The Factor Structure of Wellness: Reexamining Theoretical and Empirical Models Underlying the Wellness Evaluation of Lifestyle (WEL) and the Five-Factor Wel

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Myers, J. E., Luecht, R., & Sweeney, T.J. (2004). The factor structure of wellness: Reexamining theoretical and empirical models underlying the Wellness Evaluation of Lifestyle (WEL) and the Five-Factor Wel

Abstract:
The 5-Factor Wel, the latest version of the Wellness Evaluation of Lifestyle (WEL), was examined using a completely new 3,993-person database. Through exploratory and confirmatory factor analysis with 2 discrete subsets of these data, a new 4-factor solution was identified that provided the best fit for the data and accounted for 30% of the variance.

Article:
The wellness model has gained popularity as a positive, strengths-based, integrative and holistic approach to understanding human functioning (Parker et al., 2001; Snyder & Lopez, 2002), in contrast to the medical or illness model that emphasizes disease and disability (Larson, 1999). Proponents of a different, more hopeful model note the need for measures of health behaviors that provide valid and reliable scores for a variety of persons and uses (Kulbok & Baldwin, 1992; Palombi, 1992; Ragheb, 1993), while recognizing that assessment of such behaviors presents a variety of measurement problems due to the subjective nature of perceived health (Larson, 1991, 1999). Accurate assessment also requires theoretical or conceptual models defining the components of wellness, which in turn should be based in empirical research (Sexton, 2001). As these models are developed and tested, the emergence of new models is both an anticipated and desired outcome.

Consistent with Sexton's (2001) recommendations, Sweeney and Witmer (1991) and Myers, Sweeney, and Witmer (2000) presented a holistic model of wellness and prevention over the life span, called the "Wheel of Wellness" (WoW), based on interdisciplinary research examining characteristics of healthy persons. They included in the WoW only characteristics for which there existed an established empirical link with enhanced quality of life, well-being, and longevity. The Wellness Evaluation of Lifestyle (WEL) inventory (Myers, Sweeney, & Witmer, 1996) was designed to assess each of the characteristics of wellness identified in the WoW.

Hattie, Myers, and Sweeney (in press) examined a large database developed over several years using four early versions on the WEL (Myers, 2003). Factor analyses and structural equation modeling resulted in the creation of the Five-Factor Wel (5F-Wel, formerly called the WEL-J; Myers & Sweeney, 1999) with substantially improved psychometric properties over the original WEL. In addition, a new evidence-based model of wellness was proposed (Myers & Sweeney, in press; Sweeney & Myers, in press). Data gathered and maintained by the first author using the 5F-Wel provided a rather substantial and completely flew unexamined) database for further investigation of the statistical and psychometric properties of the instrument.

In this article, the WoW model and the development and validation of the WEL and 5F-Wel inventories are described. The empirically based Indivisible Self Wellness (IS-WEL) model, the basis of the 5F-Wel, is presented, followed by the results from a comprehensive set of analyses of the 5F-Wel database. These analyses led to a fundamental reexamination of the constructs underlying the 5F-Wel and differing suggestions about the way in which we measure and profile wellness. A new, more parsimonious yet also holistic structure for examining and assessing wellness is presented, and implications for research and counseling are considered.

THE WHEEL OF WELLNESS MODEL

The WoW was originally proposed as a multilevel, circumplex model for explaining both the characteristics of healthy functioning and the nature of the relationships among those characteristics. Witmer, Sweeney, and Myers (1 998) hypothesized relationships among 16 characteristics associated with positive health, quality of life, and longevity (see Figure 1) In an extensive literature review, Myers et al. (2000) concluded that existing theoretical acid empirical literature supports each of the characteristics of wellness included in the model.

The main components of the WOW are based on Adler's theory of individual psychology and include the major life tasks of *work* (defined to include the separate aspects of work and leisure), *friendship*¸ and *love*. *Spirit* and *self* are also core components based on Adlerian theory (Sweeney. 1998). In fact, *,spirituality* is depicted-in the WOW model as the central characteristic or healthy persons and as essential to healthy functioning in all other areas, Furthermore, the 12 tasks of self-direction (sense of cores, sense of control, realistic-beliefs, emotional awareness and management, problem solving and creativity, sense of humor, nutrition, exercise, self-care, stress management, gender identity, and cultural identity) are conceptualized as functioning similar to spokes in a wheel— that is, they provide the self-management necessary to meet successfully the requirements of Adler's major life tasks: work, friendship, and love, as well as spirituality (Mosak & Dreikurs, 1967).

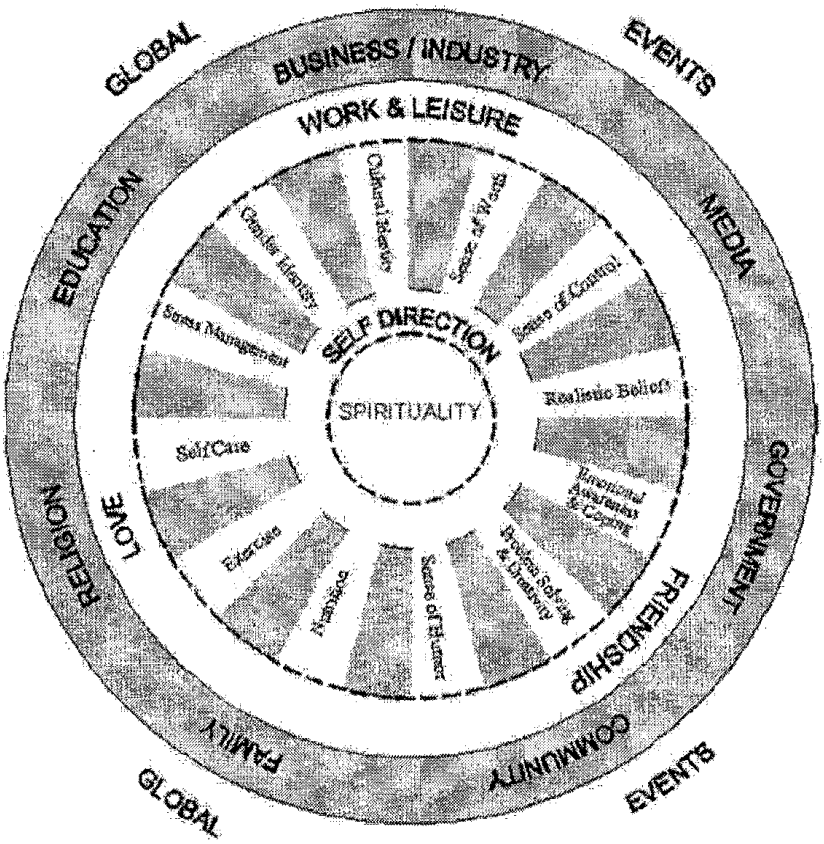

FIGURE 1

The Wheel of Wellness

Note. From *The Wheel of Wellness,* by J. M. Witmer, T. J. Sweeney, and J. E. Myers. Copyright 1998. Reprinted with permission.

The WoW model incorporated a contextual framework recognizing the many interactions and global influential forces in the environment and society that can affect holistic functioning of the individual (Bronfenbrenner, 1999). These forces included family, community, government, media, business and industry, education, and religion. Contextual factors were not incorporated in the WEI, inventory; rather the items and scales assess the components of the four inner circles of the model only.

THE WELLNESS EVALUATION OF LIFESTYLE. INVENTORY

The WEL inventory(Myers et al., 1996) was developed to assess the individual characteristics in the WoW model (see Figure 1). The originally combined life task of work and leisure was divided based on preliminary factor analyses to form two separate constructs. Thus, the model was disassembled to form 17 measurement constructs. The most recent version (WEL-S) includes 120 items scored on a 5-point Likert-type scale (1 = *strongly agree* to 5 = *strongly disagree*). Scores are simple sums of responses divided by the total points possible: thus, scores represent percent of total wellness. The WEL was developed and pilot tested as an iterative process through a series of seven studies conducted over a 10-year period to field test items and improve the psychometric properties oldie scale scores (Hattie et al., in press; Myers, 2003)

Test- retest reliability coefficients for the WEL scale scores, established with a sample of 99 undergraduate students (Myers, 2003), ranged from 0.68 for cultural identity to 0.88 for nutrition. Internal consistency measures of reliability (i.e., α coefficients; Cronbach, 1947) ranged from a low of .60 for the realistic beliefs scale score to a high of .94 for friendship within a larger and more diverse sample of 2,295 adults across the life span. Convergent and divergent validity were investigated by comparing scores of 229 counseling graduate students on the various WEL scales to similar scales on instruments such as the Coping Resources Inventory (Hammer & Marting, 1987) and Testwell (National Wellness Institute, 1983). Scores measuring conceptually similar constructs had high correlations (convergent validity) and scores measuring different constructs had lower correlations (discriminant validity).

In a recent study of 3,043 individuals, Hattie et al. (in press) conducted a hierarchical factor analysis of the WEL, using the 17 subscales as discrete observed variables. A maximum-likelihood exploratory factor analysis specifying 17 factors revealed that each set of items resulted in a high structure coefficient only on the expected factor. An exploratory analysis of the 17 scale scores resulted in the identification of five oblique, second-order factors and one higher order factor termed *wellness.* The five second-order factors provided a means of contextually organizing the 17 subscales, or third-order factors, and resulted in a new explanation of the relationships-among the factors and subsequently a new model of wellness.

THE IS-WEL

Ansbacher and Ansbacher (1967) underscored Adler's belief that there needs to be an "emphasis on the whole rather than the elements, the interaction between the whole and parts, and the importance of man's social context" (pp.11-12). Adler proposed that holism (the self as indivisible) and purposiveness were central to understanding human behavior (Ansbacher & Ansbacher, 1967). This philosophy provided a structure for making sense of wellness both as a higher order and seemingly indivisible factor and as a factor composed of identifiable subcomponents as originally hypothesized (Myers et al., 2000; Sweeney & Witmer, 1991).

Relationships among the higher order wellness factor, 5 second-order factors, and 17 third-order factors were described in a new model reflecting the indivisibility of the self (see Figure 2; Sweeney & Myers, in press). In the IS-WEL model, five factors were defined as follows: The *Creative Self* includes thinking, emotions, control, work, and positive humor. The *Coping Self* includes leisure, stress management, self-worth, and realistic beliefs. The *Social Self* includes the characteristics of friendship and love. The *Essential Self includes* spirituality, self-care, gender identity, and cultural identity. Finally, the *Physical Self* includes corporate exercise and nutrition.

Similar to the original Wheel model, the IS-WEL is contextual. The contexts are more clearly defined and described in terms of local, institutional, global, and chronometrical components through which the individual affects and is affected by his or her environment. Changes through time are included in the newer model, because wellness involves the acute and chronic effects of lifestyle behaviors and choices throughout an individual's life span (Myers et al., 2000). An instrument based on this model, the Five-Factor Wel (5F-Wel, initially referred to as the WEL-J; Myers & Sweeney, 1999), is similar to its predecessor, the WEL. However, although the WEL emerged front an analysis of the literature, the 5F-Wel was created based on exploratory and confirmatory factor analyses of data gathered using the WEL.

THE 5F-WEL

The 5F-Wel includes 73 scored items that reflect specific attitudinal and behavioral statements (e.g., "I like myself in spite of my imperfections"; "I am an active person") and 18 additional experimental items for a total of 91. Self-report responses are provided using a 5- point Likert-type scale (i.e., 1 = *strongly agree* to 5 = *strongly disagree).* Scoring includes reversing the item scores so that 1 = *strongly disagree* and 5 = *strongly agree;* thus, high scores reflect greater wellness. Scale scores are computed by separately averaging the item-level scores within each of the scales and then multiplying by a constant of 25. This simple linear transformation places all of the scale scores on a common metric ranging from 25 to 100. Scores are provided for the 17 third-order factors, and the higher order wellness factor, which is the sum of scores on all items.

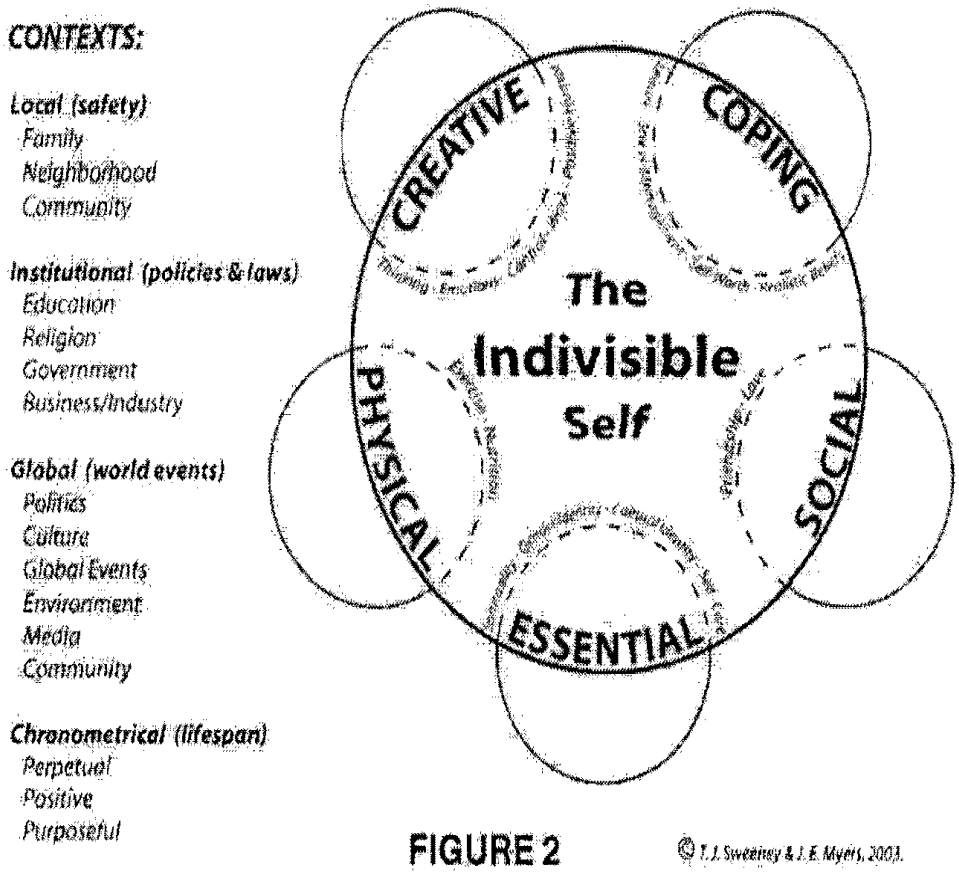

FIGURE 2

The Indivisible Self: An Evidence-Based Model of Wellness

Note. From *The Indivisible Self: An Evidence-Based Model of Wellness,* by T. J. Sweeney and J. E. Myers. Copyright 2003. Reprinted with permission.

Both the WEL and the 5F-Wel have been used in many recent empirical studies, primarily as an outcome measure or dependent variable, and have been used to study wellness in relation to diverse psychological constructs and demographic indices. For example. Hensley and Smith (in press) used the 5F-Wel as a pre-post assessment for a college student success course for at-risk freshman, concluding that a wellness component increased course effectiveness.

Multiple studies of psychological correlates of wellness using the WEL and 5F-WEL have been conducted (see http://www.uncg.edu/~jemyers/wellness for a summary of these studies). For example, Hermon and Hazler (1999), in a study of 155 undergraduate students, found that both short-term and long-term trait constructs of psychological well-being correlated positively with each of the major life tasks in the WoW model. Shurts and Myers (2003) found positive relationships between healthy love styles and the life tasks in the WoW, and Connolly and Myers (2003) found positive associations between job satisfaction, mattering, and the life tasks.

Several studies of ethnic minorities' wellness have established the usefulness of the WEL and 5F-Wel in cross-cultural studies. These studies examined the major life tasks and wellness in relation to factors such as ethnic identity and acculturation of Native Americans (Garrett, 1999), Korean Americans (Korean translation; Chang & Myers, 2003), African Americans (Spurgeon & Myers, 2003), and adult gay men (Dew, Myers, & Wightman, 2003). In each case, the wellness scales provided differential measures of population and subpopulation characteristics. Significantly, there have been no studies to date using the hierarchical factor structure proposed by Hattie et al. (in press), nor has this structure been cross-validated with other samples.

RATIONALE FOR REVISION OF THE 5F-WEL

The aforementioned studies imply a number of successful applications of the WEL and 5F-Wel as research instruments. So, why change the instrument further at this time? There are four legitimate reasons, none of which call past research into question. Rather, our intent is to make the instrument better for the future, especially for researchers interested in exploring aspects of wellness for evidence-based practice.

First, the WoW model (see Figure 1) --- while conceptually very useful for explaining the components, their relationships to one another, and the multifaceted contexts that constitute a holistic sense of wellness -- has proven difficult to verify statistically in terms of the empirical relationships among the 17 score scales reported for the WEL. Although the original scales were supported in Hattie et al.'s (in press) factor analysis, the data suggested a somewhat different model, the Indivisible Self (Figure 2), which to date has not been verified. Second, recent doctoral dissertation studies and follow-up analyses have indicated that the 17 scales and composite scores reported for the 5F-Wel may be more highly correlated than originally believed. For some samples, the 5F-Wel appears to be largely unidimensional. Third, the reliabilities tend to be rather for several of the 5F-Wel subscale scores (i.e., less than 0.80), while the instrument itself is rather long. Past users of the WEL and 5F-Wel have informally indicated that they would like a shorter instrument, not a longer one; therefore, the option of adding items to the inventory to increase the reliability does not seem to be viable.

Fourth, consistent with principles of parsimony, it is good scientific practice to use the smallest number of factors and the shortest assessment necessary to explain a domain – in this case, wellness. The current seventeen 5F-Wel subscales can be unruly to manage as dependent or independent measures in any type of research study, especially when the results need to be reduced to meaningful and interpretable profiles. Worse, having a fairly large quantity of subscales might seduce some investigators to go on a "fishing expedition." looking for arbitrarily significant correlations to explain concepts and behaviors. From a Clinical perspective, more parsimonious constructs and simpler profiles of wellness may be easier to interpret and use in screening, assessment, diagnosis, and treatment (interventions).

Subsequent to the earlier study reported by Hattie et al, (in press), Myers and Sweeney (1999) created the 5F-Wel and developed a sizeable new database using this instrument. These data had not been examined; therefore, it was timely to reexamine the factor structure and related psychometric properties of scores from the inventory. Our goals in doing so were to determine if the instrument could be made shorter and whether a more parsimonious factor structure could be used that directly tied the validity of the reported scores to the content of individual items.

METHOD

The 5F-Wel was administered to 3,993 volunteers over a 4-year period. The data were collected in conjunction with various research projects; clinical counseling assessments; wellness workshops; and both undergraduate and graduate courses in counseling, helping skills, and life-span development (i.e., the data were codified across multiple sources). All participants were volunteers who agreed to allow their data to be used for research purposes.

Participants

The average age of the 3,993 participants in the 5F-Wel database was 28.9 years *(SD* = 14.8) If the percentages are adjusted for missing data (i.e., percentages computed without including missing data in the total), the

calculations reveal that there were more female participants in the sample (54.9%) than male participants (45.1%). The adjusted racial/ethnic mix is 53.2 Caucasian/White Americans, 21.4% African Americans, 22.6% Asian Americans, and 2.8% Hispanic Americans. The employment status of the participants was rather uniformly distributed (26.9% employed full-time, 31.3% employed part-time. and 34.9% not employed). Educationally, the majority of the sample (53.7%) had at least a high-school degree, with 13.7% having bachelor's degrees and 22.1% having graduate-level degrees. Half of the volunteers came from large urban areas and 10% from rural areas.

Data Analysis

The 5F-Wel revisions came about from a series of statistical and psychometric analyses that led to the development of four factor-based score scales. All computational analyses were carried out using SPSS for Windows^{TM} (Version 11.0), Systat 10.0 (SPSS, 2000), and LISREL 8.52 (Jöreskog & Sörbom, 2002). There were three analysis phases. Phase 1 involved a series of exploratory factor analyses (EFAs) to determine the optimal number of factors to retain for the WEL. Phase 2 involved more in-depth exploration of the factor analysis results to reduce the number of items and assign items to discrete factors. Both Phases 1 and 2 were carried out with a random sample representing half of the larger WEL database. Phase 3 used the other half of the database to confirm the factor structure and item-to-factor assignments from Phase 2 and to interpret the meaning of the resulting factors.

RESULTS

Phases 1 and 2

Phase included a series of exploratory factor analyses to isolate the number of factors that would account for sufficient variation among the 91 items and produce interpretable factors. These analyses were all done on a random sample of N_1 = 1,671 respondents drawn from the full WEL database. This sample represented approximately half of the full sample. Both principal component and maximum likelihood factor analyses were used to ensure that the results were reasonably stable across extraction methods.

The three-factor solution accounted for 27% of the variance in the data with eigenvalues exceeding 3.0 on all three factors. However, there was a high degree of ambiguity in that many of the items had the same structure coefficient on at least two of the three factors rather than a larger coefficient on a single factor: From the perspective of psychometric scaling and construct purity (validity), items should primarily load on only one factor. Furthermore, the items that have unique structure coefficients on a particular factor had very little in common with each other from a content perspective, which greatly confounded the interpretation of the three factors. The five-factor solution also produced ambiguous results. Although the five-factor solution accounted for 32% of the variance, a fairly large percentage of the items had similar structure coefficients on multiple factors, the structure coefficients tended to be substantially lower on average, and the patterns of content for the items mapping to each of the five factors led to volatile interpretations of the factors.

In contrast, the four-factor solution was determined to have produced the best solution overall. It accounted for 30% of the variance with eigenvalues all exceeding 2.25. This solution was also the cleanest in terms of having high structure coefficients within a single factor and producing factors that made sense in terms of the patterns of item content associated with each of the four factors. The four-factor solution was therefore used for Phase 2 of the analysis.

Phase 2 Analysis

Phase *2* involved using the results from the split-sample exploratory factor analysis conducted in Phase I to (a) reduce the total number of items and b) "purify" the factors to form four discrete measurement scales, each having interpretable, homogenous content as well as appropriate psychometric properties. The responses to all 91 items from the Phase 1 random sample of N_1 = 1,671 participants were factor analyzed using maximum likelihood factor analysis with a Varimax rotation. Rotated factor weights, communalities, eigenvalues, and the total percent of variance per factor are summarized in Table 1.

TABLE 1

Rotated Factor Weights (Structure Coefficients), Communalities, Eigenvalues, and Percent Variance Explained for the Four-Factor Solution With Varimax Rotation (N_1 = 1,671)

Item	CEW	RW	PW	SW	Extraction h^2	Factor Assignment
1	0.52	0.22	0.15	0.13	0.36	CEW
2	0.46	0.10	0.21	0.15	0.28	CEW
3	0.41	0.21	0.18	0.08	0.25	CEW
4	0.37	0.26	0.16	0.14	0.25	CEW
5	0.53	−0.01	0.33	−0.03	0.39	CEW
6	0.41	0.22	0.08	0.12	0.24	CEW
7	0.47	0.04	0.20	0.15	0.29	CEW
8	0.52	0.02	0.16	0.07	0.30	CEW
9	0.37	0.25	0.11	0.04	0.22	CEW
10	0.56	0.13	0.11	0.12	0.36	CEW
11	0.60	0.10	0.30	0.01	0.46	CEW
12	0.48	0.29	0.15	−0.07	0.34	CEW
13	0.53	0.02	0.20	0.07	0.33	CEW
14	0.57	0.02	0.18	0.18	0.39	CEW
15	0.48	0.22	0.11	0.08	0.30	CEW
16	0.52	0.21	0.13	0.09	0.34	CEW
17	0.42	0.10	0.21	0.09	0.24	CEW
18	0.51	−0.04	0.02	0.27	0.33	CEW
19	0.40	0.11	0.03	0.23	0.23	CEW
20	0.41	0.16	0.05	0.17	0.22	CEW
21	0.41	0.20	0.34	−0.01	0.32	CEW
22	0.39	0.07	0.09	0.29	0.24	CEW
23	0.39	0.29	0.17	0.19	0.30	CEW
24	−0.13	0.48	−0.02	0.42	0.42	RW
25	0.25	0.45	0.14	0.05	0.29	RW
26	0.10	0.59	0.04	0.16	0.38	RW
27	0.24	0.51	0.06	0.03	0.32	RW
28	0.03	0.53	0.09	−0.02	0.29	RW
29	0.17	0.35	0.49	0.04	0.40	RW
30	0.12	0.52	0.11	0.05	0.30	RW
31	−0.15	0.69	−0.04	−0.03	0.50	RW
32	0.11	0.65	0.02	0.04	0.43	RW
33	0.03	0.65	0.01	0.01	0.43	RW
34	0.12	0.55	0.07	0.11	0.33	RW
35	0.37	0.47	0.07	0.05	0.36	RW
36	−0.03	0.48	0.10	0.02	0.24	RW
37	0.29	0.41	0.04	−0.03	0.26	RW
38	0.08	0.59	0.01	0.01	0.35	RW
39	0.15	0.59	0.05	−0.02	0.37	RW
40	0.29	0.44	0.09	0.10	0.29	RW
41	0.33	−0.10	0.59	0.13	0.49	PW
42	0.17	0.00	0.64	0.04	0.44	PW
43	0.24	−0.02	0.61	0.06	0.43	PW
44	0.25	0.02	0.60	0.17	0.45	PW
45	0.22	0.02	0.57	0.16	0.40	PW
46	0.02	0.27	0.48	0.08	0.31	PW
47	0.33	0.22	0.44	−0.06	0.36	PW
48	0.31	−0.05	0.50	0.05	0.35	PW
49	−0.01	0.28	0.61	0.11	0.47	PW
50	0.25	−0.05	0.38	0.16	0.24	PW
51	0.29	0.25	0.41	−0.01	0.31	PW
52	0.26	−0.02	0.11	0.79	0.70	SW
53	0.16	−0.08	0.13	0.73	0.58	SW

(Continued on next page)

TABLE 1 (Continued)

Rotated Factor Weights (Structure Coefficients), Communalities, Eigenvalues, and Percent Variance Explained for the Four-Factor Solution With Varimax Rotation (N_t = 1,671)

Item	CEW	RW	PW	SW	Extraction h^2	Factor Assignment
54	0.18	−0.02	0.20	0.74	0.62	SW
55	0.16	0.16	0.08	0.76	0.64	SW
56	0.24	−0.03	0.13	0.73	0.60	SW
57	0.40	0.45	0.08	0.11	0.39	
58	0.41	0.37	0.14	0.15	0.34	
59	0.11	0.38	0.36	−0.01	0.29	
60	0.32	0.37	0.17	0.09	0.28	
61	0.38	0.43	0.23	0.02	0.38	
62	0.35	0.20	0.10	0.15	0.19	
63	0.31	0.28	0.02	0.11	0.18	
64	0.20	0.43	0.43	−0.01	0.41	
65	0.41	0.36	0.09	0.06	0.32	
66	−0.16	0.33	0.03	−0.06	0.14	
67	−0.10	0.05	−0.03	−0.04	0.01	
68	−0.14	0.04	−0.05	−0.06	0.03	
69	−0.11	0.33	0.01	−0.06	0.12	
70	0.31	0.28	−0.03	0.15	0.19	
71	0.19	0.33	0.10	0.02	0.16	
72	0.34	0.13	0.10	0.06	0.15	
73	0.20	0.41	0.10	0.08	0.22	
74	0.32	0.20	0.08	0.01	0.15	
75	0.17	0.06	0.08	0.20	0.08	
76	0.09	0.15	0.02	0.27	0.11	
77	0.10	0.16	−0.03	0.32	0.14	
78	0.05	0.30	0.07	0.07	0.10	
79	0.41	0.14	0.03	0.04	0.19	
80	0.18	0.39	0.00	0.03	0.19	
81	0.39	−0.05	0.15	−0.01	0.18	
82	0.36	0.41	0.14	0.07	0.32	
83	0.15	0.36	0.01	0.14	0.17	
84	−0.22	0.09	−0.01	−0.12	0.07	
85	0.34	0.32	0.11	0.03	0.23	
86	0.27	0.33	0.30	0.00	0.27	
87	0.30	0.17	0.26	−0.02	0.19	
88	0.13	0.37	0.00	0.16	0.18	
89	0.24	0.31	0.00	0.16	0.18	
90	0.16	0.32	0.11	0.03	0.14	
91	−0.03	0.40	−0.03	−0.04	0.16	
Eigenvalue	9.05	9.00	5.05	4.09		
% Variance	9.94	9.89	5.55	4.49		
Cumulative %	9.94	19.84	25.39	29.88		

Note. CEW = Cognitive-Emotional Wellness; RW = Relational Wellness; PW = Physical Wellness; SW = Spiritual Wellness.

The rotated factor weights (i.e., "loadings" or structure coefficients) and the communalities (i.e., the sum of squared loadings per item) were scrutinized according to three rules. These rules, while somewhat arbitrary, seen reasonable for this application insofar as achieving a primary goal of eliminating about one third of the items. The rules were as follows:

1. Items should be factorially unambiguous. That is, each item should have the largest structure coefficient unique to a primary factor. Items with factor weights on two or more factors that were within 0.05 of each other were considered to be "ambiguous" and subject to being dropped.

2. The communality for each item must be greater than 0.20. This rule, while arbitrary, was imposed to provide an absolute criterion for inclusion that would significantly reduce the number of items from 91 to approximately 60 items (the desired test length).

3. The final collection of items assigned to each factor had to make sense in the context of the content of other items on that factor.

Application of the first and second rules to the 91 items eliminated 35 items, resulting in a final total of 56 items, and also resolved any confusion in terms of the third rule (factor interpretation). The factors are listed in the rightmost column for the first 56 items; the remaining 35 items have no assignments because they violate one of the aforementioned rules. The four factors were labeled a follows: (a) Cognitive-Emotional Wellness (CEW; 23 items, (b) Relational Wellness (RW; 17 items), (c) Physical Wellness (PW; 11 items), and (d) Spiritual Wellness (SW; 5 items). The item means for the four factors (on a scale of 1 to 5) were as follows: CEW (M = 3.94, SD = .17), RW (M = 4.27, SD = .18, PW (M = 3.74, SD = .21, and SW (M = 3.76, SD = .20).

Phase 3 Analysis

In Phase 3 of the study, the second half of the split sample was used in a cross-validation confirmatory factor analysis (CFA). Using list-wise deletion of cases, the full split-sample size of 1,682 was reduced to an effective sample size of 1,116 participants. LISREL 8.53 (Jöreskog & Sörbom, 2002) was used for the CFA to explicitly constrain the 56 items from Phase 2 to each load on only one of the four factors identified in the Phase 1 analysis: 23 items on CEW, 17 on RW, 11 items on PW, and 5 items on SW. The four factors were allowed to correlate, a factor structure commonly referred to as an "oblique simple structure" (Gorsuch,1983). When used in this type of cross-validation CFA, there is an intentionally heavy burden placed on the simple-structure model to (a) fit a completely new data set (i.e., the cross-validation sample covariance matrix) and (b) simultaneously enforce the unique item-to-scale-assignment restrictions (constraints) imposed for purposes of actually interpreting the scales in a meaningful way, given the content of the items.

The CFA indicated that the four factors were distinct. The correlations among the foul factors are shown in Table 2. The between-factor correlations from the CFA are shown in lower triangle of the table and the reliability coefficients are reported on the diagonal. The between-factor correlations indicate fairly distinct factors. The correlation between CEW and PW is moderately high (0.68), but that may simply reflect the fact that physical wellness activities have a strong motivational aspect, with cognitive and emotional precursors. For comparative purposes and speaking to the structural stability of the factors, the between-factor correlations for the original (Phase 1 and 2) sample are shown in the upper triangle of Table 2. Those correlations were produced by reanalyzing the 56 items from the Phase 1 (EFA) covariance, using LISREL, and employing the same restrictions on the model as was done with the Phase 3 CFA sample data. The item-factor weights and the error variances were likewise very similar for the separate LISREL analyses of the EPA and CFA covariance matrices.

The model fit to the data for both samples was adequate hut could be improved. The chi-square statistic was 15,085.96 (*df = 1478).* This compares with a chi-square statistic of 14,198.42 *(df* = 1478) when the original sample covariance matrix was also analyzed using LISREL. However, it is important to realize that, for these types of analyses, chi-square is not necessarily useful because it is proportional to the sample size (i.e., the larger the sample, the more the chi-square is inflated). The root mean square error of approximation (RMSEA) and the nonnormed fit index (NNFI) are less susceptible to sample size. For the cross-validation (CFA) sample, the values were RMSEA = 0.11 and NNFI = 0.88. The recommended fit values for a good-fitting model are 0.08 or less for RMSEA and 0.90 or higher for NNFI. Our fit indices, considered in isolation, reveal some room for improvement in modeling to the observed covariance. However, as Tanaka (1993) noted, statistical model fit should never be considered in isolation.

TABLE 2

Factor Intercorrelations and Reliabilities

Factor	1	2	3	4
1. CEW	**0.90**	0.38	0.68	0.49
2. RW	0.44	**0.87**	0.37	0.10
3. PW	0.68	0.37	**0.85**	0.37
4. SW	0.49	0.17	0.39	**0.89**

Note. CEW = Cognitive-Emotional Wellness; RW = Relational Wellness; PW = Physical Wellness; SW = Spiritual Wellness. Correlations for the confirmatory factor analysis cross-validation sample (N_2 = 1,116) are shown in the lower triangle of the matrix; the correlations for the original Phase 1 and 2 exploratory factor analysis sample (N_1 = 1,085) are shown in the upper triangle; reliability coefficients for each factor are reported on the diagonal in boldface.

We would argue that the four-factor, simple-structure model does exhibit "acceptable" fit because (a) the RMSEA and NNFI values approximate the ideal values, (b) estimated model parameters (item-factor weights, between-factor correlations, and error variances) were highly stable across the two samples, (c) model fit was similar across the two samples (RMSEA = 0.10 and NNFI = 0.89 for the Phase 1 and 2 EFA sample), (d) the reliability of each of the factors is very good, and (e) the confirmed factors are interpretable and consistent with the item content and theoretical basis for the WoW. The latter point is nontrivial initial in that it provides important evidence related to the content and construct validity of scores from the revised Four Factor Wel (4F-Wel).

DISCUSSION

The WEL and its successor, the 5F-Wel, were developed to assess 17 separate dimensions of wellness (and two composite dimensions) included in the WoW model. Prior studies of the psychometric properties of the instruments as well as multiple studies in which they have been used to examine correlates of wellness in diverse populations have established the practical usefulness of the WEL and especially the 5F-Wel as measures of holistic wellness and multiple factors of wellness. Feedback from users and researchers led to the current study in which we examined a new database of 3,993 persons in order to increase both the psychometric properties of the instrument and its usefulness in research and clinical practice. Through EFA and psychometric item analyses, the number of items was reduced to 56, and a four-factor solution was proposed as the best fit to the data. The subsequent CFA, although not perfect, supported the four new content and construct valid and reliable scores from scales identified as Cognitive-Emotional, Relational, Physical, and Spiritual Wellness. These findings are discussed in terms of the meaning of the factors, usefulness of the revised instrument, and implications for future research.

Meaning of the Factors

In determining the meaning of the new factors, we first examined the items within the factors and then reflected on the literature, especially the earlier models, to determine the ways in which the current factors were and were not distinct from prior models. We noted that items initially developed to assess 16 of the original 17 components of wellness remained in the new factors. The one exception was Realistic Belief's, in that none of the five items from this scale were retained (e.g., "It is important for me to be liked or loved by almost everyone I meet"). This finding was not surprising, because the Realistic Beliefs scale score has consistently demonstrated low internal consistency and low intercorrelations with the other scales scores and has raised the most questions from users in relation to the interpretation of scores. The remaining factors made most sense when we looked at them in terms of an internal (three factors) or external focus.

The CEW factor comprises items such as "I seek ways to stimulate my thinking and increase my learning," "I can reduce my stress by thinking positive thoughts," and "Members of our family or closest friends show appreciation to one another on a daily basis without any reason being necessary." These items reflect both cognitive and affective or emotional aspects of wellness. Although we initially considered this factor as

assessing possible coping strategies, the intent of the items is proactive rather than reactive, each reflecting intentional movement along a continuum toward positive or optimum wellness. Hence, they are less "coping responses," per se, and more preventive behaviors and attitudes arising from patterns of thoughts/ cognitions as well as affect/emotions.

Consistent with cognitive theory as proposed by authors such as Beck, Freeman, and Associates (1990), the first factor demonstrates that cognition and affect are truly inseparable. The strength of the factor, which explains almost 10% of the variance in wellness, suggests that the historical focus of counseling on thoughts and emotions has been well placed. More recent holistic approaches, however, are useful in helping counselors address a far greater array of concerns presented by clients or a greater proportion of influences on their well-being.

The PW factor relates to nutrition, diet, and physical activity/exercise and related behaviors. The connection to "body" is obvious, with items such as "I eat a nutritionally balanced diet" and "I enjoy regular physical activity." The items in this factor are similar to those in the Physical Self factor identified by Hattie et al. (in press) and are consistent with the content of the original WoW model and other wellness models in which physical wellness is a common component. In short, there were no surprises in the PW factor.

The SW factor relates to having beliefs and a values system and engaging in associated activities that may be religious or spiritual in nature. Items that constitute this factor include, for example. "I have spiritual beliefs that guide me in my daily-life" and "Prayer, meditation, or individual spiritual study is a regular part of my life." One strength of this factor lies in its brevity (i.e., only five items), while achieving an extremely high internal consistency (i.e., alpha = .89). The original WEL included 18 items to measure spirituality, based on the WoW, which proposed spirituality as the central, most important characteristic of a well person. Hattie et al (in press) defined a similar factor comprising 16 items, termed *Essential Self.* Both that study and the current results suggest that spirituality is a distinct and critical component of wellness; however, it may not surpass in importance the other components of well-being.

The first three factors described here – CEW, PW, and SW -- map directly onto the well-known *mind-body-spirit* triad, all being in an overall profile of wellness. It seems apparent that the ancient Greeks who first identified this triad of human functioning were correct in their assessment Alternatively, because the original WEL was developed in part based on this historical definition of holism (see Myers et al., 2000), it may simply be that the items and factors indeed are accurate measures of the true theoretical nature of well-being as defined through multiple bodies of literature and knowledge over the past 2,000 years. Regardless, the meaning of the three factors becomes important in understanding the nature of holistic wellness. All three may be viewed as *internal* or *intrapersonal,* wherein the focus of the individual is on personal wellness behaviors, beliefs, and practices. Conversely, the fourth wellness factor, RW reflects interpersonal aspects of well-being.

The RW factor comprises items dealing with relationships, such as "I have at least one person in whom I can confide my thoughts and feelings" and "I have friends who would do most anything for me if I were in need." Additional items, such as "I am able to laugh at myself" and "I believe in the existence of a power greater than myself," again reflect the quality of self-in-relation rather than self focused inward. Importantly, the current factor is much broader than relationships with friends and family, and differs considerably from earlier factors identified in the WEL (i.e., friendship and love) or the 5F-Wel (i.e., Social Self). In fact, the items in the RW factor were drawn from a number of prior scales in addition to friendship and love, including spirituality, sense of worth, sense of control, sense of humor, exercise, and self-care. Thus, in marked contrast to the other factors, a full understanding of this factor requires literally stepping back from prior versions of the WEL, examining the item content, and conceptualizing an organizing principle based solely on that content.

Studies cited by Myers et at. (2000) underscore the importance of social support across the life span as a major mitigating factor for positive mental health. Relational wellness seems broader than social support, however, and may be closer to Adler's concept of *gemeinschaftsgefuehl*, a term with no literal translation, which means

“social interest” (Sweeney, 1998). Likewise, spiritual connectedness as a human motivation is derived from Adlerian theory (Mosak & Dreikurs, 1967). Social interest refers to a basic human need for connectedness through positive relationships and a caring for the welfare of others. Adlerians have always integrated humor as a mitigating factor for social relationship stress (Mosak, 1987); hence, even the inclusion of humor is understandable as a factor integral to relationships, or relational wellness. The strength of this factor is reflected in its contribution of almost 10% to the total variance in wellness. Conceptualized from the perspective of social interest, this factor becomes inherently clear and understandable from a theoretical perspective.

Usefulness of the 4F-Wel

The earlier suggestions of Myers et al. (2000), relative to using wellness assessments in counseling, may be useful in applying assessment results with the new scales and factors that have emerged in this study. In our experience, clinical use provides an important test of the true meaning of the scales and allows both for personal interpretations and for the development of personal wellness plans. The new factors will encourage examination of influences both internal and external to the self in the development of such plans. At the same time, whether clients are able to understand the new factors, interpret factor meanings in a manner relevant to their lives and presenting issues, and use this information as a basis for change remains to be determined.

Another factor that has not been addressed in wellness assessment is the influence of contextual factors on human functioning. The presence of a strong relational factor, which incorporates aspects of connection to one's environment, implies, as hypothesized, that context affects well-being. The WoW model incorporated but did not assess contextual factors, and the Indivisible Self model further defined the components of context; again, items were not included in the WEL or 5F-Wel to assess this hypothesized dimension of well-being. If items are added to the 4F-Wel to assess the four contexts depicted in the IS-WEL model, in future analytic studies it will be possible to determine if these are really extensions of the Relational model as defined in this study or if context can account for additional variance in attempts explain the wellness concept.

The development of new scoring systems based on normative scaling is also possible at this point, in contrast to the linear transformations recommended in earlier studies and used to date in preparing scores and profiles for the WEL and 5F-Wel inventories. Consistent with new scoring methods, the development of specific norm group scores will prove useful to future users. Examination of the contextual elements of the wellness model through the addition of new items could help to illuminate factors impinging on the wellness of individuals and subgroups.

Implications for Research.

Additional research is needed to further refine the new scales. New items need to be added and field tested to strengthen the four new factors and improve the fit of the model. In particular, studies that examine the discriminant validity of the RW scale score, especially as it relates to aspects of social support, locus of control, and systemic relationships, could further illuminate the dynamics of this particular aspect of well-being. Additional cross-cultural studies using the new scales can provide important information concerning wellness in different cultures and subcultures, as well as new norms based on this information. To be most useful to clinicians, norms reflecting wellness among clinical populations are needed (e.g., mental health inpatients and outpatients, offender populations, substance- and person-abuse populations). At present, it is not known how wellness differs among nonclinical and clinical samples.

Finally, the extent to which the current results can be generalized is limited by the nature of the sample, particularly the fact that all participants were volunteers. Counselors using the 5F-Wel or the newer 4F-Wel should take this into consideration, both through developing local norms and by comparing scale scores to characteristics of known populations such as those presented here. Confirmatory factor analyses with new, discrete samples are needed to verify the current findings and extend interpretations as well as usefulness of the new 4F-Wel.

CONCLUSION

The 5F-Wel has been revised to provide a useful measure of wellness using just 56 items, constituting a new measure called 4F-Wel. The present study further demonstrates that the new instrument can provide reliable scores for four distinct aspects of wellness: cognitive-emotional, relational, physical, and spiritual. These results are not inconsistent with both Myers et al. (2000) and Hattie et al.'s (in press) intent to offer a parsimonious and clinically useful view of wellness in the context of the individual. Further studies are needed to develop and field test items to strengthen the new factors. In addition, studies are needed in which the new factor structure and scales are examined to establish a knowledge base of wellness within and among the broad spectrum of individuals across the life span, including both cross-cultural and clinical populations. Finally, studies comparing results using the 5F-Wel and 4F-Wel across populations are needed, with particular attention to clinical applications and client responses to the two models and to the types of information provided through the respective sets of factor scores as a foundation for enhancing wellness across the life span.

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