

Measuring Meaning in Life

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Abstract The present studies addressed the need for a comprehensive, economical, and psychometrically adequate measure of existential meaning. In Study 1, principal-axis factor analysis of participants' responses to popular meaning measures identified five latent constructs underlying them, labelled purposeful life, principled life, valued life, exciting life, and accomplished life. These dimensions resonate with the meaning in life concept as understood by Frankl (1963. *Man's search for meaning*. (Revised Ed.) London: Hodder & Stoughton) and the panoply of subsequent theoretical definitions (e.g. Battista and Almond. (1973). *Psychiatry*, 36, 409–427; 2000. *Exploring existential meaning: Optimising human development across the life span* (pp. 39–55). USA: Sage; 1998. *The human quest for meaning: A handbook of psychological research and clinical applications* (pp. 11–140). Mahwah: Lawrence Erlbaum). Study 2 used these results as a foundation for developing a psychometrically satisfactory self-report questionnaire of each of these aspects of meaning in life. Confirmatory factor analysis (CFA) validated a five-factor structure, with each factor loading on a common second-order factor. Study 3 provided evidence for this new measure's convergent validity and economic property. The final Meaningful Life Measure is reported and provides comprehensive but differentiated measurement of the meaning in life construct.

Keywords Eudaimonic well-being · Meaning in life · Factor analysis · Scale development

Philosophers and psychologists concerned with the nature of the good life have traditionally approached happiness and well-being from one of two perspectives: the hedonic approach, which focuses on pleasure and pain avoidance; and the eudaimonic approach, which focuses on meaning and self-realisation (Ryan and Deci 2001). Recent research (Peterson et al. 2005; Seligman 2002) attests to the importance of three distinct orientations to happiness—pleasure, engagement, and meaning—the latter two being stronger

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individual predictors of life satisfaction. The present research focuses on meaning in life, increasingly regarded as an important psychological variable that promotes well-being (Bonebright et al. 2000; Fry 2001) and protects individuals from negative outcomes (Pearson and Sheffield 1989). Despite the growing focus on the health benefits of personal meaning and related constructs across the social sciences (Seligman and Csikszentmihalyi 2000), current meaning measures have been criticised (Steger et al. 2006) amidst calls for a better understanding and assessment of the meaning in life construct (Lent 2004).

The true nature of a meaningful life has a long history of human inquiry, from Aristotle's conceptualisation of eudaimonia, through to Aquinas' Renaissance writings about virtue (Linley and Joseph 2004). Since the birth of modern psychology, the phenomenology of meaning in life has been explored through research into optimal human functioning and transcendent experiences (James 1902), individuation (Jung 1933), maturity (Allport 1961), and human potential (Maslow 1962; Rogers 1951).

The emergence of meaning in life as a clinical construct followed psychiatrist Victor Frankl's (1963) writings about his experiences in a Nazi concentration camp, which inspired him and others to consider the significance of meaning in a therapeutic setting. He proposed that individuals are strongly motivated to find personal meaning, that is, to understand the nature of their lives, and to feel that life is *significant, important, worthwhile*, or *purposeful*. Since then, many psychologists have conceptualised personal meaning in theories of psychological functioning (Ryff 1989; O'Connor and Chamberlain 2000). Frankl (1963) believed that a sense of meaning in life was necessary to avoid *noogenic neurosis*, a pathological condition characterised by apathy, boredom, and aimlessness (Maddi 1967). Thus, current measures of personal meaning allude to the consequences of *meaninglessness*, by considering cognitive, affective, and behavioural aspects of meaning. Reker (2000, p. 41) highlights these components in his comprehensive definition of meaning in life as "a multidimensional construct consisting of the cognisance of order, coherence, and purpose in one's existence, the pursuit and attainment of worthwhile goals, and the accompanying sense of fulfilment".

Steger et al. (2006) reported that most meaning research has used one of three measures: the Purpose in Life Test (PIL; Crumbaugh and Maholick 1964), the Life Regard Index (LRI; Battista and Almond 1973), or the Sense of Coherence—Meaning Scale (SOC-M; Antonovsky 1987). Somewhat less used (Steger et al. 2006), although increasingly popular (Dierendonck 2005) is the PIL Scale (PWB-P; Ryff 1989). Antonovsky (1987) advised against using the SOC-M as a stand-alone scale, since it was intended for use as a measure of dispositional coping comprising three subscales—*manageability, meaning, and comprehensivity*—and its psychometric properties only apply to the full scale. Therefore it will not be included in the current consideration of popular meaning scales.

PIL, LRI, and PWB-P scores have consistently demonstrated satisfactory internal, temporal, and concurrent validity across studies (e.g. Crumbaugh and Maholick 1969; Debats 1990; Ryff 1989; Steger et al. 2006; Zika and Chamberlain 1992). Taken together, these measures appear to tap a wide range of theoretically relevant content, such as a sense of fulfilment, significance, understanding, coherence, goal-directedness, and goal achievement (Frankl 1963, 1967; Jung 1933; Kierkegaard 1988; Maddi 1967; Maslow 1964; Yalom 1980). Exploratory factor analyses (EFAs) attest to the multi-dimensionality of the PIL and LRI. With regards to the PIL, Dufton and Perlman (1986) extracted two factors interpreted as satisfaction and purpose; McGregor and Little (1998) extracted two factors interpreted as happiness and meaning; and Chamberlain and Zika (1988) extracted four factors interpreted as commitment and goal achievement, contentedness, control, and

excitement or enthusiasm. Differences between studies are due to the use of different samples, different rotational procedures, and different item contexts. Chamberlain and Zika (1988) also extracted six factors from the LRI relating to goal achievement, aimlessness, resignation, broader lack of direction, limitations to goal achievement, and life philosophy or framework. Factor analysis of the complete Psychological Well-being scales (Ryff and Keyes 1995) confirmed that PWB-P items loaded on a single factor, although multiple dimensions may underlie this subscale in different item contexts.

Multi-dimensionality of popular meaning measures is not in itself problematic. However, the large number of latent constructs found to underlie meaning measures as a whole raises concerns over the scope of any one measure. Whilst the LRI appears to be the most comprehensive, Chamberlain and Zika (1988) reported that its items did not measure a single, underlying construct at the second-order level. Further, whilst confirmatory analysis (Reker and Fry 2003) has suggested that the LRI converges with other popular scales to form a single construct in both younger and older adults, the length of these scales makes their combined use impractical.

The PIL can be further criticised for failing to distinguish between theorised components of meaning in life and the theorised sources from which it is derived. Certain items appear to measure specific beliefs and value-outlooks, such as a sense of responsibility, control, and productivity (Battista and Almond 1973; Debats 1996; Garfield 1973). Whilst the LRI was developed in response to such concerns, its multi-dimensionality at the second-order level implies that it may also tap content that is peripheral to the meaning in life construct. An additional problem with all three scales is that they variously include items with multiple content domains or potentially confounding clauses (e.g. “I have some goals or aims that would personally give me a great deal of satisfaction if I could accomplish them”; “If I should die today, I would feel that life has been very worthwhile”; “I feel good when I think of what I’ve done in the past, and what I hope to do in the future”).

Therefore, the need remains for a meaning measure that is: (a) comprehensive, (b) economical, and (c) psychometrically adequate. The present studies sought to address this need. Study 1 used EFA to identify the latent constructs underlying these popular meaning scales (PIL, LRI and PWB-P), in order to identify items for potential inclusion in a comprehensive yet economical meaning measure. Study 2 used these results as a foundation for developing a psychometrically adequate instrument comprising items which were un-confounded, theoretically resonant, and one-dimensional at the second-order level. Study 3 compared this new measurement to existing scales in order to demonstrate its convergent validity and economical property.

1 Method

1.1 Participants

Ninety eight males and 102 females agreed to participate in Study 1, without remuneration. Questionnaires were distributed and collected by one researcher on two university campuses and two major train routes. Approximately 33 of those approached decided to take part. Their mean age was 32 years (median = 29; $SD = 12.35$, range = 15–75). Sixty percent were in full- or part-time employment, 34 percent were students, and seven percent were unemployed or retired. The majority of participants (51) were single, 42 were married or cohabiting, six percent were divorced or separated, and one percent were widowed.

Most participants (74) did not have children. The majority of participants were British (74) or American (8). Ethnicity was not recorded.

1.2 Procedure

The front page of each questionnaire asked for demographic information. Participants were also advised not to take part if they anticipated finding the subject of their sense of personal meaning distressing. The following measures were then presented in two randomised versions, with items from each scale clustered together.

1.2.1 Purpose in Life Test (PIL)

Crumbaugh and Maholick (1964) developed the PIL to assess Frankl's (1967) concept of *noogenic neurosis*, a pathological condition arising from meaninglessness. It was intended for use in clinical settings and refers to cognitive, affective, and behavioural symptoms. The PIL measures "the degree to which the subject experiences a sense of meaning and purpose in life" (Crumbaugh 1968, p. 74). It comprises 20 items with seven-point bipolar response scales. Example items are: "Life to me seems...completely routine (1), always exciting (7)"; "I have discovered...no purpose or mission in life (1), clear cut goals and a satisfying life purpose (7)".

1.2.2 Life Regard Index (LRI)

Battista and Almond (1973) conducted a phenomenological analysis of *meaning in life* and related terms, in an attempt to provide a definition of personal meaning that was independent of any particular theory. They coined the phrase *positive life regard* to describe "an individual's belief that he is fulfilling a life-framework or life-goal that provides him with a highly valued understanding of his life" (Battista and Almond 1973, p.140). The LRI was developed to assess this construct. It comprises 28 items with five-point Likert scales. The framework subscale (LRI-frame) assesses the degree to which an individual has a life-view, a set of life-goals, or a PIL (e.g. "I have a system or framework that allows me to truly understand my being alive"). The fulfilment subscale (LRI-fulfil) assesses the degree that life-goals are being fulfilled, demonstrated by positive affective consequences (e.g. "I get so excited by what I'm doing that I get new stores of energy I didn't know I had").

1.2.3 Psychological Well-Being: Purpose in Life (PWB-P)

The Psychological Well-Being Scales were developed by Ryff (1989) in order to measure aspects of positive psychological functioning that were not captured by existing well-being measures. She drew from mental health, clinical, and life-span developmental theories in an attempt to conceptualise their multiple converging aspects of well-being: self-acceptance; positive relations with others; autonomy; environmental mastery; personal growth; and purpose in life. The PIL subscale measures "the feeling there is purpose in and meaning to life" (Ryff 1989, p.1071), and refers to having goals, intentions, and a clear

sense of life-direction. It comprises 20 items with six-point Likert scales. Example items are: “My daily activities often seem trivial and unimportant to me”; “Some people wander aimlessly through life, but I am not one of them”.

1.2.4 Additional Items

Many items in the PIL and LRI assess a sense of life’s meaning (or life’s importance, worth, significance, etc.) that is contingent on something else, such as death acceptance (“If I should die today, I would feel that life has been very worthwhile”), a personal philosophy (“I have a philosophy of life that really gives my living significance”), and goal-directedness (“My personal existence is very purposeful and meaningful”). Whilst these are widely accepted components of the meaning in life construct (e.g. Frankl 1963, 1967; Jung 1933; Kierkegaard 1988; Maddi 1967; Yalom 1980), it was considered important to include items that measured a sense of meaning in life in the absence of any other potential confounding content (e.g. simply, “My life is meaningful”). To this end, additional meaning items were written using synonyms for *meaningful* from the Oxford Thesaurus of English. All of these synonyms were contained in at least one original meaning item, but in the presence of potentially confounding sub-clauses (e.g. “My life is very purposeful and meaningful”). A total of four new items were created (“My life is meaningful”; “My life is significant”; “My life is important”; “My life is worthwhile”).

1.3 Analytic Strategy

Separate EFAs of each scale were undertaken to identify the latent constructs underlying them. Principal-axis factoring (PAF) was used because this procedure, unlike principal components analysis (PCA), specifically models error variance (Steger 2006), and because participants’ scores were positively skewed (Fabrigar et al. 1999). Promax rotation was used because the latent constructs were expected to correlate on the basis of past research (Chamberlain and Zika 1988; Fabrigar et al. 1999). Since factor extraction using the eigenvalues >1.0 criterion has been widely criticised for retaining too many factors (Costello and Osborne 2005), scree plots were examined to identify dimensionality. This procedure guards against the extraction of minor factors (Velicer et al. 2000). In order to identify items for potential inclusion in an economical yet comprehensive meaning measure, all and only items loading exclusively on extracted factors were retained. Items comprising extracted factors were defined as those with the highest loadings on these factors in the structure matrix; cross-loading items were defined as those with substantial loadings (>.35) on more than one factor in the pattern matrix.

2 Results

Coefficient alpha for the PIL was .89. The scree plot indicated two dominant factors which were moderately correlated (.59) and respectively accounted for 41 and 8 of the total variance. Factor 1 ($\alpha = .88$) was labelled *exciting life*; Factor 2 ($\alpha = .77$) was labelled *purposeful life* (see Table 1).

Coefficient alpha for the LRI was .94. The scree plot indicated a dominant first factor ($\alpha = .80$), accounting for 37 of the total variance, which was labelled *principled life* (see Table 2).

Coefficient alpha for the PWB-P was .88. The scree plot indicated a dominant first factor ($\alpha = .82$), accounting for 41 of the total variance, which was labelled *accomplished life* (see Table 3).

Coefficient alpha for the additional items was .87. All items loaded on a single factor accounting for 64 of the total variance, which was labelled *valued life* (see Table 4).

Correlations between subscales derived from extracted factors (see Table 5) were moderate (ranging from .47–.61).

3 Discussion

EFA identified latent constructs underlying three popular meaning scales, which were interpreted as accomplished life, exciting life, principled life, purposeful life, and valued life. To guard against the extraction of minor factors (Velicer et al. 2000), scree plots were used to determine dimensionality. Extracted factors appeared to capture meaning-relevant items from these scales. Further (un-extracted) factors with eigenvalues over 1.0 appeared redundant in the presence of the main factors from other scales.

The five extracted factors encompass cognitive, affective, and behavioural components that resonate with Reker's (2000) comprehensive definition of meaning in life. These five dimensions tap into the theorised phenomenology of meaning in life such as a sense of

Table 1 Factor coefficients for PIL^a items

Item and descriptor	Factor		
	1	2	3
7. Exciting retirement plans	.88		
5. Days different	.83		
2. Exciting life	.77		
10. Life worthwhile if die today	.75		
19. Tasks interesting	.62		
17. Finding meaning	.52		
18. Life controllable	.49		
3. Clear goals		.86	
20. Discovered purpose		.78	
8. Achieving life goals		.57	
6. More lives like this			.77
11. Reason for existence			.74
4. Purposeful existence			.56
12. World meaningful			.45
1. Enthusiastic			.42
9. Good things in life			

Note. Pattern matrix loadings >.35 are reported. Extracted factors were labelled exciting life (1) and purposeful life (2)

^a Items 13, 14, 15 and 16 were excluded because of low item-total correlations

Table 2 Factor coefficients for LRI^a Items

Item and descriptor	Factor				
	1	2	3	4	5
9. Personal framework	.75				
21. Philosophy of life	.77				
1. Significant meaning	.50				
11. Life deeply fulfilling	.46			.64	
22. No deep beliefs	.44				
24. Events insignificant	.35				.38
23. Excited, energetic					
13. Clear direction		.97			
2. No direction		.73			
18. No interest in life		.42			
5. Purpose in living		.41			
19. Attaining goals			.70		
27. Accomplishment			.53		
15. Living fully			.42		
4. Accomplishment blocked			.41	.45	
12. Wasted potential			.40		
8. Others feel better				.68	
7. Positive about life				.67	
6. No life purpose				.48	
20. Achievement blocked				.41	
3. Passion in life					
28. Activities valueless					.72
16. Activities unimportant					.66
10. Need commitment					
26. Others more directed					
14. Life confusing					

Note. Pattern matrix loadings >.35 are reported. Even-numbered items were reverse-scored. Extracted factor (1) was labelled principled life

^a Items 17 and 25 were excluded because of low item-total correlations

life's inherent value (Adler 1963; Aristotle 1985; Battista and Almond 1973; Frankl 1963; Maslow 1962), a sense of having a personal philosophy or framework through which to understand life (Battista and Almond 1973; Frankl 1963; Sharp and Viney 1973; Solomon et al. 2004), a sense of having clear goals, aims, and intentions (Kierkegaard 1988; Frankl 1963; Ryff 1989; Yalom 1980), a sense that personal goals are being achieved or fulfilled (Bandura and Cervone 1983; Battista and Almond 1973; Ryan and Deci 2000; Ryff 1989; Seligman 1991), and an enthusiastic orientation that views life as exciting, interesting, or engaging (Aristotle 1985; Frankl 1963; Rogers 1951; Maslow 1964; Mathes et al. 1982; Nix et al. 1999; Waterman 1993). Throughout the history of human inquiry into the nature of the good life, these factors resonate across multiple philosophical, humanistic, socio-cognitive, and positive psychological perspectives.

Table 3 Factor coefficients for PWB-P^a items

Item and descriptor	Factor		
	1	2	3
13. Satisfying accomplishments	.91		
12. Aims satisfied	.75		
1. Past and future achievements	.71		
14. Don't value life	.49		
6. Blocked purpose		.96	
4. Direction and purpose		.60	
7. Don't set goals		.45	
5. Trivial activities	.35	.42	
3. Focus on present			
9. Carry out plans			.96
8. Plan for future			.66
10. Don't wander aimlessly			.60

Note. Pattern matrix loadings >.35 are reported. Items 3, 5, 6, 7 and 14 were reverse-scored. Extracted factor (1) was labelled accomplished life

^a Items 2 and 11 were excluded because of low item-total correlations

Table 4 Factor coefficients for additional items

Item and descriptor	Factor 1
3. My life is worthwhile	.84
6. My life is important	.81
4. My life is significant	.80
5. My life is meaningful	.73

Note. Factor loadings >.35 are reported. This factor was labelled valued life

Table 5 Correlations between subscales of the PIL, LRI, PWB-P, and additional items

Subscale	1	2	3	4	5
1. PIL factor 1	1.00	.58	.57	.56	.53
2. PIL factor 2		1.00	.61	.53	.48
3. LRI factor 1			1.00	.47	.57
4. PWB factor 1				1.00	.49
5. Additional items factor 1					1.00

Note. All values are Spearman correlation coefficients. All correlations are significant at the .01 level (1-tailed)

Attempts to remove affective components from meaning scales have allowed meaning and affect to be correlated in research applications (McGregor and Little 1998; Steger et al. 2006; Wong 1998). However, the inclusion of affective components allows for a more comprehensive assessment instrument. Together, these dimensions represent a more comprehensive measurement than any of the original scales. The moderate association

between subscales derived from these factors (see Table 5) suggests that they measure distinct yet correlated components of meaning in life. This presents the opportunity of identifying items for potential inclusion in an economical yet comprehensive meaning measure. The next study addressed this possibility.

4 Study 2

This study used the above results as a foundation for developing a psychometrically satisfactory self-report questionnaire of each extracted dimension of meaning in life. In particular, efforts were made to replace undesirable items. These included items containing potentially confounding sub-clauses, items referring to more than one extracted dimension of meaning, and items with low loadings. Additional items were written with the further aim of including both *protrait* and *contrait* items within each scale to reduce response sets.

5 Method

5.1 Participants

Twenty three male and 188 female psychology undergraduates completed measures online at Time 1 in exchange for course credit. Their mean age was 22 years (median = 20; *S.D.* = 5.77; range = 18–50). Most participants were British (89). At Time 2 (six months later), a subset of these participants (*N* = 38) agreed to answer all meaning items again in exchange for further course credit.

5.2 Procedure and Measures

The following items were administered in an online questionnaire alternately displayed in two randomised versions. The first page asked for demographic information.

5.2.1 Items from Study 1

Participants completed the highest-loading meaning items from each extracted factor in Study 1 (see Tables 1–4). Fourteen items were excluded: one (PIL Item 7) because it appeared biased in favour of protestant values and meaning-systems, one (additional Item 2) because of its ambiguity, commented on by several participants; two (PIL Item 10, PWP-P Item 1) because they contained potentially confounding sub-clauses; two (PWP-P Item 12 and PIL Item 8) because they referred to more than one extracted dimension of meaning in life (i.e. they both appeared to assess purpose *and* accomplishment); two (LRI Items 11 and 24) because they had cross-loadings; and six (PIL Items 17 and 18, LRI Items 1 and 22, PWB-P Item 14, additional Item 4) because they had relatively low loadings.

5.2.2 Additional Items

New *protrait* and *contrait* items were written (see appendix: items 4–5; 7–10; 13–15; 18–19; 22–23) to be high in content specificity (i.e. related predominantly to only one meaning component) and simplicity (i.e. containing no compounds, qualifications, or clauses).

5.3 Analytic Strategy

Confirmatory factor analysis (CFA) using EQS methodology (Bentler 1995) was carried out to verify a five-factor model of the above meaning items (Model 1), and to compare its fit to that of a four-factor model (Model 2) and a one-factor model (Model 3). In Model 1, five first-order factors measuring purposeful life, accomplished life, principled life, valued life, and exciting life loaded on a single second-order factor. In Model 2, four first-order factors measuring accomplished *and* valued life, principled life, purposeful life, and exciting life loaded on a single second-order factor. The specification of Model 2 was chosen over several other possibilities due to the relatively high correlation between the accomplished and valued life subscales (see Table 8). In Models 1 and 2, the variance of the second-order factor was fixed at 1.0, and all first-order parameters were estimated freely. Each meaning item constituted a manifest indicator of its respective factor that was allowed to relate only to this specific latent variable. To adequately test convergent validity of first-order factors, the number of first-order factors should be four or greater (Byrne 1994). Therefore, two- and three-factor models were not tested. In Model 3, all meaning items loaded on a single factor.

Non-normal estimation methods were employed to assess the fit of each model: the scaled chi-square (S-BX²; Satorra and Bentler 1994), the robust incremental fit index, and the robust comparative fit index (IFI and CFI; Bentler and Yuan 1999). A non-significant chi-square and values greater than .90 for the IFI and CFI reflect good model fit, and values between .85 and .90 reflect moderate model fit (Jöreskog and Sörbom 1993). The robust root-mean-square error of approximation (RMSEA; Bentler and Yuan 1999) with 90 confidence intervals was also reported, for which values less than .05 reflect good fit, and values up to .08 reflect moderate fit (Browne and Cudeck 1993).

6 Results

Table 6 shows that the chi-square value was lower in Model 1 than in Model 2, and lower in Model 2 than in Model 3, although all remained statistically significant. IFI and CFI show that Model 1 had good fit, Model 2 had moderate fit, and Model 3 did not fit the data. The RMSEA also indicated a moderate-to-good fit for Model 1, a moderate fit for Model 2, and a lack of fit for Model 3. Therefore, only Model 1 provided a good fit to the data.

The adequacy of Model 1 was also assessed in terms of the parameter estimates. All confirmatory standardized parameter estimates were substantial (>.60) and significant ($p < .05$), indicating that all items were good indicators of their respective factors (see Table 7). These items constitute the final Meaningful Life Measure (MLM), and are presented in the appendix. Intercorrelations between MLM subscales are presented in

Table 6 Fit Indices for competing models of MLM items

Model	S-BX ²	df	p	IFI	CFI	RMSEA	90% CI
1	352.55	225	.00	.94	.94	.05	.04-.06
2	466.91	226	.00	.88	.88	.07	.06-.08
3	925.62	230	.00	.65	.65	.12	.11-.13

Note. S-BX² = Satorra-Bentler scaled chi-square; IFI = robust incremental fit index; CFI = robust comparative fit index; RMSEA = robust root-mean-square error of approximation; CI = confidence interval

Table 7 Standardised factor loadings for MLM items

Sub scale	MLM item ^a	First-order factors					Second-order factor
		1	2	3	4	5	
Exciting life	1.	.74					
	2.	.74					
	3.	.75					.80
	4.	.83					
	5.	.81					
Accomplished life	6.		.84				
	7.		.80				
	8.		.62				.80
	9.		.74				
	10.		.83				
Principled life	11.			.72			
	12.			.85			
	13.			.66			.75
	14.			.79			
	15.			.78			
Purposeful life	16.				.72		
	17.				.79		
	18.				.82		.70
	19.				.75		
Valued life	20.					.68	
	21.					.86	
	22.					.83	.85
	23.					.84	

Note. All loadings were significant ($p < .05$). MLM = Meaningful Life Measure. Factors 1–6 = exciting, accomplished, principled, purposeful, and valued life respectively. Factor 7 = meaningful life. Items 4–5, 7–10, 13–15, 18–19, 22–23 = additional items

^a See appendix for items in full

Table 8. All subscale alphas were acceptable (.87 accomplished life; .86 principled life; .88 exciting life; .85 purposeful life; .88 valued life), and six-month re-test coefficients were moderate to high (.70 purposeful life; .64 exciting life; .63 accomplished life; .68 valued life; .70 principled life).

7 Discussion

The 23-item MLM comprehensively yet parsimoniously measures a broad range of content relevant to the meaning in life construct. Its five subscales, which respectively measure a sense of purpose, excitement, principles, accomplishment, and value, resonate across multiple theoretical perspectives on personal meaning (e.g. Battista and Almond 1973; Crumbaugh and Maholick 1964; Frankl 1963, 1967; Jung 1933; Kierkegaard 1988; Maddi 1967; Maslow 1964; Ryff 1989; Yalom 1980). In relation to the PIL, LRI, and PWB-P, the MLM appears to economically measure a wider range of theoretically relevant dimensions.

Table 8 Intercorrelations between MLM subscales

MLM Subscale	1	2	3	4	5
Accomplished life (1)	1.00	.50	.49	.49	.61
Principled life (2)		1.00	.54	.57	.58
Exciting life (3)			1.00	.52	.51
Purposeful life (4)				1.00	.48
Valued life(5)					1.00

Note. Values are Spearman correlation coefficients. All correlations are significant at the .01 level (1-tailed)

MLM item scores demonstrated acceptable internal and temporal reliability; and MLM subscale scores converged at the second-order level, suggesting that they assess a single, underlying construct. However, the high drop-out rate (i.e. only 18% of participants agreed to answer all items again at Time 2) presents the need to validate the MLM's retest coefficient in future research.

Intercorrelations between MLM subscales ranged from .48 to .61 in the primarily female undergraduate sample used in Study 2. Valued life scores correlated relatively strongly with accomplished life scores, and relatively weakly with purposeful life scores. This may reflect the relative importance or value placed on a sense of purpose and a sense of accomplishment in this sample. Previous research (Reker 1996) has suggested that younger adults derive relatively more meaning through personal achievements than older adults do. Further investigation is therefore needed to determine how MLM subscale intercorrelations vary across demographic and cultural contexts.

8 Study 3

The objective of Study 3 was to provide evidence for the MLM's convergent validity, and to confirm its economic property, by correlating the MLM and its subscales with the original PIL, LRI, and PWB-P scales. Four out of five dimensions underlying the MLM (see Study 2) were also found to underlie the original scales (see Study 1). Therefore, the MLM was expected to correlate highly with all of the original scales.

9 Method

9.1 Participants

Eighteen males and 73 females completed meaning measures online. The survey was linked to two psychology websites, and offered remuneration in the form of a cash prize draw. Despite certain limitations, online research is increasingly regarded as an efficient means of acquiring large and sufficiently diverse samples at relatively little cost (Birnbaum 2004). Participant's mean age was 29 years (median = 26; $SD = 7.61$; range = 15–61). Forty-four percent were in full- or part-time employment, 44 were students, six percent were unemployed, and six percent were retired. Sixty-four percent were single, 33 were married or cohabiting, and three percent were divorced or separated. Most participants (71) did not have children. Ethnicity was not recorded.

9.2 Procedure and Measures

Participants completed the PIL, LRI, PWB-P, and MLM scales. Items were presented in two randomised versions, with items from each scale clustered together. The first page asked for demographic information.

10 Results

Correlations between the MLM and the original PIL, LRI, and PWB-P scales are presented in Table 9. The MLM was highly correlated with all of the original scales. MLM-exciting life and MLM-accomplished life correlated relatively strongly with LRI-fulfilment; MLM—principled life correlated relatively strongly with LRI-framework; and MLM—purposeful life correlated relatively strongly with PWB-P.

11 Discussion

High correlations between the MLM and the PIL, LRI, and PWB-P (see Table 9) demonstrate the MLM's convergent validity and confirm its economic property. LRI-fulfilment correlated relatively strongly with MLM-exciting life and MLM-accomplished life, perhaps because these three scales all refer to the positive affective consequences of a sense of fulfilment (Battista and Almond 1973). Relatively high correlations were also found between LRI-framework and MLM-principled life, which both refer to an individual's worldview or personal philosophy (Battista and Almond 1973); and between PWB-P and MLM-purposeful life, which both refer to having goals, intentions, and a clear sense of life-direction (Ryff 1989).

Relatively weak correlations between the original scales and certain MLM subscales also suggest that the original scales tend to neglect certain dimensions of meaning in life at the expense of others. The relative magnitude of these correlations suggests that accomplished life items are underrepresented in the PIL; valued life items are underrepresented in the LRI; and principled and valued life items are underrepresented in the PWB-P. The MLM, however, appears to both comprehensively and economically assess the theoretically relevant dimensions from these three scales.

Table 9 Convergent validity for the MLM

Scale	PIL	LRI	LRI-frame	LRI-fulfillment	PWB-P	MLM-total
MLM-total	.89	.92	.87	.90	.92	1.00
MLM-exciting life	.86	.88	.80	.88	.84	.91
MLM-accomplished life	.77	.81	.73	.83	.87	.89
MLM-principled life	.80	.82	.82	.76	.77	.89
MLM-purposeful life	.79	.88	.87	.84	.92	.92
MLM-valued life	.78	.75	.68	.78	.75	.87

Note. All valued are Spearman's correlations. All correlations are significant at the .01 level (1-tailed). MLM = Meaningful Life Measure; PIL = Purpose in Life Test; LRI = Life Regard Index; PWB-P = Psychological Well-Being—Purpose in Life

12 General Discussion

The present studies addressed the need for a comprehensive, economical, and psychometrically adequate measure of existential meaning. Study 1 identified five latent constructs underlying popular meaning scales, which were labelled purposeful life, principled life, valued life, exciting life, and accomplished life. Study 2 used these results as a foundation for developing the MLM, a psychometrically adequate self-report questionnaire of each of these aspects of meaning in life. Study 3 then demonstrated the convergent validity and economic property of the MLM by comparing it to existing scales.

The MLM more economically assesses a wider range of theoretically relevant dimensions of meaning in life than popular meaning measures. Further, the MLM is one-dimensional at the second-order level, suggesting that its subscales measure aspects of a single underlying construct. Development of the MLM also improved upon existing measures by removing several problematic items. In Study 1, items measuring theorised correlates rather than components of meaning (Zika and Chamberlain 1992) such as depression, responsibility, and control were removed on account of their low item-total correlations. In Study 2, confounded, ambiguous, and biased items were replaced with new ones.

A limitation of the present research is the age restriction and gender bias in Studies 2 and 3, and further replication studies are clearly needed using representative samples. However, the equal gender balance and demographic heterogeneity of the sample from which the five meaning factors were originally derived lends support to the underlying factor structure of these meaning items. Whilst Study 1 used a wide-ranging age cohort ($M = 32$; $SD = 12.35$; range = 15–75), old-aged participants were underrepresented, calling for the need to replicate the findings on older-aged samples. Therefore, continued research using multiple and representative samples is planned in order to investigate the sample-invariance of the MLM's factor structure, and to broaden the generalisability and application of the MLM. Future validation research is also required to confirm the MLM's factor structure once response scales have been standardised.

Participants with little or no sense of meaning in life were also underrepresented in the current studies, partly due to the advice given to all participants that they should not take part if they anticipated finding the subject distressing. This decision was taken on ethical grounds due to the presence of items in the PIL relating to thoughts of suicide, despair, and death. Whilst the inclusion of this demographic would have increased the range of the results, it was felt that such investigations required a controlled therapeutic setting.

It should also be noted that some factors underlying the original meaning measures may have been missed. Whilst examination of the scree plots clearly indicted a single factor solution for the LRI and PWB-P, and a two-factor solution for the PIL, there were further factors with eigenvalues over 1.0. These unextracted factors accounted for a negligible amount of additional variance, and appeared either to assess theorised correlates rather than components of meaning, or to be redundant in the presence of factors extracted from other scales (see Tables 1–3). However, some of them seemed to measure negative dimensions of meaning such as confusion and apathy. Such dimensions resonate with Maddi's (1967) definition of existential neurosis, and may be more than the bipolar opposites of the positive factors. Therefore, despite the increased theoretical scope of the MLM in relation to popular scales, it is necessary to concede that there are potentially even more factors underlying the meaning in life construct.

Future research is planned to test the MLM's convergent validity with theoretically related constructs such as global life satisfaction and religiosity, and its discriminant validity with theoretically unrelated constructs such as intelligence and personality. In

addition to bringing substantial conceptual and methodological clarity to meaning measurement, the MLM also presents researchers with the means to explore antecedents and consequences of *specific* components of personal meaning. Future studies are therefore also planned to investigate differential patterns of correlation between MLM subscales and a wide range of hypothesised meaning correlates. For example, MLM-principled life is hypothesised to correlate relatively strongly with religiosity, and aspects of spiritual well-being such as *inner resources* and *relationship with a higher power* (Dierendonck 2005). Such research could potentially reveal specific personal or environmental factors that cultivate distinct facets of meaning in life, in order to better understand, predict, and ultimately foster the experience of meaning in life.

Appendix: The Meaningful Life Measure (MLM)

Please read each of the following statements carefully and then circle the appropriate number to indicate your opinion. Please answer according to the scale below, unless otherwise stated

Strongly disagree	Disagree	Slightly disagree	Neither disagree or agree	Slightly agree	Agree	Strongly agree
1	2	3	4	5	6	7

1. Life to me seems: ...completely routine (1); ...always exciting (7).
2. Every day is: ...exactly the same (1); ...constantly new and different (7).
3. Facing my daily tasks is: ...a painful and boring experience (1); ...a source of pleasure and satisfaction (7).
4. My life interests and excites me.
5. My daily living is dull and routine.
6. I find it satisfying to think about what I have accomplished in life.
7. So far, I am pleased with what I have achieved in life.
8. I have been very successful in achieving certain things.
9. I have failed to accomplish much in life.
10. I feel good when I think of the things I have accomplished in life.
11. I have a system or framework that allows me to truly understand my being alive.
12. I have a philosophy of life that really gives my living significance.
13. I have a personal value system that makes my living worthwhile.
14. The beliefs I hold about the world enable me to make sense out of my existence.
15. I hold certain values which I feel greatly enrich my life with significance.
16. In my life I have: ...no goals or aims at all (1); ...very clear goals and aims (7).
17. I have discovered: ...no mission or purpose in life (1); ...clear-cut goals and a satisfying life purpose (7).
18. I have a clear idea of what my future goals and aims are.
19. I tend to wander aimlessly through life, without much sense of purpose or direction.
20. My life is worthwhile.
21. My life is significant.
22. I really value my life.
23. I hold my own life in high regard.

Syntax to create MLM subscales: reverse-scored = 5, 9, 19; exciting Life = 1–5; accomplished life = 6–10; principled life = 11–15; purposeful life = 16–19; valued life = 20–23.

Note. Items 1, 2, 3, 16, 17 are from the Purpose in Life Test (Crumbaugh and Maholick 1964); item 6 is from the Purpose in Life Scale (Ryff 1989); items 11 & 12 are from the Life Regard Index (Battista and Almond 1973).

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