

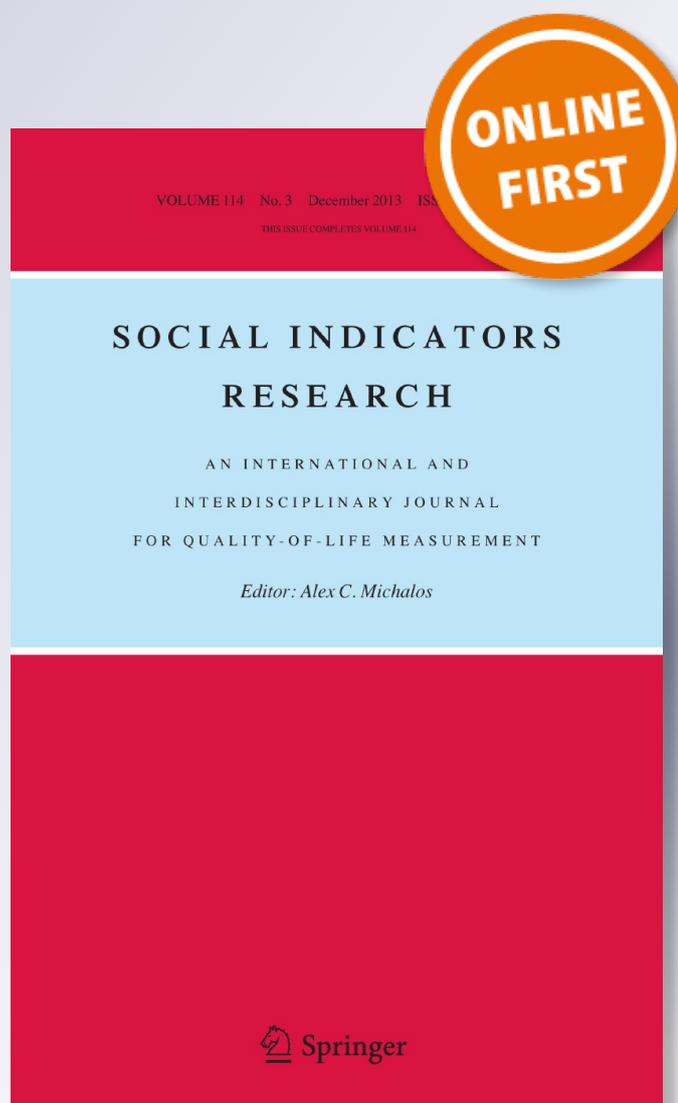
# *Psychometric Properties of the Flourishing Scale in a New Zealand Sample*

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## Psychometric Properties of the Flourishing Scale in a New Zealand Sample

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**Abstract** The Flourishing Scale (FS; Diener et al. in Soc Indic Res 97(2):143–156, 2010) was developed to assess psychological flourishing, which can be conceived of as a social-psychological prosperity incorporating important aspects of human functioning. This study takes the FS, which has previously been validated on convenience samples of students, and analyses the underlying structure, psychometric properties, and demographic norms using nationally-representative data from New Zealand's Sovereign Wellbeing Index (n = 10,009; Human Potential Centre in Sovereign Wellbeing Index: New Zealand's first measure of wellbeing. Auckland University of Technology, Auckland, 2013). Evidence for the reliability and validity of the FS is presented (Cronbach alpha) and its performance compared to other related scales and behaviors. Exploratory and confirmatory factor analysis demonstrated the one factor structure of the 8-item FS. Contemporary population norms for the FS are reported, providing a much-needed benchmark for estimation of population health and permitting cross-study and international comparisons. The study provides further evidence that the FS is a valid and reliable brief summary measure of psychological functioning, suited for use with a wide range of age groups and applications.

**Keywords** Well-being · Subjective well-being · Flourishing · Flourishing Scale · Five Ways to Wellbeing · Positive psychology

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## 1 Introduction

Although individuals have pursued well-being and “the good life” throughout history, the benefits of measuring well-being, and flourishing specifically, have not been advocated until recently. Largely due to the advent of positive psychology, a field dedicated to the measurement and promotion of well-being, it is now recognised that people’s evaluations and feelings about their lives provide important information for policy decisions at an organisational, corporate and governmental level (Diener and Seligman 2004). For well-being outcomes to guide policy, systematic assessment using reliable, valid, and responsive tools, and representative population samples is required (Diener et al. 2009).

Although science has progressed rapidly over the last decade, the current measurement of well-being and flourishing is haphazard (Diener 2009; Diener and Seligman 2004).

Much of the confusion stems from the fact that current wellbeing research derives from two ancient theoretical approaches: the eudaimonic and the hedonic. The hedonic approach stems from the Greek philosopher, Aristippus, and focuses on the pursuit of pleasure or happiness, defining wellbeing in terms of pleasure attainment and pain avoidance (Ryan and Deci 2001). The eudaimonic approach, advocated by Aristotle, argues wellbeing consists of more than just happiness, and lies instead in the actualization of human potentials, occurring when people are living in accordance with their true self (Ryan and Deci 2001). In contemporary psychology, the hedonic approach involves research and assessment into subjective well-being (SWB), operationalized as positive and negative affect balance and life satisfaction (Diener et al. 1999). Studies have indicated combining scores from the Positive and Negative Affectivity Scale (Watson et al. 1988) with the Satisfaction with Life Scale (SWLS; Diener et al. 1985) to be a reliable and valid measure of SWB.

While SWB “reigned as the primary index of well-being during the past decade and a half” (Ryan and Deci 2001, p. 145), Ryff and Keyes’ theoretical and operational depiction of psychological well-being (PWB; 1995) as a six dimensional eudaimonic construct, distinct from SWB, prompted researchers to measure wellbeing in a broader sense. In a landmark study, Keyes combined measures of PWB and SWB to report prevalence of different levels of wellbeing, introducing the concept of “flourishing” to describe the highest levels of mental health (Keyes 2002). This study reported the beneficial correlates of flourishing and risks associated with “languishing”: compared with flourishing adults, languishing adults were almost six times as likely to have experienced depression in the past year. Subsequent studies similarly conceptualised flourishing as a combination of PWB and SWB, and reported on the individual and societal benefits of high levels of wellbeing, making the epidemiology and psychometrics of flourishing an important focus of enquiry. For instance, studies suggest flourishing individuals learn more effectively, are more productive at work, more likely to contribute to their communities, enjoy better social relationships and emotional health, experience less limitations on daily activities, and have better health and life expectancy (Huppert 2009; Keyes 2005). Beyond the individual benefits, flourishing is associated with a range of economic benefits including reduced absenteeism and enhanced productivity, lower health care costs, and a reduction in costs as a result of social disintegration (Huppert and So 2009).

One of the most comprehensive assessments of flourishing to date comes from the European Social Survey (ESS; Huppert et al. 2009). The ESS is a social survey conducted every 2 years in approximately 25 European countries. Like a number of other social surveys, the core survey historically only measured affect and life satisfaction. However, the inclusion of a specific well-being module from the 2005/2006 (Round 3) onwards has allowed flourishing as a multi-dimensional construct to be measured across Europe. Using

ESS data to investigate the epidemiology of well-being, Huppert and So operationalized flourishing as the presence of positive emotions, engagement, and meaning/purpose, plus any three of six additional features (self-esteem, optimism, resilience, vitality, self-determination, and positive relationships; Huppert and So 2009). Analysis investigating the relationship between life satisfaction and flourishing confirmed these were distinct constructs, with one-third of ESS flourishing participants not obtaining a high score on life satisfaction, and half of those with high life satisfaction not meeting the criteria for flourishing.

Despite the concept of flourishing becoming more popular in academic and applied research over the last decade, the indeterminacy in both conceptualisation and theoretical definition means no internationally recognised gold-standard measurement tool for flourishing exists. To meet this demand, and in acknowledgement that well-being is a multi-dimensional construct comprising more than just SWB, Diener et al. created the Flourishing Scale (2010) as a brief summary measure of psychological functioning to complement SWB measures. Only three published studies of the eight-item Flourishing Scale exist to date, despite its frequent use in practice (Chen et al. 2012; Diener et al. 2010; Silva and Caetano 2011). In the original study, Diener et al. (2010) showed the FS to have good psychometric properties on student populations ( $n = 689$ ), with high internal ( $\alpha = .87$ ), and temporal reliabilities (.71), and high convergence with other well-being scales including the SWLS ( $r = .62$ ,  $n = 680$ ,  $p < .001$ ), Ryff's Scales of Psychological Wellbeing ( $r = .64$ ,  $n = 74$ ,  $p < .001$ ), and Ryan and Deci's (2000) Basic Needs Satisfaction in General scale ( $r = .62$ ,  $n = 527\text{--}530$ ,<sup>1</sup>  $p < .001$ ). Students' scores ranged from 25 to 56,  $M = 44.97$  ( $SD = 6.56$ ). A principal factor analysis indicated the presence of one strong factor, with an eigenvalue of 4.24, accounting for 53 % of the items' variance. Following Diener et al., Silva and Caetano (2011) investigated the external reliability of the FS in a study exploring its psychometric properties on two Portuguese samples (I: full time employees,  $n = 717$ ; II: undergraduate students  $n = 194$ ). Mean item values ranged from 4.81 to 5.93, but this study found students indicated higher FS scores than workers. Full-time employees' FS scores ranged from 14 to 56,  $M = 42.92$  ( $SD = 6.10$ ), while students' scores mirrored those of the original study, ranging from 25 to 56,  $M = 44.15$  ( $SD = 4.86$ ). Principal axis and confirmatory factor analysis across the two samples confirmed the scale's one factor structure. Reliability analysis showed good internal consistency ( $\alpha = .83$ ). High correlations between the FS, the SWLS, Subjective Happiness Scale (Lyubomirsky and Lepper 1999), and Fordyce's single item measure of happiness (Fordyce 1988), provided evidence of construct validity for the Portuguese version. Lastly, Chen et al. also used the FS in a study assessing the well-being of older adults compared to younger adults (2012), but no descriptive statistics for the FS were reported. No further published studies using the FS are currently available.<sup>2</sup>

No published New Zealand data on flourishing currently exists. What little research there is on well-being in New Zealand has been mainly focused around a single measure of life satisfaction and focused on cross-sectional designs (NZGSS 2010; OECD 2009). The introduction of the Sovereign Wellbeing Index (SWI; Human Potential Centre 2013), which includes the 8-item Flourishing Scale, therefore provides the first opportunity to measure psychological flourishing in New Zealand using a nationally representative sample of adults. The prospective design of the SWI also uniquely allows flourishing to be assessed over time.<sup>3</sup> This is important for New Zealand, but the nationally representative

<sup>1</sup> N's for the FS and the Basic Needs Satisfaction scale varied from 527 to 530.

<sup>2</sup> As of July 10th 2013.

<sup>3</sup> The second round of the SWI is due October 2014, and the third in October 2016.

nature of this sample also provides an opportunity to present population-normed scores for the FS, allowing the interpretation and estimation of population flourishing, permitting international comparisons, and providing benchmarks for practitioners looking for a brief field-measure to evaluate psychological functioning.

While the above papers represent a good start, two studies using convenience samples are insufficient to establish the validity of a new scale. More psychometric support using nationally representative samples is required in order to increase confidence in the scale's structure, generalizability, and enable international comparisons. Our study improves upon the FS's existing evidence-base given the above studies' sample limitations: Diener et al. used a convenience sample of students, 68 % of which were female; Silva and Caetano tested the FS on a Spanish sample, only 4 % of which were aged 50 and over. The current study therefore adds to the existing evidence-base by: (1) Providing a starting point for empirical research into psychological functioning among New Zealanders; (2) Assessing psychometric properties using a nationally representative English-speaking adult sample allowing for international comparisons to be made; (3) Presenting comprehensive national norms for the FS, providing useful data for practitioners wishing to use a brief validated measure of psychological functioning among adult populations.

## 2 Methods

### 2.1 Participants

Participants for this study were obtained from the Sovereign Wellbeing Index, an observational longitudinal study tracking the well-being of a nationally representative sample of adult New Zealanders ( $n = 9,646^4$ ). Participants' ages ranged from 18 to 111 and the mean age was 44.21 ( $SD = 16.40$ ). Sample demographics are shown in Table 1.

### 2.2 Measures

#### 2.2.1 Flourishing Scale (FS)

Embedded in the 130 question SWI is the eight-item Flourishing Scale (FS; Diener et al. 2010), a brief summary measure designed to assess respondents' self-perceived success in areas identified as important for psychological flourishing, including relationships, meaning and purpose, self-esteem and optimism (see "Appendix" for a reproduction of all measures). The FS was first introduced as the Psychological Flourishing Scale in a 12-item format (Diener and Biswas-Diener 2008), but has since been refined to eight items. The scale was created to complement existing measures of well-being, in acknowledgement that the traditional method of measuring subjective well-being via the Satisfaction with Life Scale (Diener et al. 1985) and an affective measure such as the Positive and Negative Affect Schedule (Watson et al. 1988) gave an incomplete depiction of well-being. The eight-item scale captures eudaimonic dimensions of well-being that Ryff (1989) and Ryan and Deci (2001) suggest are important for positive functioning, such as competence, self-acceptance, meaning and relatedness, as well as optimism, giving, and engagement, which studies have shown to contribute to wellbeing (Brown et al. 2003; Putnam 1995; Seligman 2006). Each item is phrased in a positive direction and the answers are measured on a

<sup>4</sup> Removing missing FS data reduced the sample from  $n = 10,009$  to  $n = 9,646$ .

## Psychometric Properties of the Flourishing Scale

**Table 1** Flourishing Scale range, mean and standard deviation

	<i>N</i>	Minimum	Maximum	Mean	SD
Total	9,645	8	56	43.82	8.36
Gender					
Male	4,543	8	56	43.30	8.63
Female	5,065	8	56	44.33	8.07
Age					
Under 20	215	20	56	42.71	7.96
20–29 years	1,870	8	56	43.29	8.30
30–39 years	1,487	8	56	43.37	8.23
40–49 years	1,434	8	56	43.17	8.86
50–59 years	1,346	8	56	44.28	8.42
60–69 years	1,344	8	56	45.19	8.02
70–79 years	492	15	56	46.51	6.60
80 years and over	54	14	56	43.22	8.78
Ethnicity					
European	7,142	8	56	44.03	8.25
Maori/Pacific	1,232	8	56	43.66	8.66
Asian	1,042	8	56	43.22	8.44
Relationship status					
Married/living with partner	5,711	8	56	44.92	7.81
Single/never married	2,323	8	56	41.79	8.87
Separated/divorced	1,052	8	56	42.77	8.81
Widowed	275	10	56	43.90	8.77
Highest academic qualification					
Finished primary school	313	12	56	40.17	9.49
Finished secondary school	2,517	8	56	43.37	8.50
University entrance	1,167	8	56	43.84	8.27
Apprenticeship/diploma/trade cert	2,286	8	56	44.19	8.00
Bachelor degree or higher	1,756	8	56	44.70	7.96
Post graduate or higher	1,032	8	56	45.48	7.69
Employment					
Working in paid work	5,435	8	56	44.64	7.69
Looking for work	674	8	56	39.68	9.49
In education/on holiday	753	8	56	44.02	7.85
Perm sick/disabled	361	8	56	36.43	10.73
Retired	1,173	9	56	45.35	7.53
Children/housework	779	8	56	43.97	8.28
Other	151	8	56	42.92	10.27

Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Scores range from 8 to 56. A high score on the scale indicates respondents have a positive self-image in important areas of functioning (Diener et al. 2010).

### 2.2.2 The Centre for Epidemiological Studies Depression Scale (CES-DS)

The Centre for Epidemiological Studies Depression Scale (CES-DS; Radloff 1977) is a short, 20-item measure assessing the frequency and severity of depressive symptomatology over the past week in a general population. The CES-DS measures “current level of depressive symptomatology, with emphasis on the affective component, depressed mood” (Radloff 1977, p. 285). In this study, an 8-item version of the 20-item CES-DS was used that was developed and used in the ESS Round 3 (see “Appendix”). Participants rated how frequently each of eight depressive symptoms had been experienced on a scale ranging from 0 to 3, where 0 represents “rarely or none of the time—less than 1 day”, 1 represents “some or a little of the time—1 to 2 days”, 2 represents “occasionally or a moderate amount of the time—3 to 4 days”, to 3 “most or all of the time—5 to 7 days”. The eight items represent major components of depressive symptomatology including depressive affect, sadness, sleep disturbance, loneliness, sadness and lethargy. Two of the eight items are positively phrased (“I enjoyed life” and “I was happy”) and are reverse scored. Total scores range from 0 (indicating no depressive symptoms) to 24 (indicating more depressive symptomatology). Although there is no published research on this 8-item version other than from the ESS, the psychometric properties of the 20-item CES-DS have been thoroughly investigated in both clinical and non-clinical samples over the past 30 years. Various authors (for example, Roberts 1980; Spielberger et al. 2003) cite the CES-DS as a widely used depression measure (see Ensel 1986, for an overview of the CES-DS). The average reliability of the CES-DS 20-item version is reported as .85 (Radloff 1977).

### 2.2.3 Happiness

Happiness was assessed with a single item, “Taking all things together, how happy would you say you are?” Participants rated their perceived happiness on a 0 (extremely unhappy) to 10 (extremely happy) scale. Greater scores indicate greater perceived happiness.

### 2.2.4 Life Satisfaction

Life satisfaction was assessed with a single item, “All things considered, how satisfied are you with your life as a whole nowadays?” Participants rated their perceived life satisfaction on a 0 (extremely dissatisfied) to 10 (extremely satisfied) scale. Greater scores indicate greater perceived life satisfaction.

### 2.2.5 Five Ways to Wellbeing

The SWI also included items to assess participation in the *Five Ways to Wellbeing* (Connect, Give, Take notice, Keep learning, and Be active) identified by the New Economics Foundation (nef) as evidence-based behaviors to improve personal wellbeing (Aked et al. 2009). Connect was assessed with a single item, “How often do you meet socially with friends, relatives or work colleagues?” and used a 7-point response scale from ‘never’ to ‘every day’. For the purpose of our analysis, those responding ‘several times a week’ and ‘every day’ were classified as strongly endorsing Connect. Give was assessed using the question “To what extent do you provide help and support to people you are close to when they need it?” where the response scale ranged from 0 (not at all) to 7 (completely) and those scoring 5–7 were classified as strongly endorsing Give. Take notice was assessed using the question “On a typical day, how often do you take notice and

appreciate your surroundings?” where the response scale ranged from 0 (never) to 10 (always), and those scoring 8–10 were classified as strongly endorsing Take notice. Keep learning was assessed using the item “To what extent do you learn new things in life?” where the response scale ranged from 0 (not at all) to 6 (a great deal), and those scoring 5–6 were classified as strongly endorsing Keep learning. Be active was assessed via an aggregated exercise score based on exercise frequency and exercise intensity, whereby participants were classified into four groups (very low exercise, low exercise, moderate exercise, high exercise) and those in the moderate or high exercise categories were classified as strongly endorsing Be active.

### 2.3 Design and Procedure

Data collection occurred between 26 September 2012 and 25 October 2012. This nationally representative sample of adults over 18 years (matched to the 2006 New Zealand Census data; Statistics New Zealand 2006) was recruited online via the New Zealand office of TNS Global, an international market research company contracted to undertake the recruitment and data collection procedures for Round 1 of the SWI. An email invitation was sent to 38,439 people over three rounds, which contained a link to the online survey and informed consent form.<sup>5</sup> Individuals were given 7 days to respond to the invitation. Once informed consent was given, participants proceeded to complete the online survey, which took approximately 19 min (median). Adults over 18 years were eligible to participate in the survey and no further exclusion criteria applied. Response rate was 26 % and respondents answered voluntarily.

### 2.4 Statistical Analysis

Descriptive analysis to present population norms and reliability analysis, using Cronbach alpha coefficients, was conducted using the entire sample. The SWI dataset was randomised using a random number generator web tool ([www.random.org](http://www.random.org)), then split in half to create two random samples: sample I ( $n = 4,823$ ); and sample II ( $n = 4,823$ ). Comparative demographic analysis confirmed sample equivalence. An exploratory factor analysis (EFA) was conducted on sample I using SPSS version 20, and a confirmatory factor analysis (CFA) on sample II using AMOS 18 (Arbuckle and Wothke 1999). We also used the full sample to test convergent validity with other measures of happiness, life satisfaction, and discriminant validity via the 8-item CES-DS using the entire sample. Finally, we conducted independent samples  $t$  tests on the full sample to compare FS means among those participants' strongly endorsing Nef's *Five Ways to Wellbeing* with those participants not strongly endorsing the Five Ways, in order to investigate the association between self-reports of these behaviors and flourishing.

## 3 Results

### 3.1 Descriptive Analysis

Mean values for the scale's individual items ranged from 5.19 to 5.88, suggesting all participants have positive perceptions of themselves in the main areas of positive functioning. According to Diener et al. (2010) the Flourishing Scale has good internal

<sup>5</sup> A duplicate copy of the survey can be viewed at: <http://www.mywellbeing.co.nz>.

consistency, with a Cronbach alpha coefficient reported of .87. The Cronbach alpha coefficient for this study was .91. Table 1 presents the range and demographic norms for the FS and Table 2 reports percentile norms, demonstrating what individual scores signify.

### 3.2 Exploratory Factor Analysis

Because past studies used student and non-English samples, the eight items of the FS were subjected to exploratory factor analysis (EFA), using principal axis factoring on Sample I ( $n = 4,823$ ), with the intention of exploring the underlying factor structure without imposing any preconceived structure on the outcome (Child 1970). Prior to performing EFA, the suitability of data for factor analysis was assessed. Inspection of the correlation matrix revealed all coefficients were .3 and above. The Kaiser Meyer–Olkin value was .926, exceeding the recommended value of .6 (Kaiser 1960) and meeting Kaiser's "marvelous" criteria (1974). A Kaiser's value close to 1 indicates that correlation patterns are sufficiently compact that factor analysis should produce distinct and reliable factors. Bartlett's Test of Sphericity (Bartlett 1954) reached statistical significance, supporting the factorability of the correlation matrix, although this highly significant value may be due to the large sample size ( $n = 4,823$ ) relative to the number of items in the matrix ( $n = 8$ ). A principal axis analysis revealed the presence of one strong factor with an eigenvalue above 1 (4.52), accounting for 57 % of the variance in the items. Inspection of the scree plot revealed a clear break after the first component to the second, which had an eigenvalue of .67. Using Catell's (1966) scree test, which argues for extracting only factors above the point of inflexion on the scree test's curve, it was decided to retain one factor. This was further supported by the results of Parallel Analysis which showed only one factor with an eigenvalue exceeding the corresponding criterion value for a randomly generated data matrix of the same size (8 variables  $\times$  2,500 respondents  $\times$  100 replications); which was an eigenvalue of 1.08 for the first factor and 1.05 for the second factor. The factor loadings for sample I ranged from .72 to .81. Therefore, only one factor characterised the FS scale (Table 3).

### 3.3 Confirmatory Factor Analysis

Confirmatory factor analysis using maximum likelihood estimation was conducted on Sample II ( $n = 4,823$ ) using AMOS Version 18 (Arbuckle and Wothke 1999) to investigate model fit via a range of fit statistics. Mean values of the scale's items for Sample II ranged from 5.19 to 5.89, again suggesting all participants have positive perceptions of themselves in the main areas of positive functioning. An eight-item, one factor model, as identified by the exploratory factor analyses on Sample I was investigated allowing the factors to freely correlate. A number of alternative models were tested. The initial model showed poor fit to the data ( $p = .000$ ). Due to the sensitivity to sample size of the Chi square goodness of fit test, we used the Comparative Fit Index (CFIs), Lisrel GFI Fit Index (GFI), and root mean square error of approximations (RMSEAs) to determine model fit. CFI and GFI values of .90 or above, and RMSEA values above .06 and below .08 are indicative of good empirical fit (Schumacker and Lomax 2004). The baseline model's GFI (.933) and CFI (.945) fit statistics indicated satisfactory fit, but the RMSEA of .114 failed to reach recommended values between .05 and .08 indicating an invalid model (Browne and Cudeck 1992). Given the high RMSEA value we modified the model by correlating the errors in the follow step order: between e5–e6, e4–e5, e4–e6, e6–e8, e6–e7, (see Fig. 1).

Psychometric Properties of the Flourishing Scale

**Table 2** Flourishing Scale norms in terms of percentile rankings (range 8–56) for the SWI

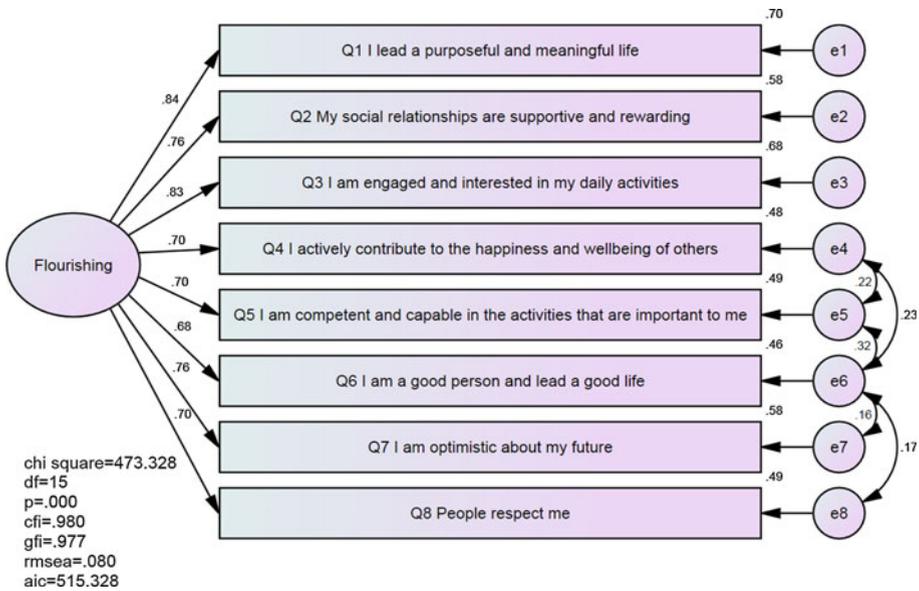
Score	Percentile
17	1
24	3
28	5
30	7
32	12
35	17
37	21
38	23
39	26
40	29
41	32
42	35
43	39
44	42
45	47
46	53
47	59
48	70
49	76
50	81
51	85
52	89
53	92
54	94
55	97
56	100

Selected values are given for the scale. Percentiles are based on the entire sample ( $n = 9,646$ )

**Table 3** Flourishing Scale factor loadings for sample I

Flourishing Scale item	Factor loadings
Q1. I lead a purposeful and meaningful life	.81
Q3. I am engaged and interested in my daily activities	.79
Q4. I actively contribute to the happiness and wellbeing of others	.74
Q7. I am optimistic about my future	.74
Q2. My social relationships are supportive and rewarding	.74
Q6. I am a good person and lead a good life	.74
Q5. I am competent and capable in the activities that are important to me	.73
Q8. People respect me	.72

This produced a better fitting model, with GFI (.977), CFI (.980), and RMSEA (.080) all indicating satisfactory fit. This analysis confirms the unidimensional factor structure of the FS. Fit statistics for all models are reported in Table 4.



**Fig. 1** Flourishing Scale: one factor confirmatory factor model

**Table 4** Goodness of fit statistics for the tests of factorial validity of the Flourishing Scale (sample 2)

FS	$\chi^2$	<i>df</i>	CFI	GFI	RMSEA (90 % CI)
Model 1	1,262.884	20	.945	.933	.114
Model 2	975.818	19	.958	.950	.102
Model 3	875.048	18	.962	.955	.099
Model 4	722.440	17	.969	.962	.093
Model 5	589.166	16	.975	.971	.086
Model 6	473.328	15	.980	.977	.080

Model 1—baseline model; model 2—items 5 and 6’s errors covaried; model 3—item 4 and 5’s errors covaried; model 4—item 4 and 6’s errors covaried; model 5—item 6 and 8’s errors covaried; model 6—item 6 and 7’s errors covaried

### 3.4 Convergent and Discriminant Validity Analysis

To investigate convergent and discriminant validity we correlated the Flourishing Scale, single-item happiness and life satisfaction questions, and the 8-item Centre for Epidemiological Studies Depression Scale contained in the SWI across the entire sample (see Table 5). There was a strong, positive correlation between the FS and happiness,  $r = .67$ ,  $p < .01$  (2-tailed), and between the FS and life satisfaction,  $r = .64$ ,  $p < .01$  (2-tailed). A strong negative correlation existed between the FS and the 8-item CES-DS,  $r = -.60$ ,  $p < .01$  (2-tailed) indicating discriminant validity. Calculating the coefficient of determination indicates that happiness explains 45 % of the variance in respondents’ FS scores; life satisfaction explains 41 % of the variance in FS scores; and depressed mood explains 36 % of the variance in flourishing scores. These results are consistent with the two

**Table 5** Correlations between the Flourishing Scale, CES-D, happiness and life satisfaction

Measures	FS	CES-D 8	Happiness	Life sat
FS	–			
CES-D 8	–.60**	–		
Happiness	.67**	–.66**	–	
Life sat	.64**	–.62**	.86**	–

FS Flourishing Scale, CES-DS 8 Centre for Epidemiological Studies Depression Scale 8-items

\*\* Correlation is significant at the .01 level (2-tailed)

published reports on the FS (Diener et al. 2010; Silva and Caetano 2011) and provide evidence for the construct validity of the FS for use among adult New Zealand populations.

### 3.5 Five Ways to Wellbeing

Independent samples *t* tests were conducted to compare FS scores among those participants strongly endorsing each of the *Five Ways to Wellbeing* behaviors (Connect, Give, Take notice, Keep learning, and Be active) using the entire sample. There was a significant difference in FS scores for participants strongly endorsing Connect ( $M = 46.79$ ,  $SD = 6.68$ ) and those not strongly endorsing Connect [ $M = 42.67$ ,  $SD = 8.65$ ;  $t(9,483) = -24.98$ ,  $p = .01$ ]. The magnitude of the differences in the means was moderate (eta squared = .06). There was a significant difference in FS scores for participants strongly endorsing Give ( $M = 45.65$ ,  $SD = 7.46$ ) and those not strongly endorsing Give [ $M = 40.17$ ,  $SD = 8.54$ ;  $t(9,485) = -30.01$ ,  $p = .01$ ]. The magnitude of the differences in the means was moderate (eta squared = .09). There was a significant difference in FS scores for participants strongly endorsing Take notice ( $M = 47.31$ ,  $SD = 6.71$ ) and those not strongly endorsing Take notice [ $M = 41.90$ ,  $SD = 8.33$ ;  $t(9,499) = -34.82$ ,  $p = .01$ ]. The magnitude of the differences in the means was moderate to large (eta squared = .11). There was a significant difference in FS scores for participants strongly endorsing Keep learning ( $M = 46.55$ ,  $SD = 7.10$ ) and those not strongly endorsing Keep learning [ $M = 41.74$ ,  $SD = 8.65$ ;  $t(9,590) = -29.90$ ,  $p = .01$ ]. The magnitude of the differences in the means was moderate (eta squared = .09). There was a significant difference in FS scores for participants strongly endorsing Be active ( $M = 47.14$ ,  $SD = 7.13$ ) and those not strongly endorsing Be active [ $M = 43.68$ ,  $SD = 8.34$ ;  $t(9,350) = -12.12$ ,  $p = .01$ ]. The magnitude of the differences in the means was small (eta squared = .02).

## 4 Discussion

These results are consistent with Diener et al. original study (2010). Exploratory and confirmatory factor analysis conducted across two samples revealed a one-factor structure for the FS. Our study adds to the evidence of this new scale's internal consistency reliability ( $\alpha = .91$ ) and the strong positive correlations between the FS, happiness and life satisfaction measures support convergent validity. A strong negative correlation between the FS and the 8-item CES-DS measure of depressive symptoms demonstrates discriminant validity. The current study is the first to report comprehensive demographic norms for the FS using a nationally representative sample of English speaking adults, and in doing so

revealed greater range and variance in the scale as indicated by Table 1. A series of one-way between-group analysis of variance indicated significant differences between means among various demographic groups. For example, married/living with partner participants scored significantly higher ( $M = 44.92$ ,  $SD = 7.81$ ) than single/never married participants ( $M = 41.79$ ,  $SD = 8.87$ ). Among different types of current employee status, retirees scored the highest ( $M = 45.35$ ,  $SD = 7.53$ ) while permanently sick or disabled participants reported the lowest FS scores ( $M = 36.43$ ,  $SD = 10.73$ ). Significant differences existed according to academic qualifications, with participants only going as far as finishing primary school reporting significantly lower FS scores ( $M = 40.17$ ,  $SD = 9.49$ ) than all other academic qualifications. Reporting population norms across different demographic groups therefore provides essential evidence for practitioners seeking to use a brief measure of psychological functioning in the field, enabling them to compare individual scores against published data.

The SWI's inclusion of items representing the New Economic Foundation's *Five Ways to Wellbeing* also allowed us to examine the relationship between known behavioral drivers of wellbeing and participants' FS scores. Independent samples *t* tests indicated that participants strongly endorsing these five actions (connecting socially with others, giving help and support, taking notice, learning new things, and being physically active) reported significantly higher flourishing scores than those not strongly endorsing these actions. These findings add further cross-sectional evidence that engaging in these five behaviors is associated with higher levels of wellbeing.

In contrast to Diener et al.'s original study (2010), the current study was limited by the lack of test–retest reliability, and it is recommended that investigation of the scale's stability over differing time periods be a priority when designing future studies. Finally, all measures included in this study rely on self-report. Well-being is an inherently subjective construct but future studies may benefit from the inclusion of objective measurements.

While the external reliability of the FS was initially constrained by Diener et al.'s convenience sample of college students, a particular strength of this study is that it demonstrates the scale's generalizability to a representative adult population thereby increasing confidence in the scale's utility. The lower mean score among 18–20 year olds in the SWI ( $M = 42.71$ ,  $SD = 7.69$ ) compared to Diener et al. original student sample ( $M = 44.97$ ,  $SD = 6.56$ ) serves to illustrate the importance of testing new scales on nationally representative samples. Overall, this study corroborates the psychometric properties established in the scale's extant published studies, building upon the evidence supporting the use of the FS as a brief summary measure of self-reported psychological functioning.

## Appendix

### The Flourishing Scale

Below are eight statements with which you may agree or disagree. Using the 1–7 scale below, indicate your agreement with each item by indicating that response for each statement.

7. Strongly agree
6. Agree
5. Slightly agree
4. Mixed or neither agree nor disagree

3. Slightly disagree
2. Disagree
1. Strongly disagree

- I lead a purposeful and meaningful life
- My social relationships are supportive and rewarding
- I am engaged and interested in my daily activities
- I actively contribute to the happiness and well-being of others
- I am competent and capable in the activities that are important to me
- I am a good person and live a good life
- I am optimistic about my future
- People respect me

Scoring: Add the responses, varying from 1 to 7, for all eight items. The possible range of scores is from 8 (lowest possible) to 56 (highest possible). A high score represents a person with many psychological resources and strengths.

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#### Life Satisfaction

- All things considered, how satisfied are you with your life as a whole nowadays?
  - 0—Extremely dissatisfied
  - 1
  - 2
  - 3
  - 4
  - 5
  - 6
  - 7
  - 8
  - 9
  - 10—Extremely satisfied

#### Happiness

- Taking all things together, how happy would you say you are?
  - 0—Extremely unhappy
  - 1
  - 2
  - 3
  - 4
  - 5
  - 6
  - 7

8

9

10—Extremely happy

## Centre for Epidemiological Studies Depression Scale, ESS 8 Item Version

Please indicate, how much of the time during the past week...

3. All or almost all of the time
2. Most of the time
1. Some of the time
0. None or almost none of the time

- ...you felt depressed?
- ...you felt that everything you did was an effort?
- ...your sleep was restless?
- ...you were happy?
- ...you felt lonely?
- ...you enjoyed life?
- ...you felt sad?
- ...you could not get going?

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