Original Article

The Well-Being 5: Development and Validation of a Diagnostic Instrument to Improve Population Well-being

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Abstract

Building upon extensive research from 2 validated well-being instruments, the objective of this research was to develop and validate a comprehensive and actionable well-being instrument that informs and facilitates improvement of well-being for individuals, communities, and nations. The goals of the measure were comprehensiveness, validity and reliability, significant relationships with health and performance outcomes, and diagnostic capability for intervention. For measure development and validation, questions from the Well-being Assessment and Wellbeing Finder were simultaneously administered as a test item pool to over 13,000 individuals across 3 independent samples. Exploratory factor analysis was conducted on a random selection from the first sample and confirmed in the other samples. Further evidence of validity was established through correlations to the established well-being scores from the Well-Being Assessment and Wellbeing Finder, and individual outcomes capturing health care utilization and productivity. Results showed the Well-Being 5 score comprehensively captures the known constructs within well-being, demonstrates good reliability and validity, significantly relates to health and performance outcomes, is diagnostic and informative for intervention, and can track and compare well-being over time and across groups. With this tool, well-being deficiencies within a population can be effectively identified, prioritized, and addressed, yielding the potential for substantial improvements to the health status, performance, and quality of life for individuals and cost savings for stakeholders. (*Population Health Management* 2014;xx:xxx–xxx)

Introduction

GLOBAL ORGANIZATIONS, GOVERNMENTS, COMPANIES AND COMMUNITIES worldwide have adopted an orientation toward improving well-being as a means to improve quality of life and longevity, optimize functioning and productivity, and manage population health.[1] Well-being is defined as not only the absence of disease and reduced physical functioning, but the presence of positive physical, mental, and psychosocial states of being.[2] Foundational research on subjective well-being by Diener[3] and Kahneman[4] define well-being as encompassing all evaluations of major life areas, including emotional reactions to life events. There is now more longitudinal and causal evidence that subjective well-being influences health, longevity, and functioning.[5–8]

Although evidence for the value of well-being has expanded dramatically in recent years, there remains a need for a psychometric instrument that builds on the vast data collected from existing measures, such as the Well-Being Index (WBI) and Wellbeing Finder (WBF),[9,10] and simultaneously accomplishes several measurement goals that are essential to understanding and managing population well-being. Table 1 presents a description of these measurement goals and the criteria against which each is evaluated. These objectives include measurement of well-being that is comprehensive, valid, and reliable. Additional objectives for

TABLE 1. MEASUREMENT GOALS AND CRITERIA
FOR MANAGING POPULATION WELL-BEING

Goals of Measurement	Criteria
Comprehensively Capture Well-being	Correlation to previously validated well-being measures.
	Representation from each known well-being construct (ie, elements, subdimensions).
Valid and Reliable Psychometric Measurement	Chronbach α.
	Structural fit indices.
Predictive of Outcomes	Correlation to outcomes: productivity and health care utilization.
Diagnostic and Actionable for Intervention and Feedback	Representation of constructs used to trigger intervention programs and inform member feedback.
Ability to Compare Across Levels of Measurement	Comparable scoring systems across levels.

measurement include the ability to predict future health and functioning outcomes, the ability to diagnose specific issues for use in feedback and intervention, and the ability to make scaled comparisons across individual, local, national, and global levels and over time.

First, there is a foundational need for measurement to comprehensively and reliably capture the overall concept of well-being. Many instruments focus on measuring only one or a few elements of overall well-being, such as psychological well-being,[11] health risk,[12] and workplace-specific well-being.[13–15] However, theory and evidence from multiple disciplines suggest that each of 5 major life areas or elements—purpose, social, financial, physical, and community—are core to an overall construct of well-being.[3,16–20] Well-being, in turn, impacts health and performance outcomes for individuals.[5,21–23] Moreover, within each of these elements of well-being, research has been done to identify and develop measurement for the components, or subconstructs within each element, that are most representative and impactful.[12,17,24–28] Thus, an interdisciplinary approach is warranted to ensure that each major element of well-being and the subdimensions therein are measured.

With the goal of comprehensive measurement across and within major well-being elements, it is also essential that the instrument demonstrate strong construct validity and reliability. The well-being measure should relate highly to previous measures of the same thing, and demonstrate strong internal consistency among items in each subscale to ensure the constructs are being captured accurately. As the construct coverage of a measure becomes broader, the items within that measure are less likely to overlap in their measurement of that construct. This would result in lower reliability estimates and structural factor fit indices, with the trade-off that more information is captured by the measure.[29] Thus, accomplishing both goals of comprehensiveness across a multidimensional construct such as well-being and high internal consistency can be a challenge.

It is also critical that the well-being instrument captures those constructs that are most predictive of future health and functioning outcomes for individuals. Overall well-being has been shown to be a stronger predictor of health and performance outcomes longitudinally than demographic characteristics,[8] prior health utilization and costs,[7] and behavioral and physical health risks alone,[30] further emphasizing the requirement for a more holistic approach to managing population well-being. Models to predict future health and functioning outcomes based on well-being can identify subsets of a population at greatest risk of negative outcomes in a way that is diagnostic in directing intervention programs and individual action.

Lastly, there is a need to measure, compare, and track well-being at individual, organizational, local, national, and global levels in order to derive insights about well-being needs and inform policy at these levels.[3,31] This requires a dynamic system of well-being measurement that can be scaled and benchmarked across each of these levels. Coupled with the aforementioned predictive and diagnostic capabilities, this scaled measurement allows for the projection of the next year's health care costs and productivity outcomes.

Instruments to measure well-being have been developed, validated, and implemented to achieve several of these distinct measurement goals and have enabled extensive research to discover insights about well-being and its measurement. The Gallup-Healthways WBI[32] was created to provide a comprehensive picture of well-being within the United States, capturing elements of psychological health, physical and behavioral health, work environment, community, and sociodemographics. This comprehensive instrument has been validated against community outcomes such as disease burden, life expectancy, mortality rates, income, crime rates, and unemployment rates.[10] Beginning in 2008, a total of 1000 responses have been collected daily (500 starting in 2013) by telephone with a stratified sampling and weighting approach to ensure data are representative. To date, more than 1.9 million individuals have been surveyed, and this ongoing nightly survey process will continue for the next 20 years. Overall and element well-being scores are aggregated and comparable across geographic levels and have been used to contextualize the well-being of subpopulations within a city, state, or region,[33] and detect secular trends or other macroeconomic, sociopolitical, or environmental changes over time.[34,35]

Although the WBI does provides a population sampling approach to measuring well-being at a community level, to actively manage a population's well-being through focused programs at the individual level, more specific information about the individual is needed. This led to the adaptation of the WBI, which measures community well-being, to the Healthways Well-Being Assessment (WBA), which measures well-being at the individual level. In addition to the core well-being content from the WBI, the WBA includes more granular measurement of clinically validated behavioral and psychological risks as well as validated measures of functioning and performance.[12,36–40] From this individual-level WBA an Individual Well-Being Score (IWBS) was developed and shown to be predictive for use in intervention program selection and outcomes measurement.[6,41] Average IWBS has demonstrated significant improvement in

populations where well-being improvement interventions have been implemented, both in total population samples and in a randomized controlled trial.[8,42] The measure has demonstrated significant relationships with objectively measured business and health outcomes in cross-sectional and longitudinal studies.[6–8,43]

Concurrent research on individual well-being was conducted to develop and validate the Gallup WBF. Among its strengths, the WBF demonstrates high reliability and good structural fit; item selection was based on global research, and items were designed to provide feedback to individual respondents in a way that is intuitive and actionable.[9] The WBF measures 5 elements of well-being, including career, social, financial, physical, and community. Like IWBS computed from the WBA instrument, WBF scores have been linked to a range of business and health outcomes such as employee engagement, customer satisfaction, turnover intentions and actual turnover, unhealthy days, anxiety and depression, hypertension, chronic illness, and health care costs.[44,45]

In sum, the well-being measures reviewed here have many strengths. They provide directional guidance to organizations as a whole. Knowledge about the key well-being issues that a workforce experiences can be used to inform policy and cultural changes within an organization and intervene at the individual level to optimize well-being and deliver lower health care cost and higher productivity. These measures of well-being also add incremental predictive power to models for forecasting future health care cost and productivity outcomes. There is a need for a single instrument that comprehensively captures the diagnostic and predictive elements of well-being. To that end, the purpose of the present article is to systematically integrate the WBI,

WBA, and WBF instruments into a single well-being measure that meets all of these needs.

Methods

Sample

Test data were collected among 3 independent US samples. Sample 1 consisted of 10,105 working and nonworking participants recruited from a research panel maintained by the Gallup Organization, Sample 2 included 1930 employees working in a midsize health care company, and Sample 3 consisted of 1024 working individuals recruited from an online sampling company. Participants from Samples 1 and 2 were not incentivized to take the test survey, whereas participants in Sample 3 were offered the equivalent of $15 for completing the test survey. Table 2 includes a summary of sociodemographic characteristics of each of these samples.

Measures

Identical online survey instruments were administered to all participants in each of the 3 samples. All participants were asked to provide basic demographic information regarding their age, sex, educational attainment, employment status, and job category if applicable. Well-being items were taken from WBI, WBA, and WBF instruments along with several additional items that were included to capture self-reported health and productivity outcomes.

Well-being Index, Assessment, and Individual Well-being Score.   The WBI instrument is a broad and comprehensive national survey, conducted on 500 to 1000 individuals per night since 2008. It was developed to assess the well-being

TABLE 2. SOCIODEMOGRAPHIC CHARACTERISTICS OF PARTICIPANTS AT BASELINE ACROSS THREE SAMPLES

| | Sample 1 | | | | |
| | 80% Randomly Selected | 20% Randomly Selected | | | |
Variable			Total	Sample 2	Sample 3
N	8067	2038	10105	1930	1027
Female, %	48.1	47.7	48.0	74.6	50.4
Age, M(SD)	55.7 (15.1)	55.4 (15.3)	55.6 (15.1)	43.7 (11.7)	46.9 (15.9)
Education, %					
High school or below	11.2	12.5	11.5	2.8	15.6
Technical/Vocational school	3.5	4.0	3.6	2.2	6.5
Some college	18.1	18.9	18.2	11.1	26.6
College graduate	26.9	27.3	26.9	51.8	30.7
Postgraduate	40.0	37.0	39.5	31.4	20.1
Don't know/Prefer not to answer	0.3	0.3	0.3	0.7	0.5
Employed, %	61.1	61.5	61.2	100.0	100.0
Job Category, %					
Professional worker	43.6	43.2	43.5	59.9	18.4
Manager, executive, or official	14.9	13.0	14.5	18.7	11.7
Business owner	4.7	5.8	4.9	0.0	7.0
Clerical or office worker	6.9	8.0	7.1	11.3	13.7
Sales worker	3.6	3.2	3.5	1.2	6.6
Service worker	2.8	3.1	2.9	0.7	6.5
Construction or mining worker	0.8	1.1	0.9	0	1.9
Manufacturing or production worker	1.5	1.3	1.5	0.1	2.5
Other	21.2	21.3	21.2	8.1	31.7

SD, standard deviation.

of the general US population at the community level. The WBI measures 6 broad conceptual elements that encompass evaluative and experienced well-being, including physical health, emotional health, healthy behaviors, work environment, basic access, and life evaluation.[10] The IWBS was computed as an overall composite of the 6 element scores, each of which range from 0 (lowest possible well-being) to 100 (highest possible well-being) for each respondent. The IWBS has demonstrated evidence of reliability and construct validity in prior research.[41] Additional predictive items from the WBA, an adaptation of the WBI instrument, also were assessed to provide greater depth of measurement in content areas related to physical and psychological health, and clinical and behavioral health risks, and productivity.[12,36–40]

Wellbeing Finder score. The WBF score is computed from 50 items assessing 5 elements of well-being—career, social, financial, physical, and community. Gallup administers the WBF assessment to panel members with Web access on a semi-annual basis. Gallup designed the assessment to isolate discretionary well-being elements that individuals and organizations can act on. Gallup's WBF includes 50 scored questions that produce a composite well-being score ranging from 0 to 100, and provides scores on each of the 5 elements of well-being.

Outcomes. Even though the items in each instrument had previously been studied in relationship to various objective and subjective outcomes, 3 self-reported health and performance measures were available for the current research: job performance, absenteeism, and hospital admissions. These outcomes represent major sources of costs and business performance of interest to stakeholders.

Job performance. Employed respondents reported their individual job performance on a scale from 1 to 10 using an extensively administered and validated item from the Health and Work Performance Questionnaire (HPQ).[39] The question asks, "On a ladder from 0 to 10 where 0 is the worst job performance anyone could have at your job and 10 is the performance of a top worker, how would you rate your overall job performance on the days you worked during the past 4 weeks (28 days)?"

Absenteeism. Absence from work was assessed using an item from the HPQ survey, which asks "In the past 4 weeks (28 days), how many days did you miss an entire work day because of problems with your physical or mental health?" Respondents indicated the number of days they were absent, which was used as a continuous count variable. Because there was a large proportion of zero absences recorded and a small number of extreme values, absence was also treated as a dichotomous variable, with 0 indicating no absences and 1 indicating 1 or more absences in the past 4 weeks.

Hospital admission. Respondents also were asked to self-report the number of times they were admitted to the hospital in the past year. As with absences, there was a large proportion of zeros in the data and a small number of extreme values. Thus, hospital admission was treated as a dichotomous variable, with 0 indicating no admissions and 1 indicating one or more admissions to the hospital in the past year.

Analysis

The goals of the present analysis were to first identify the fewest items needed to meet measurement goals; analyze this narrower item pool to understand which items cluster together into elements of well-being; and lastly, confirm that those same clusters of well-being elements are statistically similar in other samples of individuals. Analysis occurred in 3 stages corresponding to these goals: item reduction, exploratory factor analysis, and score validation. In the item reduction phase, a series of analyses were conducted to first reduce the test pool item set down to the minimum items necessary to achieve the measurement goals depicted in Table 1. Items were required to meet at least one of the following criteria to be retained: (*a*) must uniquely represent established components of well-being from previously published research; (*b*) must load highly on latent factors representing well-being elements; (*c*) must have strong relationships to health and functioning outcomes; and (*d*) as a final criterion, items used to drive individual intervention or action were included.

After reducing the items, a series of exploratory factor analyses (EFAs) were conducted on an 80% random selection of participants taken from Sample 1 to investigate the latent structure of the data and inform scoring. Exploratory analyses were conducted using principal component analysis with varimax rotation. The minimum average partial procedure (MAP)[46,47] and parallel analysis[48] were used to guide latent factor structure decisions based on a series of iterations on the measurement model. Item loadings, breadth of content, coefficient alphas, and maximizing retention of the well-being items were considered in determining the final number of latent factors and items to retain.

The last stage of analysis involved the creation of scoring for the evolved Well-Being 5 score and validating this score on the remaining 20% of Sample 1 as well as Samples 2 and 3. Drawing from the EFA results, theory, and prior research, items were assigned to measure one of the 5 latent factors of well-being and confirmatory factor analysis (CFA) was used to test the structural validity of this measurement model. The extent to which the model fit the data across samples was measured using a series of fit indices. For the goodness-of-fit index (GFI)[49] and the comparative fit index (CFI)[50] values of .80–.89 indicate adequate to marginal fit, while values of .90 and above indicate good to excellent fit.[41] For the root mean square error of approximation (RMSEA), less than .05, between .05 and .08, and between .08 and .10 indicate excellent, adequate, and mediocre fit, respectively.[51,52] The standardized root mean square residual (SRMR) with values below .05 indicate good fit while values below .10 are considered acceptable.[53]

Means, standard deviations, and Chronbach α were computed for the Well-Being 5 elements and overall score across all 3 samples. To establish further evidence of construct validity, the Well-Being 5 score was correlated to individual-level measures of the same construct, specifically the IWBS and WBF overall composite score. Very high correlations are evidence of convergent validity and indicate that a similar construct is being measured by all 3 of the

instruments. For evidence of criterion-related validity, the Well-Being 5 score was correlated to measures of job performance, absenteeism, and hospital admissions.

Results

Item reduction

The first step was to reduce the test pool item set down to the minimum items necessary to achieve the measurement goals depicted in Table 1. In some cases, multiple items were combined into a single indicator, such as height and weight being combined into a single body mass index indicator. Most indicators that were retained for the score served multiple goals, such as being simultaneously representative of an element, highly predictive of one or more outcomes, and informative for intervention and individual action. In sum, 38 well-being indicators remained that uniquely represent a known component of well-being, load highly on latent factors, had a strong relationship to outcomes, or had been used to drive individual intervention or action. Although not included in the Well-Being 5 score, some items that did not serve one of the purposes listed in Table 1 were included in the final Well-Being 5 survey instrument because they served other important utilities for managing population well-being, such as outcomes measurement and demographic information used in predictive modeling or intervention personalization.

Exploratory factor analysis

EFA was conducted using an 80% random selection of participants from Sample 1. The pool of 38 well-being indicators contained some well-accepted overall measures of well-being, such as life evaluation and daily affect.[3,54,55] These global constructs, represented by 3 indicators—current life evaluation, future life evaluation, and daily affect—were held out of the present EFA and retained for the total score in order to understand the structure of the element-specific variables. Initial MAP and parallel analysis estimates suggested a 5- to 8-factor solution. The 8- and 7-factor solutions accounted for 52.09% and 49.45% of the variance, respectively, and identified several low loading indicators, which were dropped from the model. The final iteration yielded a 7-factor model that captured 53.99% of the variance in item responses and was generally consistent with prior research and theory. The final factors represented content pertaining to sense of purpose in daily life, social interactions and support structures, financial situation and hardships, and the perceived quality and involvement in one's community, with 3 factors capturing aspects of physical well-being (health behaviors, health status, and substance use), all of which are consistent with theory and prior research. Previous measurement had labeled the work-related latent factor as "career" or "work environment," which is labeled here as "purpose" to account for the broad applicability of item content capturing liking what you do each day and sense of accomplishment in both working and nonworking populations.

Score validation

Based on these EFA results and psychosocial theory, epidemiologic and biomedical research, indicators were

assigned to measure one of the 5 elements of well-being: purpose, social, financial, physical, and community. These elements were modeled onto their respective factors using CFA to confirm the results of the EFA on the remaining 20% of participants from Sample 1, and participants from Sample 2 and Sample 3. First investigating each factor within this measurement model, 4 of the 5 latent factors exhibited excellent fit to the data (GFI: .97–.99; CFI: .97–.99; RMSEA: .03–.09; SRMR: .01–.04) with the latent factor for physical well-being being the only element that did not exhibit excellent fit (X^2 (90) = 1526.84; GFI = .86; CFI = .71; RMSEA = .10; SRMR = .08). Given the breadth of coverage and underlying multidimensionality of this element, the study team investigated a CFA model in which physical well-being was represented in 3 latent factors according to the EFA results. This model fit the data significantly better when compared to the nested single factor model (ΔX^2 (11) = 417.90; $P < .01$). Fit statistics of the full measurement model (7-factor model from the EFA already described) for each of the 3 hold-out samples are presented in Table 3. These indicated adequate/acceptable fit to the data across each of the samples.

From this measurement model, scores for elements and overall well-being were computed. Table 4 presents the means, standard deviations, and Chronbach α estimates for each of these measures across the 3 samples. The overall score, computed from indicators in each of the 5 elements, life evaluation, and daily affect, exhibited high reliability across each of the samples as did scores for the purpose and community elements. Reliability estimates for financial, physical, and social elements were lower but in an acceptable range considering the number of indicators and breadth of constructs covered within each of these scales.[29]

Table 5 presents the results of a correlational analysis between the Well-Being 5 score and prior measures of well-being and self-reported health and functioning outcomes across 3 samples. The total score exhibited very high correlations with prior measures of well-being—all above .80 indicating very high convergent validity between this and previous measures. Moreover, the total score was significantly correlated with measures of job performance, absence from

TABLE 3. RESULTS FROM CONFIRMATORY FACTOR ANALYSIS OF MEASUREMENT MODEL ACROSS THREE SAMPLES

	Sample			
Fit Indicator	1 (20% Hold Out Subsample)	2	3	Fit Criteria
N	1569	1572	986	
X^2	4284.50	4009.90	3571.98	
df	573	573	573	
GFI	.85	.86	.80	Adequate to marginal fit
CFI	.83	.82	.78	Adequate to marginal fit
RMSEA	.06	.06	.07	Adequate
SRMR	.08	.07	.08	Acceptable

GFI, goodness-of-fit index; CFI, comparative fit index; RMSEA, root mean square error of approximation; SRMR, standardized root mean square residual.

TABLE 4. DESCRIPTIVE STATISTICS AND RELIABILITY ESTIMATES FOR WELL-BEING ELEMENT
AND OVERALL SCORES ACROSS THREE SAMPLES

	Sample 1 N = 9745			Sample 2 N = 1879			Sample 3 N = 1024		
Well-being Score	Mean	SD	α	Mean	SD	α	Mean	SD	α
Overall	64.61	14.95	.90	70.38	13.35	.89	60.33	16.35	.91
Purpose	6.11	1.99	.81	6.56	1.83	.79	5.92	2.24	.81
Social	6.62	2.10	.76	7.23	1.90	.73	6.34	2.33	.76
Financial	6.44	2.52	.77	6.42	2.35	.71	5.03	2.70	.69
Physical	6.50	1.75	.75	7.31	1.60	.74	6.16	1.78	.74
Community	6.28	1.99	.83	6.78	1.83	.82	5.93	2.31	.84

SD, standard deviation.

work, and prior hospitalization, with effect sizes similar to those seen for prior measures of well-being. These measures are highly likely to exhibit similar effect sizes in relation to outcomes longitudinally.[6,8]

Discussion

Building on years of foundational well-being research and millions of survey responses gathered, this research presents the development and validation of an instrument that meets all of the requirements to accurately measure and successfully manage total population well-being. This psychometric tool was developed from the largest psychosocial and public health data set, comprised of more than 1.9 million individuals, now growing at a rate of 500 individually completed surveys per night. Further, this is the only tool that simultaneously and comprehensively measures constructs of well-being and is rooted in prior well-being measures that have been validated against objective outcomes provided by a third party in peer-reviewed research. Data analyzed from over 13,000 individuals across 3 independent samples supports that the evolved Well-Being 5 score achieves the measurement goals of comprehensiveness, valid and reliable psychometric measurement, significant relationships with outcomes, and diagnostic capability for intervention.

TABLE 5. CORRELATIONAL EVIDENCE OF CONVERGENT
AND CRITERION-RELATED VALIDITY OF OVERALL
WELL-BEING SCORE ACROSS THREE SAMPLES

	Overall Well-Being 5 Score Correlation Coefficients		
Covariates	Sample 1	Sample 2	Sample 3
Other Well-being Measures			
Legacy IWBS	.86**	.83**	.82**
Legacy WBF Score	.95**	.94**	.95**
Outcomes			
Job Performance	.36**	.37**	.41**
Count of Absences	−.17**	−.17**	−.17**
Any Absences	−.19**	−.20**	−.18**
Any Hospital Admissions	−.08**	−.13**	−.16**

*P < .05, **P < .01.
IWBS, Individual Well-being Score; WBF, Wellbeing Finder.

Improving total population "health" requires a holistic approach, as recommended by researchers and the World Health Organization.[2–4] Long ago, these researchers advocated the need to expand the definition and measurement of health beyond just physical components and absence of chronic disease. Changes in health care are bringing more attention to this broader, more holistic view. It is a perspective that resonates with the individual who wants to feel good, perform better, and spend less on health care, and is better aligned with stakeholders at financial risk for these outcomes, such as corporations and government. The focus is rapidly shifting to well-being and the ability to improve it to drive significant reductions in health care cost and drive improved productivity and business performance. This perspective is consistent with research indicating that a broad set of well-being constructs explains more of the differences observed in health and functioning outcomes than approaches that focus on only one or a few dimensions such as illness, health behaviors, or the workplace. The Well-Being 5 instrument captures the full range of known well-being content, drawing from prior research and established well-being instruments.

This evolved measure demonstrates validity and reliability as evidenced by psychometric tests of internal consistency and fit to a latent factor structure model. Such tests are especially challenging given the competing goal of comprehensiveness to ensure that all well-being constructs are captured; that is, as a more diverse set of content is captured by a given measure, the overlap between questions is reduced and the average relationship between questions becomes weaker. This has adverse effects on reliability estimates and confirmatory fit statistics.[29] The trade-off is a measure that is sensitive to a broader set of important life situations or group initiatives. The Well-Being 5 score accomplishes both of these goals, capturing all of the known content within well-being while maintaining acceptable psychometric properties. Significant relationships to other predictive measures of well-being and outcomes provide further evidence of the construct validity of the Well-Being 5 score and lend confidence that the measure captures what is intended.

As expected, the significant relationships between the Well-Being 5 score and outcomes in the present analysis confirms prior research from which this evolved instrument is based (ie, WBF score and IWBS). The evolved instrument

also is likely to be predictive of outcomes because the items contained in the instrument have proven to be predictive of outcomes in prior research. During the process of item reduction and score development, indicators used in previous measures to diagnose well-being-related issues were retained in the score. In sum, the content captured by the Well-Being 5 instrument successfully identifies high-risk individuals and also can be used to direct policy and drive intervention programs and content at the group and individual level. In addition to the core items used to calculate the Well-Being 5 score, a subset of more distally related items that likely interact with well-being (eg, demographics, environmental characteristics, items capturing health and productivity outcomes) were retained.

The Well-Being 5 instrument allows for comparisons within and between individuals and groups at all geographic levels as the random sampling methodology used to collect WBI data in the United States also applied to the collection of Well-Being 5 data. This will allow for nationally representative comparisons of overall well-being, elements, and components of well-being between US cities, states, and regions as well as the projection of future health and productivity outcomes within these communities. With all of these comparative data points available, the well-being of target populations can be tracked in the context of outside economic and environmental influences that also may be impacting well-being.

The present study was limited in some aspects. Although the latent factor measurement models for 4 of the 5 elements demonstrated exceptional fit to the data, the physical well-being element exhibited poorer fit, which was significantly improved when modeled in 3 factors capturing health behaviors, health status, and substance use. These 3 factors are consistent with subconstructs found within physical well-being and health behaviors in prior research. In this instance, a broad range of physical-related content is able to be captured within this element at a slight cost of measurement model fit. As an additional limitation, the current study design was cross-sectional and analyses were correlational. Thus, one cannot draw conclusions regarding causality between the variables investigated. Moreover, the outcome measures available for the present analysis were self-reported and may be subject to response and method bias. In future research, the newly evolved instrument is expected to be predictive of future outcomes and when considering other, more objective outcome measures, given the deliberate inclusion of content from the WBA and WBF that has been proven to be predictive in these ways. Nevertheless, future research should further confirm the precise relationship of the Well-Being 5 score and future objectively measured outcomes.

Conclusion

As organizations, communities, and individuals focus increasingly on improving health and optimizing performance, there is a requirement for a predictive benchmarked measurement tool that has a proven relationship to third party objective outcomes data. Without such a tool, it becomes impossible to measure true change, beyond what would be measurable by chance, improper measurement design, or bias. Requisite to managing and improving well-being is the ability to measure the entire concept of overall well-being in a single instrument (not just pieces), and validate that well-being measure against data sets based on objective measures, such as health care claims cost, manager performance ratings, unscheduled paid time off, and turnover intent.[6–8] Based on this necessity, the Well-Being 5 survey was created based on the previously validated WBA and WBF instruments. A robust benchmark data set of more than 1.9 million individuals, a prior set of reliable psychometric constructs, and linkage to third-party provided outcomes lend further robustness to the capability of this powerful tool.

This research shows that the Well-Being 5 measure comprehensively captures the known constructs within well-being, is reliable and valid, significantly relates to health and performance outcomes, can be diagnostic and informative for intervention, and can be used to track and compare well-being over time and across groups. Using the Well-Being 5 instrument, well-being issues within a population can be effectively identified, prioritized, and addressed, yielding substantial improvements to the health status, performance, functioning, and quality of life for individuals. As well-being improvement is increasingly adopted as a strategy to reduce health care costs and improve workforce performance, it is important to have an accurate, reliable, validated measure to quantify changes and their practical meaning in relation to interventions. The Well-Being 5 instrument is the only known validated tool that has been deployed at such a broad scale for this purpose.

Author Disclosure Statement

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