78	.94	.75	.92
Guttman's λ_6	.84	.64	.79	.87	.73	.95	.67	.89
Minimum split half (β)	.79	.62	.68	.81	.72	.89	.65	.81
Maximum split half (λ_4)	.81	.68	.79	.82	.76	.97	.70	.83
Sample 5 (<i>Main norming set, n = 23,692</i>)								
Cronbach's α	.88	.71	.81	.90	.79	.94	.73	.92
Guttman's λ_6	.83	.63	.76	.86	.73	.95	.64	.88
Minimum split half (β)	.80	.63	.65	.80	.72	.88	.62	.80
Maximum split half (λ_4)	.80	.69	.77	.80	.76	.96	.62	.82
Sample 6 (<i>Compassion study, n = 285</i>)								
Cronbach's α	.88	.80	.82	.89	.80	.93	--	--
Guttman's λ_6	.83	.74	.80	.85	.76	.95	--	--
Minimum split half (β)	.76	.63	.58	.80	.74	.82	--	--
Maximum split half (λ_4)	.81	.76	.81	.82	.80	.97	--	--
Sample 7 (<i>Online company employees, n = 294</i>)								
Cronbach's α	.84	.69	.77	.89	.70	.92	--	--
Guttman's λ_6	.79	.62	.71	.85	.68	.94	--	--
Minimum split half (β)	.68	.63	.61	.79	.72	.82	--	--
Maximum split half (λ_4)	.79	.70	.73	.83	.73	.96	--	--

Table 2b. Internal and test-retest reliability for the PERMA factors by sample

	P	E	R	M	A	Overall	NE	H
Sample 8 (Values study, n = 166)								
Cronbach's α	.85	.67	.84	.90	.77	.93	.71	.92
Guttman's λ_6	.79	.59	.78	.87	.71	.95	.63	.88
Minimum split half (β)	.74	.61	.69	.81	.69	.82	.59	.81
Maximum split half (λ_4)	.79	.64	.76	.83	.76	.97	.61	.82
Sample 9 (Harvard University students, n = 184)								
Cronbach's α	.85	.73	.83	.85	.79	.92	.77	.94
Guttman's λ_6	.81	.65	.80	.81	.72	.95	.71	.91
Minimum split half (β)	.79	.61	.64	.75	.69	.84	.63	.83
Maximum split half (λ_4)	.80	.70	.77	.82	.77	.97	.64	.83
Sample 10 (Positive intervention study, n = 1,846)								
Cronbach's α	.88	.72	.85	.91	.78	.94	.73	.92
Guttman's λ_6	.84	.63	.81	.87	.73	.96	.65	.89
Minimum split half (β)	.80	.63	.68	.81	.72	.88	.61	.81
Maximum split half (λ_4)	.80	.66	.78	.83	.77	.97	.64	.83
Sample 11 (William & Mary University students, n = 782)								
Cronbach's α	.84	.60	.75	.90	.84	.93	.70	--
Guttman's λ_6	.78	.53	.70	.85	.79	.95	.61	--
Minimum split half (β)	.75	.54	.56	.80	.70	.87	.63	--
Maximum split half (λ_4)	.76	.66	.73	.81	.80	.96	.65	--
Combined samples (Samples 4-11, n = 31,966)								
Cronbach's α	.88	.72	.82	.90	.79	.94	.71	.92
Guttman's λ_6	.83	.64	.76	.86	.74	.95	.63	.88
Minimum split half (β)	.80	.63	.65	.80	.73	.88	.59	.80
Maximum split half (λ_4)	.80	.69	.77	.81	.77	.96	.62	.82
Test-Retest Reliability (Pearson r)								
Sample 4 Time 2 (n = 1,073)	.84	.78	.83	.86	.80	.88	.77	.86
Sample 5 Time 2 (n = 1372)	.68	.61	.68	.67	.67	.80	.66	.78
Sample 5 Time 3 (n = 574)	.65	.53	.66	.61	.62	.69	.67	.75
Sample 8 Time 2 (n = 45)	.88	.81	.90	.83	.78	.87	.77	.81
Sample 9 Time 2 (n = 107)	.72	.71	.75	.73	.67	.75	.66	.80
Sample 9 Time 3 (n = 86)	.70	.51	.70	.69	.68	.69	.62	.79

Note. See method for sample details. Samples 1-3 completed the full 199-item bank; samples 4-11 completed the brief final measure (at least the 15 items and in most cases the 23-item measure, as well as other items (see Appendix 2 for details). P = positive emotion, E = engagement, R = relationships, M = meaning, A = accomplishment, Overall = overall wellbeing, NE = negative emotion, H = physical health. Minimum and maximum split halves are based on 10,000 random draws across the data, estimated with the psych package (Revelle, 2015) in R.

5. Part 2: Model testing and measure refinement

5.1 Participants

While we were conducting our initial analyses of the data from Sample 1, the survey remained open on the Authentic Happiness website. Responses received between 17 August 2012 and 15

May 2013 were considered the Validation Sample (Sample 2). Of 5,724 responses that were started, 3,029 participants completed the PERMA questions. Participant demographics are summarized in Table 1 above.

Another set of participants (Sample 3, MTurk Sample) were recruited through Amazon's Mechanical Turk (MTurk), a crowd sourcing online system in which "workers" complete tasks online for minimal payment. Several studies have found that Mturk samples are often more representative than many typical psychology studies (Berinsky, Huber, & Lenz, 2011; Buhrmester, Kwang, & Gosling, 2011), although the quality and participant characteristics must be carefully examined (Shapiro, Chandler, & Mueller, 2013). We required that participants be proficient in English and have an approval rating of 95% or above³. Participants were paid \$0.20 for completing the survey, which was a typical payment amount for such a survey at the time. Survey responses were excluded if they were missing responses to the PERMA questions, completed the survey in less than five minutes (average response time for this sample was 18 minutes), or had free response questions that appeared problematic (e.g., random letters). Out of 579 individuals who started the survey, 408 participants (43.1% female) had sufficient data to be included in our analyses. Table 1 above summarizes demographic information.

5.2 Data analyses and results

Using data from Samples 2 and 3, we tested the 15-items in a confirmatory factor model (see Figure 1 below) using the lavaan package (version .5.16, Rosseel, 2012) in R (version 3.0.3). Model fit was evaluated using the root mean square error of approximation (RMSEA), and the Standardized Root Mean Residual (SRMR), which are population-based measures not affected by sample size. A RMSEA of .06 or lower combined with an SRMR of .09 or lower are considered acceptable (Hu & Bentler, 1999). We also examined the Tucker Lewis Index (TLI) and Comparative Fit Index (CFI) as alternative incremental fit metrics; values closer to 1 are considered good fit.

Factor reliabilities are summarized in Table 2 above, and factor loadings and fit statistics are summarized in Table 3 below. In both samples, the model adequately fit the data (Sample 2: $n = 3,029$, RMSEA = .055 [90% confidence interval = .051, .058], SRMR = .037, CFI = .976, TLI = .968; Sample 3: $n = 408$, RMSEA = .077 [.067, .087]; SRMR = .034, CFI = .946, TLI = .929), and factors were generally reliable, although engagement was the weakest factor in both samples.

To consider initial evidence for convergent and divergent validity, we then examined correlations of each factor with the additional measures included in the full 199-item questionnaire. Average correlations across Samples 1a, 1b, 2, and 3 are summarized in Table 4 below, and correlations for each sample are summarized in Appendix 2. The strength of correlations varied for the different PERMA factors, but all showed a similar pattern. The PERMA factors were strongly correlated with flourishing and life satisfaction, with the factor of meaning being the strongest correlate and engagement the weakest. The PERMA factors were moderately correlated with physical health, and inversely correlated with negative emotion and loneliness. The factors were also strongly correlated with the PAC-10, which asks how meaningful, exciting, enjoyable, and manageable personal projects and goals are, as well as how much these projects and goals benefit and are supported by others. In sum, the factors all correlated in the expected directions with all other measured variables.

³ To help control quality, MTurk includes an approval system. If a worker provides poor data (e.g., cheating, clearly not attending to the task), an experimenter can report the worker, dropping that worker's approval rating.

Figure 1. Five-factor model based on the 15 PERMA measure. See Table 3 below for estimated latent factor loadings and fit indices

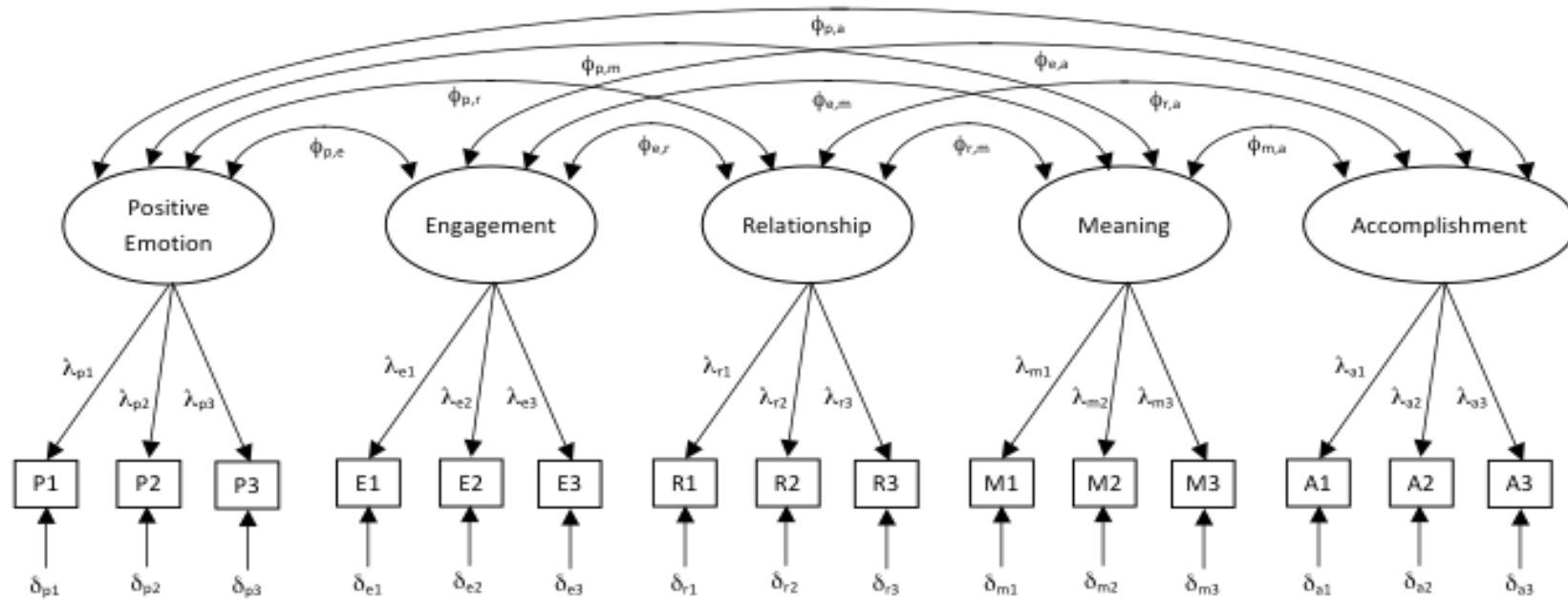


Table 3a. Latent factor loadings and fit indices in confirmatory factor analysis for the main 15 PERMA items

Factor/Question		2	3	4	5	6	7	8	9	10	11	Combo
Positive Emotion												
How often do you feel joyful?	λ_{p1}	.78	.72	.84	.87	.89	.70	.81	.87	.85	.80	.86
How often do you feel positive?	λ_{p2}	.85	.76	.88	.87	.80	.86	.85	.88	.86	.85	.87
To what extent do you feel contented?	λ_{p3}	.68	.51	.83	.79	.83	.84	.78	.71	.84	.73	.80
Engagement												
How often do you become absorbed in what you are doing?	λ_{e1}	.79	.79	.57	.65	.85	.61	.62	.57	.59	.63	.64
To what extent do you feel excited and interested in things?	λ_{e2}	.70	.81	.88	.86	.65	.54	.82	.90	.88	.83	.86
How often do you lose track of time while doing something you enjoy?	λ_{e3}	.82	.88	.48	.44	.80	.72	.46	.48	.49	.21	.46
Relationship												
To what extent do you receive help and support from others when you need it?	λ_{r1}	.69	.77	.68	.65	.55	.63	.71	.62	.67	.55	.66
To what extent have you been feeling loved?	λ_{r2}	.82	.85	.87	.84	.92	.76	.81	.87	.89	.82	.85
How satisfied are you with your personal relationships?	λ_{r3}	.87	.79	.85	.84	.91	.83	.88	.90	.87	.80	.84
Meaning												
To what extent do you lead a purposeful and meaningful life?	λ_{m1}	.93	.79	.87	.86	.91	.88	.90	.83	.91	.89	.87
To what extent do you feel that what you do in your life is valuable and worthwhile?	λ_{m2}	.87	.68	.88	.87	.85	.91	.90	.87	.88	.87	.88
To what extent do you generally feel you have a sense of direction in your life?	λ_{m3}	.85	.85	.87	.86	.81	.77	.84	.75	.84	.82	.86
Accomplishment												
How much of the time do you feel you are making progress towards accomplishing your goals?	λ_{a1}	.89	.86	.86	.87	.92	.90	.94	.80	.86	.76	.87
How often do you achieve the important goals you have set for yourself?	λ_{a2}	.89	.91	.80	.78	.84	.81	.71	.79	.82	.89	.80

Table 3b. Latent factor loadings and fit indices in confirmatory factor analysis for the main 15 PERMA items

Factor/Question		2	3	4	5	6	7	8	9	10	11	Combo
How often are you able to handle your responsibilities?	λ_{a3}	.66	.91	.56	.57	.50	.36	.46	.65	.54	.78	.58
Latent Factor Covariances												
Positive Emotion ~ Engagement	$\phi_{p,e}$	.73	.77	.91	.88	.59	.82	.84	.81	.91	.86	.88
Positive Emotion ~ Relationship	$\phi_{p,r}$	.72	.87	.78	.78	.71	.77	.79	.53	.78	.79	.78
Positive Emotion ~ Meaning	$\phi_{p,m}$	.80	.83	.87	.84	.68	.73	.76	.79	.86	.86	.85
Positive Emotion ~ Accomplishment	$\phi_{p,a}$	.70	.82	.84	.79	.66	.63	.70	.72	.80	.73	.80
Engagement ~ Relationship	$\phi_{e,r}$	.58	.84	.68	.64	.30	.67	.55	.36	.63	.72	.65
Engagement ~ Meaning	$\phi_{e,m}$	.77	.95	.81	.81	.54	.70	.74	.72	.86	.87	.82
Engagement ~ Accomplishment	$\phi_{e,a}$	.78	.92	.79	.79	.59	.83	.72	.62	.78	.77	.80
Relationship ~ Meaning	$\phi_{r,m}$	.71	.93	.69	.69	.65	.74	.54	.49	.68	.73	.69
Relationship ~ Accomplishment	$\phi_{r,a}$	.62	.89	.64	.64	.46	.53	.49	.46	.58	.65	.64
Meaning ~ Accomplishment	$\phi_{m,a}$	.81	.96	.92	.93	.66	.57	.89	.83	.86	.79	.91
Model Fit												
N		3029	408	4717	23692	285	294	166	184	1846	782	31966
RMSEA		.055	.077	.064	.066	.081	.098	.098	.107	.082	.081	.064
RMSEA 90% confidence interval		.051, .058	.067, .087	.062, .067	.065, .067	.069, .094	.087, .110	.081, .114	.092, .122	.078, .086	.074, .088	.063, .065
SRMR		.037	.034	.031	.032	.067	.068	.063	.074	.04	.043	.031
χ^2 (df = 80)		790	274	1639	8347	231	308	207	249	1070	489	10606
CFI		.976	.946	.967	.964	.944	.905	.919	.896	.949	.941	.967
TLI		.968	.929	.957	.953	.927	.875	.894	.864	.932	.923	.956

Note. Confirmatory factor analysis estimated using the lavaan package (version 0.5.16) in R (version 3.0.3). See Figure 1 above for the estimated model. RMSEA = Root Mean Square Error of Approximation, SRMR = Standardized Root Mean Residual, CFI = Comparative Fit Index, TLI = Tucker Lewis Index. 2 = Validation sample, 3 = Mturk sample, 4 = Brief measure test set, 5 = Main norming sample, 6 = Compassion study, 7 = Online company employees, 8 = Values study, 9 = Harvard University students, 10 = Positive intervention study, 11 = William & Mary University students. Combo combines samples 4-11 (participants who completed the final brief measure).

Table 4. Evidence for convergent and divergent validity: Average correlations with other constructs

	<i>n</i>	K	P	E	R	M	A	Overall	NE	H
Initial 199 survey (Samples 1a, 1b, 2, and 3)										
Positive emotion	6995	4								
Engagement	7000	4	.59							
Relationship	7016	4	.61	.52						
Meaning	7004	4	.69	.68	.65					
Accomplishment	6999	4	.61	.65	.56	.74				
Overall wellbeing	7066	4	.83	.80	.81	.90	.84			
Negative emotion	6979	4	-.49	-.34	-.42	-.45	-.43	-.52		
Physical health	6791	4	.36	.31	.34	.37	.41	.43	-.28	
Loneliness	6942	4	-.40	-.29	-.55	-.42	-.36	-.49	.41	-.23
Depression	6733	4	-.65	-.53	-.64	-.66	-.59	-.74	.61	-.42
Flourishing	6739	4	.67	.64	.68	.81	.70	.84	-.48	.40
Life satisfaction	6830	4	.65	.53	.68	.73	.65	.79	-.48	.43
Pac-10	6640	4	.64	.62	.64	.75	.66	.80	-.50	.41
WEMWBS	6696	4	.66	.61	.67	.73	.67	.80	-.55	.43

Note. Values are based on the average correlation across samples that measured the construct (K), weighted by the number within that sample (*n*). See Appendix 2 for correlations by sample and for details on how the constructs were measured. WEMWBS = Warwick-Edinburgh Mental Well-being Scale, PAC-10 = Personal Action Constructs rating scales, P = positive emotion, E = engagement, R = relationships, M = meaning, A = accomplishment, Overall = overall wellbeing, NE = negative emotion, H = physical health.

5.3 Measure refinement

Overall, the 15 items demonstrated adequate psychometric properties. Over the two-year data collection period, we received various qualitative comments and emails. Some participants had voluntarily noted confusing words, errors, and order effects. Based on this feedback, we refined item wording. In addition, we chose to add eight additional items: one item assessing overall wellbeing; three negative emotion items assessing sadness, anger, and anxiety; one item assessing loneliness; and three items assessing self-perceived physical health. The final 23-item measure is provided in Table 5 below.

Domain scores are created by taking the average of the three items (for each PERMA domain, negative emotion, and health; range = 0 to 10). Overall wellbeing is the average of the main 15 PERMA items and the overall happiness item. Loneliness is a single item.

We had two reasons for including the additional items, beyond the 15 main PERMA items. First, these items act as filler items. By including the negative emotion and loneliness items, these disrupt response tendencies, addressing the issue of not including inversely scored items as part of the PERMA constructs (Marsh, 1986). Second, these items provide additional information that may be useful for many users. The positive focus of PERMA does not negate the importance of negative emotion; by including negative emotions, the measure acknowledges the importance of considering both positive and negative elements of the mental health spectrum.

Table 5. The final 23-item PERMA-Profiler measure

Label	Question	Response Anchors
A1	How much of the time do you feel you are making progress towards accomplishing your goals?	0 = never, 10 = always
E1	How often do you become absorbed in what you are doing?	
P1	In general, how often do you feel joyful?	
N1	In general, how often do you feel anxious?	
A2	How often do you achieve the important goals you have set for yourself?	
H1	In general, how would you say your health is?	0 = terrible, 10 = excellent
M1	In general, to what extent do you lead a purposeful and meaningful life?	0 = not at all, 10 = completely
R1	To what extent do you receive help and support from others when you need it?	
M2	In general, to what extent do you feel that what you do in your life is valuable and worthwhile?	
E2	In general, to what extent do you feel excited and interested in things?	
Lon	How lonely do you feel in your daily life?	
H2	How satisfied are you with your current physical health?	0 = not at all, 10 = completely
P2	In general, how often do you feel positive?	0 = never 10 = always
N2	In general, how often do you feel angry?	
A3	How often are you able to handle your responsibilities?	
N3	In general, how often do you feel sad?	
E3	How often do you lose track of time while doing something you enjoy?	
H3	Compared to others of your same age and sex, how is your health?	0 = terrible, 10 = excellent
R2	To what extent do you feel loved?	0 = not at all, 10 = completely
M3	To what extent do you generally feel you have a sense of direction in your life?	
R3	How satisfied are you with your personal relationships?	
P3	In general, to what extent do you feel contented?	
Hap	Taking all things together, how happy would you say you are?	0 = not at all, 10 = completely

The single item on loneliness is a strong predictor of many negative life outcomes (Caccioppo, Hawley, & Berntson, 2003). Although PERMA focuses on psychosocial function, physical health is a correlated outcome that arguably could be considered a core part of flourishing (Friedman & Kern, 2014; Norrish, 2015). Indeed, physical health was moderately to strongly correlated with

each of the PERMA factors. The overall happiness item is similar to other overall assessments included in many surveys. It not only provides a link to other surveys, but also allows participants to provide an overall assessment of their own wellbeing, after reflecting on specific facets from the other questions. Thus, for both methodological and theoretical reasons, we believe there is value in including the eight additional items.

6. Part 3: Testing the final measure

6.1 Participants

In 2013, we made the final questionnaire available to other researchers and made an online version available for potential participants to complete. We conducted a series of studies that included the measure, and several other researchers included the measure within their battery of assessments, sharing de-identified data with us to contribute to norm and validity information. Each study included at least the 15 PERMA items and some demographic information. Most also included other measures, providing additional tests of convergent and divergent validity. Demographic information for each sample is summarized in Table 1 above, and the specific measures included in each sample are provided in Appendix 2. All procedures were approved by the University of Pennsylvania Institutional Review Board.

One study was designed specifically to test the reliability of the final measure in its reduced form (Sample 4, brief measure test set). During the collection of Sample 4, we posted the survey at www.permaquestionnaire.org and advertised the survey on the AuthenticHappiness.com website. Between 19 February and 10 October 2013, 4,717 participants (64.2% female) completed the PERMA survey and were included in our analyses. At the end of the survey, participants were asked if they would be willing to complete the survey two weeks later to help establish cross-time stability. Willing participants provided contact information. Approximately two weeks later, participants were sent an invitation to complete the measure again. Between 6 March and 10 October 2013, 1,073 individuals (71.6% female) completed the measure again and could be successfully matched to their time 1 responses.

The Authentic Happiness website offers registered users the opportunity to complete various measures. The 23-item PERMA-Profiler was added to the website in May 2014. Between 21 May 2014 and 15 March 2016, 23,692 participants (34.5% female) from around the world completed the survey (Sample 5, main norming set). Basic demographic information (gender, age category, country, education, occupation) was also available. In addition, some participants returned at a later date, allowing us to consider stability over time. Of these, 1,372 participants (34.3% female) completed the measure twice, with length of time between the two assessments ranging from one day to up to two years later ($M = 68.9$ days, $SD = 89.94$, Median = 49.00). Of these, 535 participants (41.4% female) completed the measure three or more times, with the length of time between the first and third assessment ranging from 1 to 633 days ($M = 92.7$ days, $SD = 77.9$, Median = 101).

In a cross-sectional study focused on activism and self-compassion (Sample 6, compassion study), participants completed an online survey that included the main 15 PERMA items and the overall happiness item from the PERMA-Profiler, as well as measures of self-compassion, hope, life satisfaction, perceived success, self-determination motivation, and compassion for others. A total of 285 participants (68.4% female) completed the survey and were included in the current analysis.

In collaboration with a creative online organization, 294 employees (49.0% female; Sample 7, online organization employees) completed a survey that included the 15 main PERMA items and the overall happiness item from the PERMA-Profiler, as well as measures of social capital, work

performance, and an evaluation of the organization’s practices. About 85% of employees participated, including 24 teams from five global offices.

In a study focused on personal values and wellbeing (Sample 8, values study), 166 individuals (59.6% female) completed an online survey that included the PERMA-Profiler and questions asking the extent to which 13 different values (e.g., work, balance, material wellbeing, health, helping others) mattered to the person. Values were based on Schwartz’s (2012) theory of basic values. A composite summed values score was calculated. After completing the survey, participants were invited to track their values and happiness each day for two weeks, and then were invited to complete the survey again. Follow-up responses were received from 45 participants (75.6% female).

Sample 9 (Harvard University students) came from data collected from students from Harvard University enrolled in a positive psychology course. As a class learning activity, students completed a survey around weeks one, nine, and 12 that included the PERMA-Profiler, along with measures of hope, self-efficacy, gratitude, perceived stress, anxiety, depression, fatigue, and life satisfaction. After the second assessment, some students completed an online positive intervention. Data was collected across two semesters, with 184 students (81.5% female) completing the baseline measure, 107 students (76.6% female) completing the second assessment, and 86 students (75.6% female) completing the final assessment.

As part of an online intervention study, the same survey used with Sample 9 was completed by an additional 1,846 individuals (73.6% female; Sample 9, positive intervention study). Data from the baseline survey was included in the current analysis.

In addition, 782 students (63% female) from William and Mary University completed a 20-item version of the PERMA-Profiler (main 15 PERMA items, overall happiness, negative emotion, loneliness). The de-identified scores were shared with the authors to contribute to norm information (Sample 11, William and Mary University students).

6.2 Results

Table 6 below summarizes descriptive information for the full combined sample (all participants who completed the reduced measure, Samples 4-11; see Appendix 3 for descriptive information split by gender, age group, and country region).

Table 6. Descriptive information for full combined sample (Samples 4-11)

	N	Mean	Median	SD	Min	25th	50th	75th	Max
Full Sample									
Positive emotion	31965	6.69	7.00	1.97	0.00	5.67	7.00	8.00	10.00
Engagement	31962	7.25	7.67	1.71	0.00	6.33	7.67	8.33	10.00
Relationships	31940	6.90	7.33	2.15	0.00	5.67	7.33	8.67	10.00
Meaning	31931	7.06	7.67	2.17	0.00	6.00	7.67	8.67	10.00
Accomplishment	31963	7.21	7.67	1.78	0.00	6.33	7.67	8.33	10.00
Overall wellbeing	31966	7.02	7.38	1.66	0.00	6.13	7.38	8.25	10.00
Negative emotion	31386	4.46	4.33	2.06	0.00	3.00	4.33	6.00	10.00
Physical health	30601	6.94	7.33	2.18	0.00	5.67	7.33	8.67	10.00

Reliability and model fit for each sample is summarized in Tables 2 and 3 above. Without intervention, the factors were generally stable over time. Correlations ranged from $r = .51$ for the engagement factor from baseline to time 3 in Sample 9 (12 week period) to $r = .90$ for the

relationship factor between baseline and time 2 in Sample 8 (two week period). Associations were strongest when there were two weeks or less between measurement occasions, but correlations remained high even with longer periods of time. Intervention effects were not directly tested, but may contribute to the observed variance.

To examine convergent and divergent validity, effect sizes for the constructs assessed in each sample were meta-analytically combined (Table 7 below; see Appendix 2 for measure information and correlations within each sample).

Table 7. Evidence for convergent and divergent validity: Average correlations with other constructs (Samples 4-11)

	<i>n</i>	K	P	E	R	M	A	Overall	NE	H
Positive emotion	31965	8								
Engagement	31962	8	.64							
Relationship	31940	8	.68	.46						
Meaning	31931	8	.75	.60	.60					
Accomplishment	31963	8	.68	.57	.54	.78				
Overall wellbeing	31966	8	.90	.76	.80	.89	.84			
Negative emotion	31386	6	-.53	-.28	-.40	-.42	-.38	-.49		
Physical health	30601	5	.48	.32	.40	.43	.46	.50	-.31	
Loneliness	31331	6	-.45	-.25	-.50	-.38	-.32	-.46	.54	-.23
Depression	1974	2	-.61	-.38	-.49	-.55	-.49	-.61	.59	-.32
Anxiety	1984	2	-.53	-.34	-.35	-.43	-.44	-.50	.68	-.29
Fatigue	1919	2	-.42	-.30	-.27	-.32	-.37	-.40	.47	-.47
Perceived stress	1880	2	-.58	-.34	-.44	-.46	-.48	-.55	.67	-.36
Gratitude	1919	2	.58	.42	.55	.52	.45	.60	-.44	.29
Hope	2225	3	.66	.56	.45	.68	.69	.73	-.45	.36
Life satisfaction	2098	3	.76	.51	.65	.68	.64	.78	-.53	.44
Self-efficacy	1905	2	.59	.51	.40	.60	.65	.65	-.44	.36
Values	163	1	.20	.18	.13	.30	.20	.26	-.15	.23
Burnout	195	1	-.42	-.43	-.34	-.46	-.57	-.56		
Compassion	264	1	.13	.25	.02	.19	.15	.17		
Identifies as an activist	285	1	.01	.18	-.04	.20	.01	.07		
Political orientation	245	1	-.09	-.15	-.12	-.16	.07	-.12		
Self-compassion	277	1	.49	.29	.45	.45	.35	.52		
Self-determination	250	1	-.53	-.35	-.47	-.54	-.46	-.60		
Organization practices	294	1	.33	.38	.34	.24	.38	.41		
Social capital	293	1	.37	.26	.35	.22	.26	.37		
Work performance	293	1	.14	.25	.20	.21	.19	.24		

Note. Values are based on the average correlation across samples that measured the construct (K), weighted by the number within that sample (*n*). See Appendix 2 for correlations by sample and for details on how the constructs were measured. P = positive emotion, E = engagement, R = relationships, M = meaning, A = accomplishment, Overall = overall wellbeing, NE = negative emotion, H = physical health.

The PERMA domains generally followed similar patterns of results, but the correlation strengths varied by factor. Capturing the hedonic side of wellbeing, positive emotion was the strongest

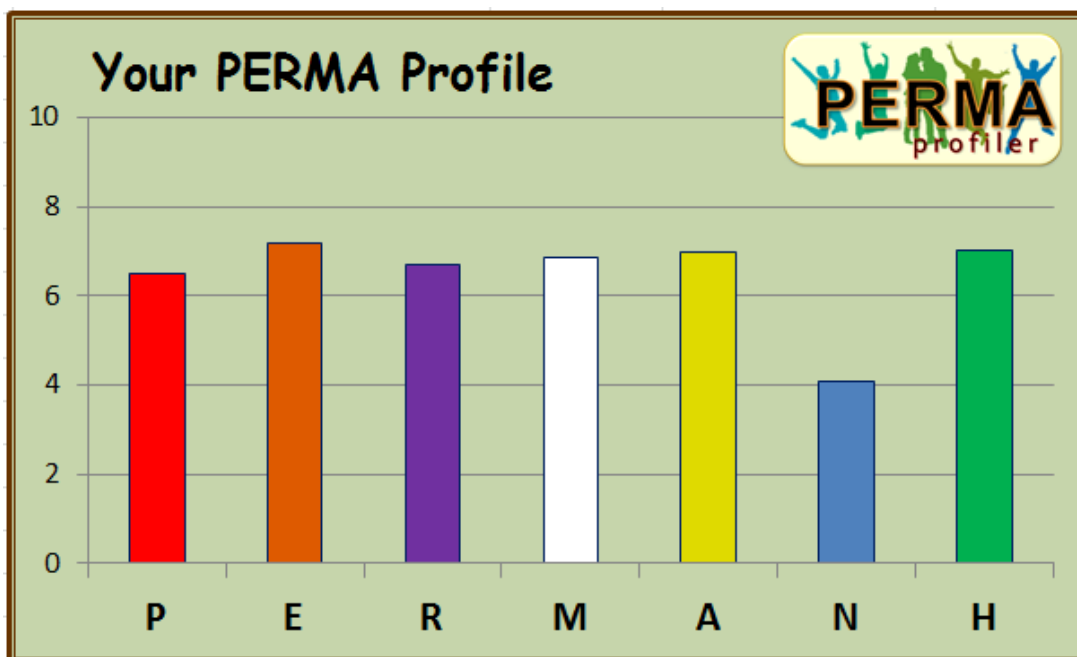
inverse correlate of negative emotion, depression, anxiety, fatigue, and perceived stress. Positive emotion was very strongly correlated with life satisfaction ($r = .76$), and was only weakly correlated with compassion, a strong sense of values, political orientation, and self-rated workplace performance. Of the PERMA factors, engagement was the weakest correlate of most other variables. However, it was the strongest correlate of compassion, identifying as an activist, and workplace performance. Relationship was the strongest correlate (inverse) of loneliness; otherwise it was moderately correlated with most factors and was weaker than other factors. Meaning was the strongest correlate of having a strong sense of values and identifying as an activist – both of which represent what could be considered meaningful activities or orientations. Hope was equally correlated with meaning and accomplishment. Accomplishment was the strongest correlate of self-efficacy and less burnout.

7. General discussion

Through an extensive theoretical and empirical process, we developed a 23-item measure that assesses wellbeing across five domains (positive emotion, engagement, relationships, meaning, accomplishment). Seligman (2011) suggests that these five domains can be defined and measured as separate but correlated constructs. Maximizing brevity while still maintaining psychometric integrity, the scale includes acceptable internal reliability for each of the five domains and good overall model fit across over 30,000 participants worldwide.

A particular benefit of the measure is that it assesses wellbeing across multiple domains. We suggest that in presenting individual or group results, the multidimensional structure of the measure should be retained, rather than condensing responses to a single flourishing score (see Figure 2 below for an example).

Figure 2. Example way of presenting a respondent’s scores, which explicitly identifies multiple domains of wellbeing. P = positive emotion, E = engagement, R = positive relationships, M = meaning/purpose in life, A = accomplishment, N = negative emotion, H = physical health.



A single score assumes that the underlying measure is unidimensional, but the PERMA-Profiler was specifically designed to be multidimensional in nature. Further, while a single overall flourishing score might provide a global indication of wellbeing, it obscures potentially meaningful variation amongst the domains. For instance, if a person scores particularly low in relationships, interventions might target strategies for building social connections (see Kern, Waters, Adler, & White, 2015; Kern, Waters, White, & Adler 2014 for further discussion of theoretical and practical benefits of a multidimensional approach).

At this point we cannot recommend an ideal profile. Indeed, the measure is intended to be descriptive – not prescriptive – in nature. Different profiles may be more or less adaptive for different people at different times, depending on their personality, history, and social context. Future research should test downstream associations between different profiles and outcomes such as objective physical health, income, and education, as well as the moderating role of other factors such as age, culture, and life events.

The PERMA-Profiler demonstrated acceptable psychometric properties across a large, diverse, international sample. Subsequent work should examine discriminate, predictive, and additional convergent validity, and item order might be further examined. In addition, sensitivity to change with intervention should be tested. Further, stability over even longer periods of time and variations across different cultures should be examined, taking into account response styles, cultural differences, proper translation of concepts, and judgment biases (Oishi & Schimmack, 2010). Developing a valid measure of psychological constructs is a long process – if not a lifetime pursuit – requiring multiple samples and refinements in both items and theory (John & Benet-Martinez, 2000).

Although the PERMA-Profiler is not the only measure that captures the five PERMA domains, it is the only measure to date that focuses primarily on the PERMA domains while also addressing the desirability of including several items per feature, instead of just one or two (Huppert and So, 2013). Future research might examine whether the PERMA-Profiler or an alternative measure will prove to be the most appropriate within different contexts and applications.

In conclusion, through an intensive process, we created a measure that at both content and analytical levels captures the five PERMA domains. The measure demonstrates acceptable reliability, cross-time stability, and evidence for convergent and divergent validity. The PERMA-Profiler provides another tool for the wellbeing measurement toolbox. Ultimately, we hope that this tool can help people better understand themselves, note their strengths and weaknesses, and find ways to more fully flourish in life.

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Appendix 1. The PERMA item bank

Domain	Sub-domain	Question Used	Response Scale	Source
Positive Emotion	General positive	Taking all things together, how happy would you say you are?	0=extremely unhappy, 10=extremely happy	ESS
Positive Emotion	Recent positive	During the past week, how often have you felt: Positive	0=never, 10=always	SPANE
Positive Emotion	Recent negative	During the past week, how often have you felt: Negative	0=never, 10=always	SPANE
Positive Emotion	Recent positive	During the past week, how often have you felt: Good	0=never, 10=always	SPANE
Positive Emotion	Recent negative	During the past week, how often have you felt: Bad	0=never, 10=always	SPANE
Positive Emotion	Recent positive	During the past week, how often have you felt: Pleasant	0=never, 10=always	SPANE
Positive Emotion	Recent negative	During the past week, how often have you felt: Unpleasant	0=never, 10=always	SPANE
Positive Emotion	Recent positive	During the past week, how often have you felt: Happy	0=never, 10=always	SPANE
Positive Emotion	Recent negative	During the past week, how often have you felt: Sad	0=never, 10=always	SPANE
Positive Emotion	Recent negative	During the past week, how often have you felt: Afraid	0=never, 10=always	SPANE
Positive Emotion	Recent positive	During the past week, how often have you felt: Joyful	0=never, 10=always	SPANE
Positive Emotion	Recent negative	During the past week, how often have you felt: Angry	0=never, 10=always	SPANE
Positive Emotion	Recent positive	During the past week, how often have you felt: Contented	0=never, 10=always	SPANE
Positive Emotion	Recent negative	During the past week, how often have you felt: Anxious	0=never, 10=always	ESS
Positive Emotion	Recent positive	During the past week, how often have you felt: Cheerful	0=never, 10=always	WEMWBS

Domain	Sub-domain	Question Used	Response Scale	Source
Positive Emotion	Recent positive	During the past week, how often have you felt: Relaxed	0=never, 10=always	WEMWBS
Positive Emotion	Recent negative	During the past week, how often have you felt: Nervous	0=never, 10=always	PANAS
Positive Emotion	General positive	In general, how often do you feel: Positive	0=never, 10=always	SPANE
Positive Emotion	General negative	In general, how often do you feel: Negative	0=never, 10=always	SPANE
Positive Emotion	General positive	In general, how often do you feel: Good	0=never, 10=always	SPANE
Positive Emotion	General negative	In general, how often do you feel: Bad	0=never, 10=always	SPANE
Positive Emotion	General positive	In general, how often do you feel: Pleasant	0=never, 10=always	SPANE
Positive Emotion	General negative	In general, how often do you feel: Unpleasant	0=never, 10=always	SPANE
Positive Emotion	General positive	In general, how often do you feel: Happy	0=never, 10=always	SPANE
Positive Emotion	General negative	In general, how often do you feel: Sad	0=never, 10=always	SPANE
Positive Emotion	General negative	In general, how often do you feel: Afraid	0=never, 10=always	SPANE
Positive Emotion	General positive	In general, how often do you feel: Joyful	0=never, 10=always	SPANE
Positive Emotion	General negative	In general, how often do you feel: Angry	0=never, 10=always	SPANE
Positive Emotion	General positive	In general, how often do you feel: Contented	0=never, 10=always	SPANE
Positive Emotion	General negative	In general, how often do you feel: Anxious	0=never, 10=always	ESS
Positive Emotion	General positive	In general, how often do you feel: Cheerful	0=never, 10=always	WEMWBS

Domain	Sub-domain	Question Used	Response Scale	Source
Positive Emotion	General positive	In general, how often do you feel: Relaxed	0=never, 10=always	WEMWBS
Positive Emotion	General negative	In general, how often do you feel: Nervous	0=never, 10=always	PANAS
Engagement	Absorption	How much of the time during the past week were you absorbed in what you were doing?	0=none of the time, 10=all of the time	ESS
Engagement	Absorption	How much of the time do you become absorbed in what you are doing?	0=none of the time, 10=all of the time	ESS
Engagement	Absorption	How much of the time do you lose track of time while doing something you enjoy?	0=none of the time, 10=all of the time	ESS
Engagement	Absorption	How much of the time during the past week were you absorbed in something you enjoyed doing?	0=none of the time, 10=all of the time	ESS
Engagement	Absorption	How much of the time do you do things that you find interesting or challenging?	0=none of the time, 10=all of the time	ESS
Engagement	Absorption	In general, how often do you find that you become completely engrossed in something?	0=never, 10=always	Flow
Engagement	Absorption	To what extent do you become unaware of what is going on around you when engaged in activities that are important to you?	0=not at all, 10=completely	Lab
Engagement	Effort	How much effort do you generally devote to the things that are important to you?	0=none at all, 10=complete	Engagement
Engagement	Effort	How much attention do you generally focus on the things that are important to you?	0=none at all, 10=complete	Engagement
Engagement	Effort	How much energy do you generally give to the things that are important to you?	0=none at all, 10=complete	Engagement
Engagement	Effort	How challenging for you are the activities you are involved in?	0=not at all, 10=extremely	Lab
Engagement	Effort	In general, how often do you exert your full effort on the activities you engage in?	0=never, 10=always	Lab
Engagement	Interest	How much of the time are you really interested in what you are doing?	0=none of the time, 10= all of the time	AHI
Engagement	Interest	How much of the time during the past week have you felt bored?	0=none of the time, 10= all of the time	ESS
Engagement	Interest	How engaged and interested are you in your daily activities?	0=not at all, 10=extremely	FS

Domain	Sub-domain	Question Used	Response Scale	Source
Engagement	Interest	During the past week, to what extent did you feel particularly excited or interested in something?	0=not at all, 10=extremely	ABS
Engagement	Interest	In general, to what extent do you feel particularly excited or interested in things?	0=not at all, 10=extremely	ABS
Engagement	Interest	To what extent do you love learning new things?	0=not at all, 10=a great deal	ESS
Engagement	Involvement	During the past week, to what extent have you been managing to keep yourself busy and occupied?	0=not at all, 10=extremely	GHQ-30
Engagement	Involvement	To what extent would you describe yourself as committed and involved?	0=not at all, 10=a great deal	OHI
Engagement	Involvement	How involved are you in activities that are important to you?	0=not at all,10=extremely	Lab
Engagement	Involvement	In general, how often do you participate in activities that are important to you?	0=never, 10=always	Lab
Engagement	Involvement	How much of the time do you spend doing things you enjoy?	0=none of the time, 10=all of the time	Lab
Relationships	Giving	In general, to what extent are you a giving person?	0=not at all, 10=extremely	SPWB
Relationships	Giving	To what extent are you willing to give of your time to others in need?	0=not at all, 10=a great deal	SPWB
Relationships	Giving	How satisfied are you with your ability to provide support for others?	0=extremely dissatisfied, 10=extremely satisfied	WHO-QOL 100
Relationships	Giving	To what extent do you actively contribute to the happiness and wellbeing of others?	0=not at all, 10=a great deal	FS
Relationships	Giving	To what extent do you provide help and support to others when they need it?	0=not at all, 10=a great deal	ESS
Relationships	Embedded	How well do you generally get on with people around you?	0=not at all, 10=extremely	ONS
Relationships	Embedded	How satisfied are you with your personal relationships?	0=extremely dissatisfied, 10=extremely satisfied	WHO-QOL 100
Relationships	Embedded	In general, how often do you meet or talk with family and friends?	0=never, 10=always	ISEL
Relationships	Embedded	In general, to what extent has maintaining close relationships been difficult for you?	0=not at all, 10=extremely	SPWB
Relationships	Embedded	How much of the time during the past week have you been feeling close to other people?	0=none of the time, 10=all of the time	WEMWBS

Domain	Sub-domain	Question Used	Response Scale	Source
Relationships	Embedded	How many close friends do you have? Please also include members of your family you consider to be close friends.	Text box, type in the number	ESS
Relationships	Perceived	To what extent have you been feeling loved?	0=not at all, 10=completely	WEMWBS
Relationships	Perceived	To what extent do you feel that there are people in your life who really care about you?	0=not at all, 10=a great deal	ESS
Relationships	Perceived	To what extent do you feel appreciated by the people you know?	0=not at all, 10=completely	ONS
Relationships	Perceived	To what extent do you feel that people treat you with respect?	0=not at all, 10=completely	ONS
Relationships	Perceived	How lonely do you feel in your daily life?	0=not at all, 10=extremely	ONS
Relationships	Perceived	To what extent do you feel that there is no one with whom you can share your most private worries and fears?	0=not at all, 10=a great deal	ISEL
Relationships	Perceived	To what extent do you feel you have someone with whom you can discuss intimate and personal matters?	0=not at all, 10=a great deal	ESS
Relationships	Perceived	How supportive and rewarding are your social relationships?	0=not at all, 10=extremely	FS
Relationships	Perceived	To what extent do you receive help and support from others when you need it?	0=not at all, 10=a great deal	ESS
Relationships	Perceived	How satisfied are you with the support that you get from others?	0=extremely dissatisfied, 10=extremely satisfied	WHO-QOL 100
Meaning	Worth	In general, to what extent do your daily activities seem trivial and unimportant?	0=not at all, 10=extremely	SPWB
Meaning	Worth	In general, to what extent do you feel what you do in your life is valuable and worthwhile?	0=not at all, 10=extremely	ESS
Meaning	Worth	In general, to what extent do you feel that what you do in your daily activities is valuable and worthwhile?	0=not at all, 10=extremely	ESS
Meaning	Worth	How useful a role do you feel you play in the world around you?	0=not at all, 10=extremely	ONS
Meaning	Worth	How much of the time during the past week have you been feeling useful?	0=none of the time, 10=all of the time	WEMWBS
Meaning	Transcendent	Has your life had a very clear goal or purpose?	0=no clear goal or purpose, 10=a very clear goal or purpose	SOC
Meaning	Transcendent	During the past week, to what extent have you been feeling inspired?	0=not at all, 10=extremely	PANAS
Meaning	Transcendent	To what extent do you have a sense of purpose in what you do?	0=not at all, 10=completely	GAT

Domain	Sub-domain	Question Used	Response Scale	Source
Meaning	Transcendent	To what extent do you live your life with purpose?	0=not at all, 10=completely	Lab
Meaning	Transcendent	In general, to what extent do you lead a purposeful and meaningful life?	0=not at all, 10=extremely	FS
Meaning	Direction	To what extent do you live in accordance with your values and beliefs?	0=not at all, 10=completely	Lab
Meaning	Direction	To what extent do you generally feel you have a sense of direction in your life?	0=none at all, 10=complete	ONS
Meaning	Direction	To what extent do you plan and prepare for the future?	0=not at all, 10=a great deal	ESS
Meaning	Direction	To what extent do you like planning and preparing for the future?	0=not at all, 10=a great deal	ESS
Meaning	Direction	To what extent do you have personal projects or goals that you feel it is important for you to pursue?	0=not at all, 10=a great deal	Lab
Accomplishment	Goals	How easy is it for you to stick to your aims?	0=not at all, 10=extremely	GSE
Accomplishment	Goals	How much of the time do you feel you are making progress towards accomplishing your goals?	0=none of the time, 10=all of the time	GSE
Accomplishment	Goals	To what extent do you accomplish the things you set out to do in your daily activities?	0=not at all, 10=a great deal	SPWB
Accomplishment	Goals	How much of the time do you achieve the important goals you have set for yourself?	0=none of the time, 10=all of the time	Lab
Accomplishment	Goals	How much of the time are you successful in achieving the goals you set for yourself?	0=none of the time, 10=all of the time	Lab
Accomplishment	Efficacy	To what extent can you usually handle whatever comes your way?	0=handle extremely poorly, 10=handle extremely well	GSE
Accomplishment	Efficacy	How much of the time are you able to handle your responsibilities?	0=none of the time, 10=all of the time	SPWB
Accomplishment	Efficacy	In general, to what extent do you feel able to deal with important problems in your life?	0=not at all, 10=extremely	ONS
Accomplishment	Efficacy	In your daily life, how much opportunity do you feel you have to show how capable you are?	0=no opportunity at all, 10=a great deal of opportunity	ONS
Accomplishment	Efficacy	To what extent do you feel you can do just about anything you really set your mind to?	0=not at all, 10=a great deal	SMS

Domain	Sub-domain	Question Used	Response Scale	Source
Accomplishment	Efficacy	In general, to what extent are you competent and capable in the activities that are important to you?	0=not at all, 10=extremely	FS
Accomplishment	Subjective	During the past week, to what extent did you feel pleased about having accomplished something?	0=not at all, 10=extremely	ABS
Accomplishment	Subjective	How much of the time do you feel a sense of accomplishment from what you do?	0=none of the time, 10=all of the time	ESS
Accomplishment	Subjective	To what extent do you feel a sense of accomplishment from the things you do in your daily life?	0=none at all, 10=complete	ONS
Accomplishment	Subjective	To what extent do you feel a sense of accomplishment from the things you have achieved in your life up until now?	0=none at all, 10=complete	Lab
Accomplishment	Subjective	In general, to what extent do you feel proud of what you have achieved?	0=not at all, 10=extremely	PANAS
Accomplishment	Subjective	To what extent do you feel disappointed about your achievements in life?	0=not at all, 10=a great deal	SPWB

Note. ABS = Affect Balance Scale (Bradburn, 1969); AHI = Authentic Happiness Inventory (Seligman, 2002); Engagement = Engagement (Rich, LePine, & Crawford, 2010); ESS = European Social Survey (Huppert, et al., 2009); Flow = Flow Questionnaire (Csikszentmihalyi & Csikszentmihalyi, 1988); FS = Flourishing Scale (Diener, et. al., 2010); GAT = Global Assessment Tool (Peterson, Park & Castro, 2011); GHQ-30 = General Health Questionnaire (Goldberg, 1972); GSE = Generalized Self-Efficacy Scale (Schwarzer & Jerusalem, 1995); ISEL = Interpersonal Support Evaluation List (Cohen & Hoberman, 1983); Lab = Lab Generated Questions; OHI = Oxford Happiness Inventory (Hills & Argyle, 2001); ONS = UK Office for National Statistics Experimental Opinion Survey Questions (Office for National Statistics, 2011); PANAS = Positive and Negative Affect Schedule (Watson, Clark & Tellegen, 1988); SMS = Self-Mastery Scale (Pearlin & Schooler, 1978); SOC = Sense of Coherence (Antonovsky, 1987); SPANE = Scale of Positive and Negative Experience (Diener, et. al., 2010); SPWB = Scales of Psychological Well-Being (Ryff & Keyes, 1995); WEMWBS = Warwick-Edinburgh Mental Well-being Scale (Stewart-Brown, et al., 2009); and WHO-QOL 100 = World Health Organization Quality of Life (Power, et al., 1998).

Appendix 1 References

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Appendix 2. PERMA correlations with other variables by sample

	N	Mean	SD	Min	Max	P	E	R	M	A	Overall	NE	H
Sample 1a (Development sample subset 1)													
Positive emotion	1824	6.56	1.95	0.00	10.00								
Engagement	1820	7.44	1.86	0.00	10.00	.59**							
Relationships	1824	6.74	2.31	0.00	10.00	.61**	.49**						
Meaning	1820	6.94	2.45	0.00	10.00	.71**	.68**	.65**					
Accomplishment	1820	7.15	1.90	0.00	10.00	.62**	.64**	.55**	.72**				
Overall wellbeing	1837	6.94	1.78	0.00	10.00	.84**	.79**	.81**	.91**	.83**			
Negative emotion	1818	3.97	2.11	0.00	10.00	-.51**	-.33**	-.43**	-.47**	-.44**	-.53**		
Physical health ^a	1757	3.50	0.99	1.00	5.00	.37**	.30**	.34**	.35**	.42**	.43**	-.31**	
Loneliness ^b	1804	4.37	3.31	0.00	10.00	-.39**	-.29**	-.58**	-.43**	-.37**	-.51**	.42**	-.24**
Depression ^c	1768	15.41	5.75	8.00	32.00	-.65**	-.51**	-.65**	-.66**	-.57**	-.74**	.62**	-.42**
Life satisfaction ^d	1787	22.74	7.86	5.00	35.00	.65**	.51**	.68**	.72**	.63**	.78**	-.50**	.42**
Flourishing ^e	1755	43.25	9.35	11.00	56.00	.65**	.59**	.67**	.78**	.67**	.81**	-.48**	.38**
WEMWBS ^f	1740	25.12	5.16	7.00	35.00	.67**	.59**	.67**	.73**	.65**	.80**	-.57**	.43**
PAC-10 ^g	1720	75.77	18.88	10.00	110.00	.67**	.60**	.65**	.77**	.66**	.81**	-.51**	.40**
Sample 1b (Development sample subset 2)													
Positive emotion	1828	6.56	1.95	0.00	10.00								
Engagement	1826	7.45	1.82	0.00	10.00	.59**							
Relationships	1830	6.80	2.32	0.00	10.00	.61**	.52**						
Meaning	1828	6.97	2.45	0.00	10.00	.69**	.68**	.64**					
Accomplishment	1824	7.11	1.98	0.00	10.00	.60**	.64**	.57**	.74**				
Overall wellbeing	1845	6.95	1.79	0.00	10.00	.83**	.80**	.81**	.90**	.84**			
Negative emotion	1824	3.89	2.05	0.00	10.00	-.53**	-.34**	-.42**	-.48**	-.45**	-.54**		
Physical health ^a	1776	3.48	0.99	1.00	5.00	.35**	.30**	.33**	.38**	.42**	.43**	-.31**	
Loneliness ^b	1814	4.28	3.29	0.00	10.00	-.43**	-.32**	-.56**	-.45**	-.38**	-.52**	.42**	-.25**
Depression ^c	1760	15.22	5.66	8.00	32.00	-.65**	-.52**	-.63**	-.67**	-.60**	-.75**	.61**	-.41**
Life satisfaction ^d	1780	22.94	7.76	5.00	35.00	.66**	.54**	.69**	.74**	.65**	.80**	-.49**	.42**
Flourishing ^e	1764	43.55	9.56	8.00	56.00	.66**	.63**	.65**	.79**	.68**	.82**	-.46**	.39**
WEMWBS ^f	1757	25.17	5.26	7.00	35.00	.67**	.62**	.68**	.74**	.67**	.81**	-.56**	.42**
PAC-10 ^g	1738	75.87	18.95	10.00	110.00	.64**	.64**	.64**	.75**	.67**	.80**	-.49**	.40**

	N	Mean	SD	Min	Max	P	E	R	M	A	Overall	NE	H
Sample 2 (Validation sample)													
Positive emotion	2938	6.51	2.00	0.00	10.00								
Engagement	2946	7.36	1.92	0.00	10.00	.60**							
Relationships	2954	6.66	2.39	0.00	10.00	.61**	.51**						
Meaning	2948	6.83	2.50	0.00	10.00	.68**	.69**	.63**					
Accomplishment	2947	7.06	2.01	0.00	10.00	.60**	.66**	.55**	.73**				
Overall wellbeing	2976	6.85	1.84	0.25	10.00	.84**	.81**	.80**	.90**	.84**			
Negative emotion	2932	3.99	2.07	0.00	10.00	-.51**	-.37**	-.42**	-.47**	-.43**	-.53**		
Physical health ^a	2855	3.45	1.01	1.00	5.00	.36**	.33**	.34**	.38**	.41**	.44**	-.27**	
Loneliness ^b	2919	4.47	3.33	0.00	10.00	-.43**	-.32**	-.57**	-.44**	-.36**	-.52**	.41**	-.24**
Depression ^c	2824	15.70	5.82	8.00	32.00	-.66**	-.56**	-.65**	-.67**	-.60**	-.76**	.605**	-.42**
Life satisfaction ^d	2864	22.57	7.82	5.00	35.00	.66**	.55**	.67**	.73**	.66**	.79**	-.50**	.43**
Flourishing ^e	2833	43.16	9.32	8.00	56.00	.69**	.68**	.69**	.83**	.73**	.87**	-.51**	.42**
WEMWBS ^f	2820	24.79	5.21	7.00	35.00	.66**	.62**	.66**	.73**	.68**	.81**	-.57**	.43**
PAC-10 ^g	2787	74.80	19.49	10.00	110.00	.63**	.64**	.63**	.74**	.65**	.80**	-.52**	.41**
Sample 3 (Mturk sample)													
Positive emotion	405	6.78	1.80	1.00	10.00								
Engagement	408	6.92	1.80	0.67	10.00	.52**							
Relationships	408	7.08	2.09	0.00	10.00	.64**	.63**						
Meaning	408	7.00	2.06	0.00	10.00	.65**	.71**	.75**					
Accomplishment	408	6.85	1.93	0.00	10.00	.62**	.70**	.72**	.82**				
Overall wellbeing	408	6.91	1.67	1.25	10.00	.79**	.81**	.88**	.92**	.90**			
Negative emotion	405	4.39	2.17	0.00	9.67	-.20**	-.14**	-.27**	-.20**	-.29**	-.26**		
Physical health ^a	403	3.40	0.86	1.00	5.00	.39**	.30**	.41**	.37**	.40**	.44**	-.17**	
Loneliness ^b	405	5.29	3.02	0.00	10.00	-.12*	-0.03	-.19**	-.10*	-.16**	-.15**	.39**	-.09
Depression ^c	381	16.82	5.26	8.00	32.00	-.49**	-.36**	-.56**	-.51**	-.58**	-.59**	.50**	-.40**
Life satisfaction ^d	399	23.76	6.74	5.00	35.00	.61**	.46**	.72**	.69**	.68**	.75**	-.26**	.50**
Flourishing ^e	387	42.33	8.31	17.00	56.00	.66**	.69**	.79**	.81**	.77**	.87**	-.32**	.46**
WEMWBS ^f	379	25.70	4.85	10.00	35.00	.62**	.54**	.66**	.68**	.68**	.75**	-.30**	.45**
PAC-10 ^g	395	75.15	17.72	26.00	110.00	.58**	.50**	.69**	.71**	.67**	.75**	-.34**	.49**

	N	Mean	SD	Min	Max	P	E	R	M	A	Overall	NE	H
Sample 4 (Brief measure test set)													
Positive emotion	4717	6.43	1.97	0.00	10.00								
Engagement	4717	6.92	1.76	0.00	10.00	.66**							
Relationships	4717	6.63	2.20	0.00	10.00	.69**	.48**						
Meaning	4717	6.77	2.20	0.00	10.00	.78**	.60**	.61**					
Accomplishment	4717	6.78	1.80	0.00	10.00	.70**	.56**	.54**	.78**				
Overall wellbeing	4717	6.70	1.67	0.00	10.00	.91**	.76**	.80**	.90**	.84**			
Negative emotion	4717	4.19	2.00	0.00	10.00	-.58**	-.33**	-.46**	-.46**	-.44**	-.55**		
Physical health ^h	4715	7.02	2.09	0.00	10.00	.49**	.34**	.40**	.44**	.46**	.51**	-.32**	
Loneliness	4702	4.00	2.86	0.00	10.00	-.45**	-.29**	-.50**	-.39**	-.32**	-.47**	.50**	-.22**
Sample 5 (Main norming set)													
Positive emotion	23692	6.81	1.95	0.00	10.00								
Engagement	23692	7.38	1.67	0.00	10.00	.64**							
Relationships	23692	6.98	2.14	0.00	10.00	.68**	.46**						
Meaning	23692	7.16	2.16	0.00	10.00	.75**	.60**	.60**					
Accomplishment	23692	7.39	1.74	0.00	10.00	.68**	.57**	.54**	.79**				
Overall wellbeing	23692	7.14	1.64	0.00	10.00	.90**	.76**	.80**	.89**	.84**			
Negative emotion	23692	4.51	2.08	0.00	10.00	-.51**	-.27**	-.39**	-.41**	-.36**	-.47**		
Physical health ^h	23692	6.96	2.20	0.00	10.00	.48**	.32**	.40**	.43**	.46**	.50**	-.31**	
Loneliness ^b	23692	4.13	3.04	0.00	10.00	-.44**	-.24**	-.50**	-.38**	-.32**	-.46**	.55**	-.24**
Sample 6 (Compassion study)													
Positive emotion	285	7.12	1.48	1.33	10.00								
Engagement	282	7.64	1.45	2.33	10.00	.53**							
Relationships	285	7.53	1.77	1.33	10.00	.65**	.33**						
Meaning	279	7.93	1.76	1.00	10.00	.60**	.50**	.56**					
Accomplishment	282	7.35	1.47	1.67	10.00	.56**	.48**	.43**	.57**				
Overall wellbeing	285	7.50	1.27	1.81	9.81	.85**	.70**	.79**	.84**	.75**			
Political orientation ⁱ	245	2.31	1.49	1.00	7.00	-.09	-.15*	-.12	-.16*	.07	-.12		
Identifies as an activist ^j	285	36.96	13.39	8.00	56.00	.009	.18**	-.04	.20**	.01	.07		
Life satisfaction ^d	285	24.21	6.54	5.00	35.00	.63**	.36**	.60**	.50**	.50**	.67**		
Self-compassion ^k	277	3.13	0.62	1.42	4.58	.49**	.29**	.45**	.45**	.35**	.52**		

	N	Mean	SD	Min	Max	P	E	R	M	A	Overall	NE	H
Hope ^l	265	51.41	7.84	11.00	64.00	.58**	.55**	.41**	.64**	.65**	.72**		
Compassion ^m	264	5.67	1.00	2.60	7.00	.13*	.25**	.02	.19**	.15*	.17**		
Activist orientation ⁿ	256	2.13	0.86	1.00	4.50	-.16*	.004	-.12	-.07	-.20**	-.14*		
Burnout ^o	195	2.15	0.42	1.00	3.56	-.42**	-.43**	-.34**	-.46**	-.57**	-.56**		
Self-determination ^p	250	2.20	0.66	1.00	4.40	-.53**	-.35**	-.47**	-.54**	-.46**	-.60**		
Sample 7 (Online organization employees)													
Positive emotion	294	7.26	1.52	1.67	10.00								
Engagement	294	7.84	1.26	3.33	10.00	.57**							
Relationships	289	7.75	1.61	1.00	10.00	.66**	.46**						
Meaning	288	7.63	1.64	0.00	10.00	.63**	.49**	.60**					
Accomplishment	294	7.41	1.36	3.00	10.00	.57**	.65**	.48**	.51**				
Overall wellbeing	294	7.59	1.18	3.31	10.00	.86**	.76**	.80**	.82**	.77**			
Work performance ^q	293	8.09	1.13	3.00	10.00	.14*	.25**	.20**	.21**	.19**	.24**		
Organization practices ^r	294	7.99	1.34	2.25	10.00	.33**	.38**	.34**	.24**	.38**	.41**		
Social capital ^s	293	7.63	1.50	3.25	10.00	.37**	.26**	.35**	.22**	.26**	.37**		
Sample 8 (Values study)													
Positive emotion	166	6.27	1.80	1.00	9.67								
Engagement	166	6.95	1.69	1.67	10.00	.61**							
Relationships	166	6.85	2.02	0.67	10.00	.69**	.40**						
Meaning	166	6.51	2.24	0.33	10.00	.67**	.58**	.48**					
Accomplishment	166	6.82	1.65	1.33	9.67	.63**	.48**	.52**	.71**				
Overall wellbeing	166	6.67	1.54	1.50	9.44	.89**	.73**	.77**	.85**	.81**			
Negative emotion	166	4.41	1.84	0.33	8.67	-.54**	-.22**	-.44**	-.33**	-.35**	-.47**		
Physical health ^h	166	6.57	2.07	0.00	10.00	.44**	.22**	.39**	.37**	.52**	.48**	-.41**	
Loneliness ^b	166	4.05	2.85	0.00	10.00	-.55**	-.31**	-.63**	-.44**	-.43**	-.59**	.54**	-.30**
Values ^t	163	77.14	15.26	2.00	111.00	.20**	.18*	.13	.30**	.20**	.26**	-.15	.23**
Sample 9 (Harvard University students)													
Positive emotion	184	6.67	1.73	2.00	10.00								
Engagement	184	7.25	1.60	1.33	10.00	.54**							
Relationships	184	7.11	2.06	1.00	10.00	.55**	.22**						
Meaning	184	7.12	1.70	1.67	10.00	.70**	.49**	.48**					

	N	Mean	SD	Min	Max	P	E	R	M	A	Overall	NE	H
Accomplishment	184	7.01	1.52	2.00	10.00	.62**	.39**	.45**	.71**				
Overall wellbeing	184	7.03	1.34	3.07	9.73	.87**	.66**	.72**	.86**	.79**			
Negative emotion	184	4.33	1.86	0.33	9.00	-.48**	-.17*	-.20**	-.35**	-.33**	-.39**		
Physical health ^h	184	7.09	2.06	0.33	10.00	.54**	.38**	.26**	.47**	.45**	.53**	-.26**	
Loneliness ^b	184	4.77	2.84	0.00	10.00	-.44**	-.21**	-.45**	-.36**	-.25**	-.45**	.45**	-.18**
Hope ^u	182	5.46	0.96	2.60	7.00	.64**	.48**	.44**	.67**	.69**	.74**	-.46**	.41**
Self-efficacy ^v	181	5.76	0.88	2.50	7.00	.53**	.37**	.33**	.53**	.60**	.59**	-.43**	.39**
Gratitude ^w	181	6.16	0.84	3.00	7.00	.39**	.09	.55**	.22**	.24**	.40**	-.30**	.16*
Perceived stress ^x	179	3.23	1.23	1.17	7.00	-.45**	-.20**	-.35**	-.39**	-.43**	-.47**	.58**	-.30**
Depression ^y	184	2.68	1.96	1.00	9.50	-.35**	-.12	-.38**	-.37**	-.31**	-.40**	.57**	-.18*
Anxiety ^y	184	2.84	1.34	1.00	6.50	-.44**	-.21**	-.30**	-.38**	-.39**	-.44**	.66**	-.25**
Fatigue ^y	181	3.35	1.40	1.00	7.00	-.45**	-.26**	-.27**	-.40**	-.38**	-.45**	.53**	-.58**
Life satisfaction ^z	176	6.65	1.84	1.00	10.00	.68**	.45**	.55**	.65**	.70**	.77**	-.43**	.39**
Sample 10 (Positive intervention study)													
Positive emotion	1846	5.83	2.08	0.00	10.00								
Engagement	1846	6.63	1.87	0.00	10.00	.67**							
Relationships	1825	6.39	2.23	0.00	10.00	.69**	.46**						
Meaning	1825	6.34	2.28	0.00	10.00	.77**	.64**	.61**					
Accomplishment	1846	6.24	1.90	0.33	10.00	.68**	.59**	.50**	.73**				
Overall wellbeing	1846	6.28	1.75	0.20	10.00	.91**	.79**	.79**	.90**	.83**			
Negative emotion	1845	4.84	1.96	0.67	10.00	-.56**	-.31**	-.40**	-.43**	-.38**	-.50**		
Physical health ^h	1844	6.55	2.16	0.00	10.00	.45**	.29**	.34**	.40**	.43**	.45**	-.31**	
Loneliness ^b	1825	4.94	2.92	0.00	10.00	-.46**	-.28**	-.46**	-.37**	-.31**	-.45**	.50**	-.19**
Hope ^u	1778	4.83	1.27	1.00	7.00	.67**	.57**	.46**	.69**	.70**	.73**	-.45**	.36**
Self-efficacy ^v	1724	5.29	1.14	1.00	7.00	.60**	.52**	.41**	.61**	.65**	.66**	-.44**	.36**
Gratitude ^w	1738	5.70	1.08	1.00	7.00	.60**	.45**	.55**	.55**	.47**	.62**	-.46**	.30**
Perceived stress ^x	1701	3.64	1.38	1.00	7.00	-.59**	-.36**	-.45**	-.47**	-.49**	-.56**	.68**	-.37**
Depression ^y	1790	3.40	2.21	1.00	10.00	-.64**	-.41**	-.50**	-.57**	-.51**	-.63**	.59**	-.33**
Anxiety ^y	1800	3.17	1.37	1.00	7.00	-.54**	-.35**	-.36**	-.43**	-.45**	-.51**	.68**	-.29**
Fatigue ^y	1738	3.64	1.45	1.00	7.00	-.42**	-.30**	-.27**	-.31**	-.37**	-.40**	.46**	-.46**
Life satisfaction ^z	1637	5.78	2.25	0.00	10.00	.79**	.54**	.67**	.71**	.66**	.80**	-.54**	.44**

	N	Mean	SD	Min	Max	P	E	R	M	A	Overall	NE	H
Sample 11 (<i>William & Mary University sample</i>)													
Positive emotion	781	6.30	1.63	0.00	10.00								
Engagement	781	6.55	1.43	1.67	10.00	.56**							
Relationships	782	6.74	1.85	0.33	10.00	.65**	.48**						
Meaning	780	6.77	2.00	0.00	10.00	.73**	.58**	.61**					
Accomplishment	782	6.80	1.56	0.00	10.00	.63**	.49**	.56**	.71**				
Overall wellbeing	782	6.64	1.41	1.06	9.63	.87**	.72**	.81**	.89**	.82**			
Negative emotion	782	4.02	1.68	0.00	9.00	-.63**	-.34**	-.42**	-.53**	-.48**	-.59**		
Loneliness ^b	762	4.18	2.42	0.00	10.00	-.52**	-.34**	-.58**	-.46**	-.37**	-.57**	.54**	

Note. P = positive emotion, E = engagement, R = relationship, M = meaning, A = accomplishment, Overall = overall wellbeing, NE = negative emotion, H = physical health.

^a Four physical health items adapted from the Short-Form 36 (Ware & Sherbourne) physical function subscale; ^b single item (“How lonely do you feel in your daily life?”); ^c Center of Epidemiological Studies-Depression Scale (CES-D, Radloff, 1977); ^d Satisfaction with Life Scale (SWLS, Diener, Emmons, Larsen, & Griffin, 1985); ^e Flourishing Scale (Diener et al., 2010); ^f Short Warwick-Edinburgh Mental Well-being Scale (WEMWBS, Stewart-Brown et al., 2009); ^g the PAC-10 (Personal Action Constructs) rating scales (Little, Salmela-Aro, & Phillips, 2007); ^h final three health items included in the 23-item PERMA-Profilier measure; ⁱ single item on political orientation (1 = liberal, 7 = conservative); ^j Activist Identity Scale (Klar & Klassar, 2009); ^k Self-Compassion Scale (Neff, 2003); ^l 12-item Adult Hope Scale (Snyder, Irving, & Anderson, 1991); ^m Santa Clara Brief Compassion Scale (Hwang, Plante, & Lackey, 2008); ⁿ Activist Orientation Scale (Corning & Myers, 2002); ^o Maslach Burnout Inventory (Maslach, Jackson, & Leiter, 1997); ^p Self-determination Scale (Sheldon & Deci, 1996); ^q single item self-rating on overall work performance (0 = low, 10 = high); ^r organizational practices subscale from the Organizational Virtuousness Scale (Cameron, Bright, & Caza, 2004); ^s four self-rated items (0 = strongly disagree, 10 = strongly agree: I feel a sense of belonging at work; I socialize with my co-workers outside of work; I can trust and depend on my co-workers; I have positive feelings towards my co-workers); ^t average self-ratings across 13 values (work, time balance, education, achievement, material wealth, health, good time, helping others, security, nature, family, spirituality, other) adapted from Schwartz (2012); ^u 8-item Hope Scale (Snyder, 1995); ^v General Self-efficacy Scale (Chen, Gully, & Eden, 2001); ^w Gratitude Questionnaire (McCullough, Emmons, & Tsang, 2002); ^x Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983); ^y PROMIS short-form scales (Pilkonis et al., 2011); ^z average of two self-ratings on overall life satisfaction (Cantril’s Ladder and “Overall, how satisfied are you with your life nowadays?”).

Appendix 2 References

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Appendix 3. PERMA-profiler norms

	N	Mean	Median	SD	Min	25th	50th	75th	Max
Full Sample									
Positive emotion	31965	6.69	7.00	1.97	0.00	5.67	7.00	8.00	10.00
Engagement	31962	7.25	7.67	1.71	0.00	6.33	7.67	8.33	10.00
Relationships	31940	6.90	7.33	2.15	0.00	5.67	7.33	8.67	10.00
Meaning	31931	7.06	7.67	2.17	0.00	6.00	7.67	8.67	10.00
Accomplishment	31963	7.21	7.67	1.78	0.00	6.33	7.67	8.33	10.00
Overall wellbeing	31966	7.02	7.38	1.66	0.00	6.13	7.38	8.25	10.00
Negative emotion	31386	4.46	4.33	2.06	0.00	3.00	4.33	6.00	10.00
Physical health	30601	6.94	7.33	2.18	0.00	5.67	7.33	8.67	10.00
Gender: Male									
Positive emotion	17752	6.79	7.33	1.92	0.00	5.67	7.33	8.33	10.00
Engagement	17752	7.32	7.67	1.67	0.00	6.33	7.67	8.67	10.00
Relationships	17751	7.00	7.33	2.12	0.00	5.67	7.33	8.67	10.00
Meaning	17746	7.13	7.67	2.12	0.00	6.00	7.67	8.67	10.00
Accomplishment	17752	7.35	7.67	1.72	0.00	6.33	7.67	8.67	10.00
Overall wellbeing	17753	7.11	7.50	1.61	0.00	6.25	7.50	8.31	10.00
Negative emotion	17517	4.55	4.67	2.05	0.00	3.00	4.67	6.00	10.00
Physical health	17229	6.89	7.33	2.21	0.00	5.67	7.33	8.67	10.00
Gender: Female									
Positive emotion	13653	6.57	7.00	2.01	0.00	5.33	7.00	8.00	10.00
Engagement	13650	7.17	7.33	1.73	0.00	6.33	7.33	8.33	10.00
Relationships	13650	6.78	7.33	2.17	0.00	5.33	7.33	8.33	10.00
Meaning	13646	6.98	7.67	2.23	0.00	5.67	7.67	8.67	10.00
Accomplishment	13651	7.08	7.33	1.82	0.00	6.00	7.33	8.33	10.00
Overall wellbeing	13653	6.91	7.27	1.69	0.00	5.94	7.27	8.13	10.00
Negative emotion	13314	4.34	4.33	2.05	0.00	2.67	4.33	6.00	10.00
Physical health	12821	7.03	7.67	2.14	0.00	5.67	7.67	8.67	10.00
Gender: Unknown									
Positive emotion	557	6.21	6.33	2.02	0.00	5.00	6.33	8.00	10.00
Engagement	557	6.76	7.00	1.86	1.50	5.50	7.00	8.00	10.00
Relationships	536	6.48	7.00	2.24	0.00	5.00	7.00	8.25	10.00
Meaning	536	6.48	7.00	2.18	0.00	5.00	7.00	8.00	10.00
Accomplishment	557	6.35	6.50	1.94	0.00	5.00	6.50	8.00	10.00
Overall wellbeing	557	6.45	6.60	1.74	1.25	5.25	6.60	7.81	10.00
Negative emotion	555	4.90	5.00	2.13	0.00	3.33	5.00	6.50	10.00
Physical health	551	6.72	7.00	2.15	0.00	5.33	7.00	8.33	10.00
Age: Under 18									
Positive emotion	1500	6.85	7.33	1.83	0.00	5.67	7.33	8.33	10.00
Engagement	1500	7.54	7.67	1.49	0.00	6.67	7.67	8.67	10.00
Relationships	1500	6.84	7.33	2.02	0.00	5.67	7.33	8.33	10.00
Meaning	1500	6.79	7.33	2.07	0.00	5.67	7.33	8.33	10.00
Accomplishment	1500	7.02	7.33	1.77	0.00	6.00	7.33	8.33	10.00
Overall wellbeing	1500	7.01	7.31	1.53	0.00	6.08	7.31	8.13	10.00
Negative emotion	1500	4.98	5.00	2.08	0.00	3.33	5.00	6.67	10.00
Physical health	1500	6.95	7.33	2.21	0.00	5.67	7.33	8.67	10.00
Age: 18-24									
Positive emotion	8875	6.85	7.00	1.77	0.00	6.00	7.00	8.00	10.00
Engagement	8875	7.33	7.67	1.52	0.00	6.67	7.67	8.33	10.00
Relationships	8876	7.05	7.33	2.00	0.00	6.00	7.33	8.67	10.00

	N	Mean	Median	SD	Min	25th	50th	75th	Max
Meaning	8874	7.11	7.67	1.98	0.00	6.00	7.67	8.67	10.00
Accomplishment	8876	7.26	7.67	1.67	0.00	6.33	7.67	8.33	10.00
Overall wellbeing	8876	7.12	7.38	1.48	0.00	6.31	7.38	8.19	10.00
Negative emotion	8799	4.66	4.67	1.97	0.00	3.33	4.67	6.00	10.00
Physical health	8018	6.88	7.33	2.09	0.00	5.67	7.33	8.33	10.00
Age 25-34									
Positive emotion	6530	6.58	7.00	1.95	0.00	5.33	7.00	8.00	10.00
Engagement	6528	7.11	7.33	1.75	0.00	6.00	7.33	8.33	10.00
Relationships	6526	6.97	7.33	2.09	0.00	5.67	7.33	8.67	10.00
Meaning	6521	6.95	7.33	2.21	0.00	5.67	7.33	8.67	10.00
Accomplishment	6528	7.13	7.67	1.82	0.00	6.33	7.67	8.33	10.00
Overall wellbeing	6530	6.94	7.31	1.66	0.13	6.00	7.31	8.13	10.00
Negative emotion	6223	4.60	4.67	2.03	0.00	3.00	4.67	6.00	10.00
Physical health	6223	6.80	7.33	2.19	0.00	5.33	7.33	8.33	10.00
Age 35-44									
Positive emotion	5424	6.54	7.00	2.06	0.00	5.33	7.00	8.00	10.00
Engagement	5424	7.14	7.67	1.79	0.00	6.33	7.67	8.33	10.00
Relationships	5424	6.75	7.33	2.26	0.00	5.33	7.33	8.33	10.00
Meaning	5423	6.96	7.67	2.27	0.00	5.67	7.67	8.67	10.00
Accomplishment	5424	7.15	7.67	1.83	0.00	6.33	7.67	8.33	10.00
Overall wellbeing	5424	6.90	7.27	1.74	0.00	5.88	7.27	8.19	10.00
Negative emotion	5363	4.43	4.33	2.06	0.00	2.67	4.33	6.00	10.00
Physical health	5363	6.88	7.33	2.22	0.00	5.67	7.33	8.67	10.00
Age 45-54									
Positive emotion	4724	6.63	7.33	2.14	0.00	5.33	7.33	8.33	10.00
Engagement	4724	7.22	7.67	1.84	0.00	6.33	7.67	8.67	10.00
Relationships	4723	6.78	7.33	2.28	0.00	5.33	7.33	8.67	10.00
Meaning	4723	7.10	7.67	2.28	0.00	6.00	7.67	8.67	10.00
Accomplishment	4724	7.27	7.67	1.82	0.00	6.33	7.67	8.67	10.00
Overall wellbeing	4724	6.99	7.44	1.79	0.00	5.94	7.44	8.31	10.00
Negative emotion	4661	4.16	4.00	2.07	0.00	2.33	4.00	5.67	10.00
Physical health	4661	7.05	7.67	2.24	0.00	5.67	7.67	8.67	10.00
Age 55-64									
Positive emotion	2699	6.72	7.33	2.13	0.00	5.67	7.33	8.33	10.00
Engagement	2698	7.39	7.67	1.77	0.00	6.67	7.67	8.67	10.00
Relationships	2699	6.84	7.33	2.28	0.00	5.33	7.33	8.67	10.00
Meaning	2698	7.33	8.00	2.25	0.00	6.33	8.00	9.00	10.00
Accomplishment	2698	7.42	8.00	1.77	0.00	6.67	8.00	8.67	10.00
Overall wellbeing	2699	7.13	7.63	1.76	0.00	6.19	7.63	8.44	10.00
Negative emotion	2665	3.92	3.67	2.08	0.00	2.00	3.67	5.33	10.00
Physical health	2665	7.24	8.00	2.18	0.00	6.00	8.00	9.00	10.00
Age 65+									
Positive emotion	870	6.91	7.33	2.08	0.00	6.00	7.33	8.33	10.00
Engagement	870	7.58	8.00	1.78	0.00	6.67	8.00	9.00	10.00
Relationships	870	7.03	7.67	2.25	0.00	5.67	7.67	8.67	10.00
Meaning	870	7.48	8.17	2.28	0.00	6.67	8.17	9.00	10.00
Accomplishment	870	7.56	8.00	1.72	0.00	6.67	8.00	8.67	10.00
Overall wellbeing	870	7.30	7.81	1.77	0.00	6.44	7.81	8.63	9.94
Negative emotion	834	3.60	3.33	2.04	0.00	1.67	3.33	5.00	10.00
Physical health	834	7.51	8.00	2.15	0.33	6.33	8.00	9.00	10.00

	N	Mean	Median	SD	Min	25th	50th	75th	Max
Age: Unknown									
Positive emotion	1343	6.63	7.00	1.92	0.00	5.33	7.00	8.00	10.00
Engagement	1343	7.12	7.33	1.75	0.00	6.00	7.33	8.33	10.00
Relationships	1322	6.76	7.00	2.17	0.00	5.33	7.00	8.33	10.00
Meaning	1322	6.93	7.33	2.12	0.00	5.67	7.33	8.50	10.00
Accomplishment	1343	6.94	7.33	1.86	0.00	6.00	7.33	8.33	10.00
Overall wellbeing	1343	6.87	7.22	1.66	0.00	5.83	7.22	8.11	10.00
Negative emotion	1341	4.76	4.67	2.10	0.00	3.33	4.67	6.33	10.00
Physical health	1337	6.91	7.33	2.14	0.00	5.67	7.33	8.67	10.00
United States									
Positive emotion	12296	6.83	7.33	1.98	0.00	5.67	7.33	8.33	10.00
Engagement	12293	7.45	7.67	1.68	0.00	6.67	7.67	8.67	10.00
Relationships	12296	7.02	7.67	2.17	0.00	5.67	7.67	8.67	10.00
Meaning	12290	7.28	8.00	2.19	0.00	6.33	8.00	9.00	10.00
Accomplishment	12293	7.50	8.00	1.74	0.00	6.67	8.00	8.67	10.00
Overall wellbeing	12296	7.21	7.63	1.66	0.00	6.38	7.63	8.42	10.00
Negative emotion	12011	4.48	4.33	2.11	0.00	3.00	4.33	6.00	10.00
Physical health	12011	6.95	7.67	2.23	0.00	5.67	7.67	8.67	10.00
United Kingdom									
Positive emotion	1479	6.57	7.00	1.99	0.00	5.33	7.00	8.00	10.00
Engagement	1479	7.23	7.67	1.73	0.67	6.33	7.67	8.33	10.00
Relationships	1479	6.82	7.33	2.16	0.00	5.33	7.33	8.67	10.00
Meaning	1479	6.90	7.33	2.22	0.00	6.00	7.33	8.67	10.00
Accomplishment	1479	7.13	7.67	1.75	0.33	6.33	7.67	8.33	10.00
Overall wellbeing	1479	6.92	7.25	1.67	0.69	6.06	7.25	8.13	10.00
Negative emotion	1479	4.49	4.67	2.01	0.00	3.00	4.67	6.00	10.00
Physical health	1479	6.81	7.33	2.25	0.00	5.33	7.33	8.67	10.00
Canada									
Positive emotion	1536	6.69	7.00	1.97	0.00	5.67	7.00	8.00	10.00
Engagement	1536	7.39	7.67	1.69	0.00	6.67	7.67	8.67	10.00
Relationships	1536	6.90	7.33	2.13	0.00	5.67	7.33	8.67	10.00
Meaning	1536	6.95	7.33	2.19	0.00	5.67	7.33	8.67	10.00
Accomplishment	1536	7.27	7.67	1.76	0.00	6.33	7.67	8.67	10.00
Overall wellbeing	1536	7.03	7.44	1.65	0.00	6.13	7.44	8.25	10.00
Negative emotion	1536	4.57	4.67	1.99	0.00	3.00	4.67	6.00	10.00
Physical health	1536	6.84	7.33	2.23	0.00	5.33	7.33	8.67	10.00
Australia/New Zealand									
Positive emotion	2593	6.68	7.00	1.94	0.00	5.67	7.00	8.00	10.00
Engagement	2593	7.29	7.67	1.68	0.67	6.33	7.67	8.33	10.00
Relationships	2593	6.90	7.33	2.12	0.00	5.67	7.33	8.33	10.00
Meaning	2593	7.05	7.67	2.12	0.00	6.00	7.67	8.67	10.00
Accomplishment	2593	7.26	7.67	1.74	0.00	6.33	7.67	8.33	10.00
Overall wellbeing	2593	7.03	7.44	1.62	0.69	6.19	7.44	8.19	10.00
Negative emotion	2593	4.33	4.33	1.99	0.00	2.67	4.33	5.67	10.00
Physical health	2593	6.79	7.33	2.23	0.00	5.33	7.33	8.33	10.00
Western Europe									
Positive emotion	919	6.82	7.33	1.79	0.00	6.00	7.33	8.00	10.00
Engagement	919	7.16	7.33	1.67	0.00	6.33	7.33	8.33	10.00
Relationships	919	6.95	7.33	2.04	0.00	6.00	7.33	8.33	10.00
Meaning	919	6.88	7.33	2.06	0.00	6.00	7.33	8.33	10.00
Accomplishment	919	7.23	7.67	1.57	0.33	6.33	7.67	8.33	10.00

	N	Mean	Median	SD	Min	25th	50th	75th	Max
Overall wellbeing	919	7.01	7.31	1.50	0.88	6.19	7.31	8.06	10.00
Negative emotion	919	4.27	4.00	2.09	0.00	2.67	4.00	5.67	10.00
Physical health	919	7.21	7.67	1.99	0.00	6.33	7.67	8.67	10.00
Northern Europe									
Positive emotion	359	6.70	7.00	1.89	0.00	5.67	7.00	8.00	9.33
Engagement	359	7.23	7.67	1.65	0.33	6.33	7.67	8.67	10.00
Relationships	359	7.12	7.67	2.10	0.00	6.00	7.67	8.67	10.00
Meaning	359	7.13	7.67	2.15	0.00	6.00	7.67	8.67	10.00
Accomplishment	359	7.25	7.67	1.74	0.67	6.33	7.67	8.67	10.00
Overall wellbeing	359	7.07	7.44	1.56	0.19	6.31	7.44	8.19	9.56
Negative emotion	359	3.95	3.67	1.95	0.00	2.33	3.67	5.33	9.67
Physical health	359	7.22	7.67	2.12	0.00	6.00	7.67	8.67	10.00
Eastern Europe/Russia									
Positive emotion	279	6.65	7.00	2.03	1.00	5.33	7.00	8.00	10.00
Engagement	279	7.16	7.33	1.70	1.67	6.33	7.33	8.33	10.00
Relationships	279	6.86	7.33	2.16	0.00	5.33	7.33	8.33	10.00
Meaning	279	6.61	7.00	2.47	0.00	5.33	7.00	8.67	10.00
Accomplishment	279	7.03	7.33	1.86	1.00	6.00	7.33	8.33	10.00
Overall wellbeing	279	6.86	7.25	1.71	2.25	5.69	7.25	8.06	10.00
Negative emotion	279	4.46	4.33	2.15	0.33	2.67	4.33	6.00	9.33
Physical health	279	7.20	7.67	2.05	1.00	6.00	7.67	8.67	10.00
Middle East									
Positive emotion	179	6.75	7.00	1.85	0.00	5.67	7.00	8.33	10.00
Engagement	179	7.16	7.33	1.87	0.00	6.33	7.33	8.67	10.00
Relationships	179	6.69	7.33	2.18	0.00	5.33	7.33	8.33	10.00
Meaning	179	6.99	7.33	2.00	0.00	6.00	7.33	8.33	10.00
Accomplishment	179	7.04	7.67	1.85	0.00	6.33	7.67	8.33	10.00
Overall wellbeing	179	6.92	7.25	1.60	0.00	5.94	7.25	8.13	9.94
Negative emotion	179	4.81	4.67	2.17	0.00	3.33	4.67	6.33	10.00
Physical health	179	7.06	7.67	2.24	0.00	5.67	7.67	8.67	10.00
Mexico/ Central America									
Positive emotion	310	7.85	8.33	1.61	0.67	7.00	8.33	9.00	10.00
Engagement	310	8.13	8.33	1.26	2.00	7.33	8.33	9.00	10.00
Relationships	310	7.83	8.33	1.76	1.00	7.25	8.33	9.00	10.00
Meaning	310	7.94	8.33	1.77	0.67	7.33	8.33	9.08	10.00
Accomplishment	310	7.91	8.33	1.47	1.33	7.33	8.33	9.00	10.00
Overall wellbeing	310	7.93	8.25	1.29	2.31	7.38	8.25	8.81	10.00
Negative emotion	310	4.67	4.67	2.21	0.33	3.00	4.67	6.33	9.33
Physical health	310	7.80	8.33	1.81	0.67	7.00	8.33	9.00	10.00
South America									
Positive emotion	275	7.03	7.33	1.78	1.00	6.00	7.33	8.33	10.00
Engagement	275	7.44	7.67	1.56	1.33	6.67	7.67	8.33	10.00
Relationships	275	7.08	7.33	1.95	1.00	6.00	7.33	8.33	10.00
Meaning	275	7.28	7.67	2.04	0.33	6.00	7.67	8.67	10.00
Accomplishment	275	7.30	7.67	1.75	0.67	6.33	7.67	8.67	10.00
Overall wellbeing	275	7.22	7.56	1.49	1.06	6.56	7.56	8.38	10.00
Negative emotion	275	4.93	5.00	1.99	0.00	3.67	5.00	6.33	10.00
Physical health	275	7.47	8.00	2.06	0.67	6.33	8.00	9.00	10.00
Pacific Islands									
Positive emotion	113	7.70	7.67	1.53	0.33	7.00	7.67	8.67	10.00
Engagement	113	7.77	8.00	1.30	3.33	7.00	8.00	8.67	10.00

	N	Mean	Median	SD	Min	25th	50th	75th	Max
Relationships	113	7.51	7.67	1.69	0.33	6.67	7.67	8.67	10.00
Meaning	113	7.74	8.00	1.81	0.00	7.00	8.00	9.00	10.00
Accomplishment	113	7.63	8.00	1.62	0.67	7.00	8.00	8.67	10.00
Overall wellbeing	113	7.68	7.88	1.34	1.06	7.13	7.88	8.56	10.00
Negative emotion	113	4.96	4.67	2.22	0.00	3.33	4.67	6.67	10.00
Physical health	113	7.31	7.67	1.85	1.00	6.67	7.67	8.67	10.00
Caribbean									
Positive emotion	60	7.45	7.67	1.61	2.33	6.42	7.67	8.67	10.00
Engagement	60	7.73	7.67	1.30	4.67	7.00	7.67	8.67	10.00
Relationships	60	7.26	7.67	1.96	2.33	6.33	7.67	8.67	10.00
Meaning	60	7.67	8.00	1.77	2.33	7.00	8.00	9.00	10.00
Accomplishment	60	7.66	8.00	1.33	3.67	7.08	8.00	8.59	9.67
Overall wellbeing	60	7.56	7.72	1.37	3.63	6.95	7.72	8.55	9.88
Negative emotion	60	4.89	5.17	2.13	1.00	3.00	5.17	6.59	8.67
Physical health	60	7.36	7.84	1.96	1.00	6.33	7.84	8.67	10.00
Mediterranean									
Positive emotion	91	6.65	7.00	1.83	1.00	5.67	7.00	8.00	9.67
Engagement	91	7.04	7.33	1.75	1.00	6.00	7.33	8.33	10.00
Relationships	91	6.66	7.00	2.18	0.33	5.67	7.00	8.33	10.00
Meaning	91	6.81	7.33	2.12	0.33	5.67	7.33	8.33	10.00
Accomplishment	91	7.19	7.67	1.76	1.00	6.00	7.67	8.33	10.00
Overall wellbeing	91	6.87	7.13	1.54	2.00	6.13	7.13	8.00	9.81
Negative emotion	91	5.18	5.00	2.14	1.00	3.67	5.00	6.67	10.00
Physical health	91	7.47	8.00	1.86	0.67	6.67	8.00	9.00	10.00
Africa									
Positive emotion	269	7.03	7.67	1.85	0.00	6.33	7.67	8.33	10.00
Engagement	269	7.42	7.67	1.56	0.00	6.67	7.67	8.67	10.00
Relationships	269	7.14	7.67	2.10	0.00	6.17	7.67	8.67	10.00
Meaning	269	7.39	8.00	2.06	0.00	6.50	8.00	9.00	10.00
Accomplishment	269	7.41	8.00	1.81	0.00	6.67	8.00	8.67	10.00
Overall wellbeing	269	7.27	7.75	1.67	0.00	6.56	7.75	8.44	10.00
Negative emotion	269	4.39	4.67	1.93	0.00	3.00	4.67	5.67	8.67
Physical health	269	7.09	7.67	2.21	0.00	6.00	7.67	8.67	10.00
India/Southeastern Asia									
Positive emotion	918	7.02	7.33	1.60	0.33	6.33	7.33	8.00	10.00
Engagement	918	7.15	7.33	1.49	0.33	6.33	7.33	8.00	10.00
Relationships	918	7.09	7.33	1.81	0.00	6.00	7.33	8.33	10.00
Meaning	918	7.07	7.33	1.74	0.00	6.00	7.33	8.33	10.00
Accomplishment	918	7.09	7.33	1.52	0.33	6.33	7.33	8.00	10.00
Overall wellbeing	918	7.10	7.25	1.34	1.31	6.38	7.25	8.00	10.00
Negative emotion	918	5.05	5.00	1.97	0.00	3.67	5.00	6.67	10.00
Physical health	918	6.88	7.33	1.98	0.00	5.67	7.33	8.33	10.00
Asia									
Positive emotion	382	6.90	7.33	1.83	0.00	6.00	7.33	8.00	10.00
Engagement	382	6.98	7.33	1.57	1.00	6.00	7.33	8.00	10.00
Relationships	382	6.77	7.00	1.93	0.00	5.67	7.00	8.00	10.00
Meaning	382	6.97	7.33	2.06	0.00	6.00	7.33	8.33	10.00
Accomplishment	382	7.06	7.33	1.77	0.67	6.25	7.33	8.33	10.00
Overall wellbeing	382	6.95	7.31	1.54	0.75	6.13	7.31	8.00	10.00
Negative emotion	382	4.45	4.33	1.98	0.00	3.00	4.33	5.67	10.00
Physical health	382	6.82	7.33	2.08	0.00	5.33	7.33	8.33	10.00

	N	Mean	Median	SD	Min	25th	50th	75th	Max
Country: Unknown									
Positive emotion	9907	6.42	6.67	1.98	0.00	5.33	6.67	8.00	10.00
Engagement	9907	6.96	7.33	1.75	0.00	6.00	7.33	8.33	10.00
Relationships	9882	6.70	7.00	2.17	0.00	5.33	7.00	8.33	10.00
Meaning	9879	6.80	7.33	2.19	0.00	5.67	7.33	8.33	10.00
Accomplishment	9908	6.83	7.33	1.81	0.00	5.67	7.33	8.33	10.00
Overall wellbeing	9908	6.74	7.06	1.67	0.00	5.69	7.06	8.00	10.00
Negative emotion	9613	4.40	4.33	2.01	0.00	3.00	4.33	6.00	10.00
Physical health	8828	6.92	7.33	2.13	0.00	5.67	7.33	8.67	10.00

Note. SD = standard deviation, Min = minimum, 25th, 50th, 75th = percentile scores, Max = maximum