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Relational Well-being: An Indigenous Perspective and Measure

Extant measures of well-being, guided by western European values and beliefs, reveal a scientific commitment to develop and test indices to monitor the social, psychological, familial, and economic status of populations. The limitations of these measures to ethnic populations are addressed in this study. Relational Well-being (RWB II), an indigenous, culture-based 14-item measure rooted in beliefs and values emphasizing family, ancestors, culture, and harmony with nature, was developed and tested with a sample (N = 810) of indigenous Hawaiians in Hawaii. Exploratory factor analysis (n = 408), confirmatory factor

analysis (n = 402), test of invariance, and tests of reliability and validity confirmed the psychometric quality of RWB II. The applicability of the composite index of Relational Well-being II as well as its six underlying factors (Resilience, Community Involvement, Financial Stability, Cultural Practice, Family Commitment, and Health Care) to family theory of resilience, research, and education are discussed.

Extant measures of well-being, guided by western European values and beliefs, reveal a scientific commitment to develop and test indices to monitor the social, psychological, familial, and economic status of populations. Traditionally, well-being is operationalized by and associated with economic indices (e.g., Gross Domestic Product and poverty rates; Bell & Olson, 1969), with a discernible shift in emphasis to well-being as a reflection of “internal responses to stimuli—feelings, thoughts and behaviours” (Larson, 1993, p. 186). Subjective well-being, however, has emerged as a key facet of the overall domain of health-focused investigations (Keyes & Shapiro, 2004). Subjective well-being is a central component of the McArthur Foundation-funded longitudinal study on well-being at midlife (Brim, Ryff, & Kessler, 2004). Predictably, the theory base,

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operationalization, and psychometric validation of extant measures of subjective well-being have been challenged as to their applicability to the study of well-being with ethnic populations in general and particularly with immigrants and indigenous populations (Horton & Shweder, 2004). This study addresses this challenge while also affirming the advancement of research on subjective well-being as an index of health (World Health Organization, 1948).

Perspectives of Well-being

Christopher (1999) grouped well-being theories and related measures into several discernible clusters, each based on different assumptions and offering unique worldviews. In general, *well-being* has been defined as an individual's focused appraisal of multifaceted dimensions of their lives and how they are impacted upon by life experience (see Diener, Suh, Smith, & Shao, 1995; Yang, 2008). Well-being and its dimensions are more than the mere qualitative global assessment of being satisfied, happy, or joyful about life. The commonly referred to perspective of well-being is that of an expression of individuals; assessment of the degree to which they fulfill their expectations with Western values inclusive of high income, rewarding employment, advanced education, quality marriage, healthy and developmentally appropriate and occupationally successful children, good health, close friends, and social status in the community, to name a few.

Subjective "happiness" (Bok, 2010), the closest global manifestation of this "common" usage of well-being, is the first of Christopher's (1999) grouping. *Well-being* is defined as the extent to which the level of positive affect outweighs the level of negative affect in an individual's life (Andrews & Withey, 1976; Campbell, Converse, & Rodgers, 1976; Diener, 1984). This body of work emerged within the context of an individualistic culture (Ellis, 1962), which underscores the freeing of the individual from social norms and expectations. This worldview emphasizes self-affirmation, aggressiveness, and achievement as markers of satisfaction and thus well-being. In this regard, life satisfaction is normative and presupposes individualism and the adoption of such values, which are central to Western culture.

Drawing from the research and writings of personality theorists, Ryff (1989) framed

psychological well-being as scoring high on six key dimensions: autonomy, environmental mastery, positive relations with others, purpose in life, personal growth, and self-acceptance. Well-being is achieved as one finds meaning and satisfaction in each domain. Her concepts included the underlying dimensions of independence, internal locus of control and self-determination, and the individual's ability to choose or create environments compatible with his or her aspirations and worldview as well as engaging in warm and trusting interpersonal relationships and having a sense of directedness and intentionality. It is assumed that there is meaning accompanied by goals in life and a commitment to continual development of one's potential. These aspirations are also enhanced by a sense of responsibility to hold positive attitudes toward one's self.

Well-being is also viewed from a "collectivist" perspective. This perspective is grounded in a self-effacing and self-negating worldview (Bond, 1986; H. Hu, 1944; Keyes, 1998; Markus & Kitayama, 1991) and is advanced as a meaningful alternative to Ryff's (1989) psychological perspective. This collectivist view is commonly associated with individuals socialized in or who adopt the values and beliefs of Eastern cultures. In this context, responsibility for the fulfillment of social expectations of the community or society, rather than the individual, is the priority. Personal achievement and attainment of goals also are valued in this collective context but with a decreased emphasis on self and a heightened emphasis upon the achievement and fulfillment of ancestral or family values and beliefs. The community or group both receives the recognition for the achievements of its members and credits itself for its nurturance and support and its beliefs and aspirations of the individual who fulfills community expectations.

This investigation adopts an alternative conceptualization of well-being. Cross (1998) and L. McCubbin (2006) define *well-being* as a relational construct. McGregor, Morelli, Matsuoka, and Minerbi's (2003) investigation of rural indigenous communities in Hawaii clarified the construct of relational well-being as encompassing all dimensions of the human ecology (Bronfenbrenner & Ceci, 1994), inclusive of the family unit, ancestors, the physical and the natural environment, extended family, adopted family, community, society, culture, and the world. The indigenous worldview treats

the individual, the family system, neighborhood, community, society, and the world as interdependent and relational.

The community is a key element of relational well-being and is viewed as part and parcel of having and cultivating a sense of place. From this perspective, connection with a sense of place ensures continuity and the sharing of beliefs and values across generations. It is in this context in which community leadership is cultivated, economic development is nurtured, and cultural and spiritual practices nurture a sense of security, predictability, and meaning in life. The community cultivates spiritual energy and creates an environment for learning and practicing values and beliefs and the transmission of knowledge. Of importance, the community is defined by a system of rules, expectations, and norms related to roles, responsibilities, and behaviors.

Ancestors, ancestral history, and their roots in culture are fundamental elements of an indigenous and relational worldview. Multigenerational relationships are integral to indigenous theory. McGregor et al. (2003) stated, "The deep sense of relatedness is at the core of indigenous values, beliefs, interactions, processes and traditions that form the foundation of harmonious family life" (p. 21). In this framework, the individual and family are connected to the past, present, and future. The individual's and family's identity or schema (L. McCubbin & McCubbin, 2005) are defined by their ethnic origins, values, beliefs, expectations, and traditions. The focus of this investigation is the application of indigenous knowledge as a prudent strategy to guide scientific inquiry (Denzin, Lincoln, & Smith, 2010) and particularly the assessment and monitoring of the well-being of these populations (L. McCubbin, & McCubbin, 2012; Stephens, Nettleton, Porter, Willis, & Clark, 2005).

Indigenous People and Subjective Well-being

In developing, testing, and applying a measure of relational well-being, this investigation is also intended to address the well-being of indigenous people (L. Smith, 2012). The 2010 U.S. Census data on indigenous people in the United States revealed significant changes in the last decade. The number of Americans identifying themselves as Native American or Alaska Native increased by 18.4% and represent 0.9%, or roughly 2.78 million

people of the total population of the United States. Native Hawaiian or "other" Pacific Islanders (e.g., Samoans, Tongans) increased by 35.4% and represent 0.2% of the total U.S. population, or roughly 618,000 people. These U.S.-based indigenous populations have endured colonization, genocide, discrimination, and marginalization. The adverse impact of these traumatic life events is clearly in evidence in the health statistics revealing their vulnerability. Rates of mortality, cancer, respiratory disease, stroke, diabetes, obesity, hypertension, infant mortality, and heart disease are higher in indigenous populations than non-indigenous groups (U.S. Census Bureau, 2000; Marsella, Oliveira, Plummer, & Crabbe, 1998). Poverty accompanied by limited access to quality health and human services, political marginalization, reduced autonomy, environmental degradation, and discrimination undermine the protective and recovery factors of cultural and linguistic preservation, land rights, ownership, and protection of natural resources (Horton, 2006; Kim & Berry, 1993; Kim, Yang, & Hwang, 2006).

The national and world public policy agenda is to improve the well-being and health of indigenous people and families (Andrews & Withey, 1976). C. Smith (2000) made the cogent argument that improving resilience of indigenous people must involve understanding of and incorporating their worldviews and knowledge in research and design of intervention programs aimed at improving their well-being through primary, secondary, and tertiary prevention programs.

METHOD

Sample

A total of 810 indigenous Hawaiians were interviewed as part of the state-wide survey. Overall, there were more women (54.9%) than men (45.1%). Over a third of the respondents were between the ages of 18 and 34 (36.7%), with almost the same percentages being between the ages of 34 and 55 (36.6%) years of age. The remainder (26.7%) were over the age of 55. Slightly over half (52.4%) were married or cohabiting, one third (33.7%) never married, were widowed (4.3%), or were divorced or separated (9.5%). Over a third (39.3%) of the respondents had household incomes of \$75,000 or more, with nearly a fourth (23.2%) earning an

income of \$35,000 or less. The remainder earned \$36,000 to \$54,999 (19.3%) or \$55,000 to \$74,999 (18.2%). A relatively small percentage (3.2%) reported their highest level of education to be less than high school. Nearly half (45.9%) indicated they had a high school diploma, whereas almost a third (31.7%) had some college, and the remainder (19.1%) had college degrees. The design for this investigation involved (a) the development of a relational well-being measure; (b) the selection of the data set of indigenous Native Hawaiians identified and interviewed as part of the statewide survey of the health status of the entire population of the state of Hawaii involving all of the islands in the Hawaiian chain with the exception of those persons in institutions and military units and those living on the island of Ni'ihau, which is privately owned; and (c) utilizing the independent sample to conduct a systematic examination of psychometric properties of the relational well-being measure.

The data were collected as part of the Hawaii Health Survey (HHS; SMS Hawaii, 2008). The HHS is a statewide household survey involving the use of random digit dialing of land lines conducted annually by the Hawaii Department of Health and Office of Health Status Monitoring. The HHS records demographic characteristics and the health status of Hawaii's residents to provide data for monitoring health status in Hawaii, to plan for the availability of health services in the state, and to evaluate health programs. Modeled after the National Health Information Survey, the HHS is one of the most important data sources collected by the government in Hawaii. Persons residing in group quarters, those residing in households without landline telephones, persons residing on the island of Ni'ihau, and homeless persons are not represented. The sample design is disproportionate by geography (to be representative of different islands), and survey data were statistically adjusted to match the geographic location and number of telephone lines, size of households, and the age and gender of all household members. Data collection and analyses were preceded by the Institutional Review Board approval of the protocol for the protection of human subjects.

Measures

Relational well-being (RWB). The investigators, in consultation with indigenous Hawaiians,

indigenous Okinawan Japanese (living in Okinawa), indigenous Maoris (in New Zealand), and the authors (McGregor et al., 2003) of the original indigenous-systems conceptual framework, generated a pool of 30 items/statements (a limit of 30 was established by the state of Hawaii research team to manage respondent burden). These items were selected to represent the breadth of respondents' experiences with several domains of relational well-being.

From the outset the research team conceptualized Relational Well-Being (RWB I; developed in 2007 by H. McCubbin, Kehl, & McCubbin, and first reported and published in 2010; see H. McCubbin, Kehl, Strom, & McCubbin, 2010) as encompassing 10 domains of well-being: (a) financial stability, (b) trust and predictability, (c) active and meaningful participation in and contribution to the community, (d) active learning, (e) confidence to face and overcome adversities, (f) caring for others, (g) health promoting practices, (h) appreciation and practice of culture, (i) respect of elders, and (j) valuing ancestral language. Examples of the items selected for the RWB measure were "Practiced the tradition(s) of my ancestor(s)," "Used the language(s) of my ancestors," "Spent quality time with family/children," and "Placed family needs above personal needs." Respondents were asked to indicate the degree to which they engaged in each of the 30 well-being items during the past 12 months: *None of the time*, *Some of the time*, *Most of the time*, and *All of the time*. The developers of RWB I (H. McCubbin et al., 2007) made a concerted effort to minimize essentialism (i.e., characteristics or properties that an individual of that kind must possess; Kincheloe & Steinberg, 2010) and a romanticized notion of indigenous culture (e.g., behavioral aspects found solely in one ethnic group or culture such as hula or chanting). The authors believed that such an emphasis within a measure of RWB presented a bias to those with cultural resources and privileges that are not applicable to all of the same indigenous ancestry.

Physical and mental health. The SF-12 is a 12-item short form developed from the original Short Form-36 Health Survey (SF-36), one of the most widely used health surveys. It is considered brief, comprehensive, readily available, and psychometrically sound (Ware, Kosinski, & Keller, 1996). The SF-12 assesses eight domains of subjective appraisal of health: Role Physical,

Bodily Pain, General Health, Vitality, Social Functioning, Role Emotional, Mental Health, and Physical Functioning (Ware, Kosinski, Turner-Bowker, & Gandek, 2002). Items refer to perceptions and experiences within the past 4 weeks. Respondents use a 5-point Likert scale ranging from *all of the time* to *none of the time* (Ware et al., 2002). From the eight domains, a physical and mental health summary score can be derived using an algorithm determined by Quality Metric based on norming data collected in 1998 (Ware et al., 2002). Higher scores indicate higher reported physical or mental health functioning or both ($M = 50$, $SD = 10$). To create extreme groups needed to examine the discriminatory power of the measure of relational well-being, each of these criterion indices were separated into three levels based upon a normal distribution, with the extremes groups (high and low) determined by scores being one or more standard deviations (+ or -) distant from the means.

Analyses

The participants of the sample of indigenous Hawaiians were randomly assigned to two groups. The first Hawaiian subsample (group) was utilized to conduct an exploratory factor analysis (EFA; SPSS 20, IBM, Armonk, IL) to identify the underlying patterns and structure of the relational well-being measure. The analysis included the Kaiser-Meyer-Olkin (KMO) test of sampling adequacy and the EFA using principal axis factoring for factor extraction, an oblique (Promax) rotation as well as Kaiser criterion (Eigen values > 1), scree plot, factor loadings, and variance explained to determine the parsimonious set of underlying factors.

The second subsample was used to conduct a confirmatory factor analysis (CFA; AMOS 19, IBM, Armonk, IL) to determine the fit of the factor model identified in the EFA to the data. This analysis focused on the fit between the estimated model (EFA) and the observed model. The degree of model fit is determined by considering a range of FIT indices that have evolved and been tested across time. Indices of model (hypothesized or estimated) fit to be discussed in detail in the context of the findings have been organized into four clusters: (a) absolute fit indices that do not use an alternative model as a base for comparison and are simply derived from the fit of the obtained and implies

covariance matrices and the ML minimization function; (b) relative fit indices that compare a chi-square for the model tested to one from a null, baseline, or independence model; (c) parsimonious fit indices, which are relative fit indices that are adjusted to penalize models that are less parsimonious so that simpler theoretical processes are favored; and (d) noncentrality-based indices that use a chi-square equal to the degrees of freedom for a model having a perfect fit (as opposed to chi-square equal to 0). L.-T. Hu and Bentler (1999) reviewed various cutoffs for many of the extant indices. They suggest that to minimize Type I and Type II errors, the researcher should give weight to using a combination of a relative fit index and a non-centrality index.

Additionally, the CFA also was applied to determine specific psychometric properties of relational well-being. These analyses included (a) convergence and divergent validity, (b) model invariance to determine the validity of the model across male and female respondents, and (c) the discriminatory validity when applied to the study of criterion outcomes of extreme groups along the dimensions of mental health and physical health.

RESULTS

Exploratory Factor Analysis: Underlying Dimensions of RWB II

An EFA of the relational well-being data (30 items) was conducted on the first subsample ($n = 408$) of indigenous Hawaiians (from the original pool of 854, with 44 respondents removed because of missing data). The result of the KMO analysis was .725, and the Bartlett Test of Sphericity was $\chi^2 = 1197.756$ ($p < .001$) indicating that the variables relate to one another at a level to legitimate a meaningful EFA.

The original (30-item) RWB I (H. McCubbin et al., 2007) was reduced to a final set of 14 items (16 items removed because of low factor loadings) and 6 intercorrelated and interpretable factors with loadings (threshold of .30 as determined by sample size). The 6-factor and 14-item index of relational well-being was named Relational Well-Being II (L. McCubbin, McCubbin, Kehl, Strom, & Zhang, 2012). The six dimensions of RWB II were identified (Eigen values of 1.00 or greater), with 71.79% of the variance explained and extracted sums of squared loading of 52.18%. These six factors

are defined here along with factor loadings and alpha coefficients of reliability:

- Factor I: Resilience—the confidence (.618), faith (.626), and ability (.858) to rebound from adversity (Cronbach's $\alpha = .76$)
- Factor II: Community Involvement—the level of competence to engage in church (.806) and with community activities and organizations (.675; Cronbach's $\alpha = .72$)
- Factor III: Financial Stability—the competence to manage finances to pay bills (.811), save (.669), and live within a budget (.535; Cronbach's $\alpha = .71$)
- Factor IV: Cultural Practice—the level of confidence and commitment to practice traditions (.740) and language (.645) of one's cultural ancestry (Cronbach's $\alpha = .65$)
- Factor V: Family Commitment—the level of competency in maintaining family priority (.516) and nurturing a commitment to family (.764; Cronbach's $\alpha = .62$)
- Factor VI: Health Care—the level of confidence in having access to quality medical (.662) and dental (.846) care (Cronbach's $\alpha = .71$).

The six factors were intercorrelated. The intercorrelations were low to moderate (with the highest between resilience and health care [+ .343] and lowest between health care and cultural practice [+ .112]).

Total Relational Well-being (sum of all six factors) is a composite index of relational well-being across six dimensions of resilience, community involvement, financial stability, cultural practice, family commitment, and health care (Cronbach's $\alpha = .72$). When combined, these six factors were summed into a composite score to represent relational well-being (RWB II).

Confirmatory Factor Analysis and Model Fit

Using the second subsample ($n = 402$), AMOS 19.0 was used to execute a CFA on the 14-item six-factor model (RWB II). The six factors were specified, with each Relational Well-Being item specified to one and only one factor. As indicated in the analysis plan, several indices of fit were generated and used to evaluate the fit of the hypothesized model to the data.

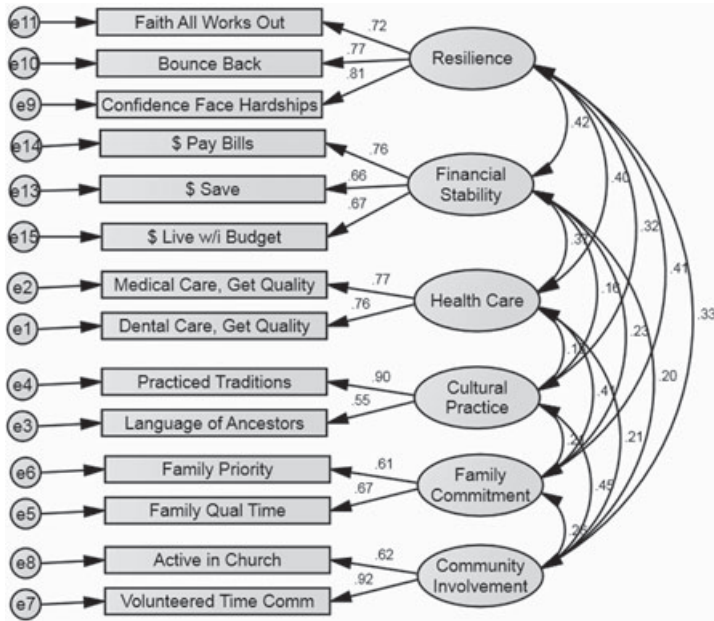
The analysis of the six indices of model fit (see Figure 1) validated the six-factor model as a good model fit to the data (Hoelter, 1983). The

indices were (a) the CMIN = 83.635 ($p = .056$), which exceeded the criterion of $p > .05$; (b) the CMIN/DF, the likelihood ratio index statistic ($\chi^2 = 1.301$, indicating an excellent fit between the hypothesized model and perfect fit (Bollen, 1989); (c) the goodness of fit index was .972 (meeting the criterion of being close to a maximum of 1.0); this index is indicative of the relative amount of variance and covariance fit based on a comparison between the hypothesized model and no model at all; (d) the comparative fit index was .985 (exceeding the standard of .95 set by L.-T. Hu and Bentler, 1999), also indicating good model fit of the hypothesized model with the independence (or null); (e) the root mean square error of approximation (RMSEA) was .027 with $p < .08$ (Steiger & Lind, 1980) and fell within the 90% confidence interval of .000 to .043; (f) the incremental fit index (IFI) was .985 which met both criteria of $> .90$ and $> .95$ (Bollen, 1989). The RMSEA is an index of how well the hypothesized model fits the observed data. The IFI in combination with the RMSEA (noncentrality-based index) is considered the strongest index of model fit because of their sensitivity to model misspecification (L.-T. Hu & Bentler, 1998). We also examined patterns and structure coefficients, the standardized residual covariance matrix, the squared multiple correlations, and, particularly, the modification indices to determine if there was evidence of model misspecification. None of the indicators suggested the need for additional modifications.

Invariance Test of Model Fit for Men and Women

An important supplemental test for the six-factor structure (RWB II) is a test for invariance. This additional analysis was to determine if the six-factor model is the same for men and women on RWB II. The test for invariance was executed with AMOS 19.0 for configural invariance. By considering gender (groups) in the CFA analysis (estimated freely), we examined if the CFA model fits for both men and women. An examination of the model fit indices derived (AMOS 19) from the invariance CFA test revealed good model fit for both men and women. The CFA results for the invariance test are presented in Table 1. By using L.-T. Hu and Bentler's (1998) benchmarks, the relative fit index (.90), and noncentrality-based index of RMSEA (.024) with a confidence interval of

FIGURE 1. HYPOTHEZED MODEL FOR RELATIONAL WELL-BEING II-F SUBJECTED TO CONFIRMATORY FACTOR ANALYSIS.



.010 to .024, the model fit was confirmed. These outcomes met all of the standards set for each measure and together indicate good model fit and confirmation of invariance for men and women.

Divergent and Convergent Validity for Relational Well-being

Convergent and divergent validity were also examined to determine if the six dimensions of RWB II were divergent (relatively independent of each other) and if the items for each of the subscales were convergent on the single dimension defined as separate factors. By utilizing AMOS 19, the ratio between the 14-item intercorrelations and the standardized regression weights for the 14 indices were used for this analysis. Divergent validity for the six factors was confirmed with low intercorrelations among the factors (range of a low of .137 and a high of .442 and squared multiple correlations across the diagonals with a range of a low of .637 and a high of .779). Convergent validity was confirmed ($>.500$) for four (Resilience, Cultural Practice, Community Involvement, and Health Care) of the six factors. Two factors of RWB II, Family Commitment (.406) and Financial Stability (.466) fell short of

achieving the benchmark of .500 for convergent validity.

Discriminatory Validity for RWB II

The composite RWB II and its six factors were validated against the extreme group criterion indices of physical and mental health. This analysis involved the identification of extreme groups—high and low based on a normal distribution of each measure (physical and mental health) and the use of cutoff scores for those respondents with scores one or more standard deviations from the mean. A means comparison for independent samples (t test) of RWB II and each of its six factors and the composite score RWB was conducted with the intent to determine if the six indices including the composite RWB would discriminate ($p < .05$) between the extremes groups on physical and mental health.

Mental health and RWB II. Z scores for the Total RWB were used to determine whether the differences between respondents classified as high ($n = 80$) and respondents classified as low ($n = 80$) on the mental health index (Ware et al., 2002) were statistically significant. The hypothesis of higher standardized mean scores on Total

Table 1. *Model Fit Indices to Confirmatory Factor Analyses for Relational Well-being (RWB) II-F, Benchmarks, and Model Fit for Invariance Test for Gender*

Indices of Model Fit	Benchmark	Confirmatory Factor Analysis for Model Fit ($N = 402$)	Model Fit (CFA) Test for I Invariance for Gender ($N = 402$)
CMIN χ^2	> .05	$\chi^2 = 80.635, p = .056$	$\chi^2 = 208.64, p = .021$
CMIN/DF χ^2	> .05	$\chi^2 = 1.301$	$\chi^2 = 1.234$
GFI	Close to 1.0	.972 ^a	.925 ^a
AGFI	Close to 1.0	.953 ^a	.907 ^a
IFI	Close to 1.0	.985 ^a	.910 ^a
TLI	Close to 1.0	.978 ^a	.900 ^a
CFI	> .90, > .95	.985 ^a	.908 ^a
RMSEA	< .08 good fit (confidence interval)	.027 ^a (CI = .000 – .043) ^a	.024 ^a (CI = .010 – .034) ^a
PNFI	> .50 – 1.0	.640 ^a	.611 ^a
PCFI	> .50 – 1.0	.671 ^a	.843 ^a

^aIndices that met benchmark standards for model fit.

Absolute fit indices (χ^2 GFI, AGFI) compare the hypothesized model with no model at all (L.-T. Hu & Bentler, 1995).

•CMIN χ^2 CMIN/DF: sensitive to large samples and not considered realistic (Joreskog & Sorbom, 1996)

•GFI (goodness of fit): a measure of the relative amount of variance and covariance in S (specified model) that is jointly explained by Σ

•AGFI: goodness of fit that adjusts for the number of degrees of freedom in the specified model. Simple variation of χ^2 .

Relative fit indices (IFI, TLI) are an adjusted comparison of hypothesized model to a null or baseline model shown to be unaffected by sample size (Anderson & Gerbing, 1984; L.-T. Hu & Bentler, 1995).

•IFI: incremental fit index (Bollen, 1989)

•TLI: Tucker-Lewis index (Tucker & Lewis, 1973).

Noncentrality-based indices (RMSEA, CFI) use a chi-square equal to the df as having a perfect fit, as opposed to chi-square equal to 0.

•CFI: comparative fit index is an index of the comparison of the hypothesized model with the independent (null) model

•RMSEA: root mean square error of approximation is sensitive to model misspecification (L.-T. Hu & Bentler, 1998), yields appropriate conclusions regarding model quality and has confidence intervals around the RMSEA values (Macallum & Austin, 2000).

•Parsimonious fit indices give weight to parsimonious models.

•PNFI: Adjustment to relative fit indices (GFI), parsimonious fit

•PCFI: Adjustment to relative fit index (CFI), parsimonious fit.

RWB for those classified as high on the mental health index was supported, $t(158) = -6.407, p = .0001$). An examination of the RWB II analysis of the six subscales revealed the high mental health group with significantly higher standardized mean scores for the dimensions of Resilience, $t(158) = -4.520, p = .0001$, Financial Stability, $t(158) = -6.958, p = .0001$, Family Commitment, $t(158) = -0.2539, p = .012$, Community Involvement, $t(158) = -2.428, p = .016$, and Health Care, $t(158) = -3.502, p = .001$. For the subscale Cultural Practices, $t(158) = -.758, p = .450$, the standardized mean for the high mental health group was (+.0796) above the standardized mean of 0 whereas the standardized mean for low mental health group was below 0 (-0.0418). This difference, however, was not statistically significant.

Physical health and RWB II. Using Z scores of the Total RWB Index (RWB II), the hypothesis of differences (higher mean scores on RWB II for those high on the index of physical health) between respondents who were classified as high ($n = 71$) and those who were classified as low ($n = 67$) on the physical health index (Ware et al., 2002) was confirmed. The high physical health group with significantly higher standardized mean scores for Total Relational Well-Being (RWB II) was confirmed, $t(136) = -4.33, p < .0001$. The high physical health group also had significantly higher standardized means scores for the dimensions of Resilience, $t(136) = -3.906, p = .0001$, Financial Stability, $t(136) = -2.281, p = .024$, Family Commitment, $t(136) = -2.05, p = .010$, and Cultural Practices, $t(136) = -3.448, p = .001$. For the

subscale Health Care, the standardized mean for the high physical health group was (-0.0387) below the standardized mean of 0 whereas the standardized mean for low mental health group was even lower than 0 (-0.3775). This difference, however, was not statistically significant, $t(158) = -1.754$, $p = .082$. For the subscale Community Involvement, the standardized mean for the high physical health group was ($+0.0594$) slightly above the standardized mean of 0 whereas the standardized mean for low physical health group (-0.1461) was lower than 0. This difference, however, was not statistically significant, $t(136) = -1.230$, $p = .221$.

DISCUSSION

In contrast to the benchmark measure of psychological well-being (Ryff, 1989) and its emphasis inclusive of individualism, achievement, and environmental control, the conceptual framework for relational well-being and its measure (RWB II) are introduced along with positive psychometric properties demonstrating their potential value in future research and practice. Indigenous RWB is characterized as the sense of satisfaction and happiness (well-being) derived from confidence and perceived competence to overcome adversity, respect, and be in harmony with nature and ancestors through cultural practices, the management of financial resources, family commitment, access to quality health care, and involvement in and contributing to one's community. This investigation suggests that the traditional focus on a Western-European paradigm of well-being may not be sufficient to determine the well-being of individuals and families with roots in indigenous cultures that value ancestors, cultural traditions, spirits, harmony with nature, managing what resources one has, cultural preservation, language preservation, and collectivism.

Relational Well-being and Theory Development

The theories of resilience at the individual and family system levels have origins under the umbrella of psychological theories and methods (see, e.g., the classic works of Garmezy, 1991; Luthar, Cicchetti, & Becker, 2000; Masten, 1989; Rutter, 1989; Werner, 2010; Werner & Smith, 1998). Sociological studies added to the study of resilience by attempting to explain why some families adjusted and adapted when

confronted by traumatic life events whereas others faltered in the face of adversity (see, e.g., Angell, 1936; Hill, 1949; H. McCubbin & Patterson, 1983; Patterson, 2002). In both bodies of work, ethnicity and culture were given only marginal consideration. At one end of the spectrum of the study of ethnic groups scientists depended upon stereotypes to give meaning to the design, development, and selection of measurement and interpretation of findings. At the other extreme was a dependence on Western and White middle-class theories and measures and the questionable assumption of their direct application to research and practice with ethnic and indigenous populations. This study lends support for Dubos's (1974) thesis that adjustment and adaptation involve both the retention of one's primary ancestral roots as having an independent and lasting impact on one's functioning and the integration of values, beliefs, and practices of the dominant culture.

Although it is beyond the scope of this study to present a relational theory of resilience, it is prudent to highlight the role of well-being in the extant theories of resilience in ethnic families (see L. McCubbin & McCubbin, 2012). Adjustment processes involve application of protective factors (e.g., cohesion, coherence, flexibility, and hardiness) to minimize changes in patterns of functioning as well as maintaining or improving upon family well-being. In the adjustment process, relational well-being is a critical element, a barometer if you will, of the degree to which adjustment processes are effective or ineffective. In the situation of ineffective adjustment accompanied by a decline in relational well-being a crisis may emerge. In this situation, adaptational processes are activated. Adaptation involves new or modified patterns of functioning introduced to restore or improve upon the family's relational well-being (resilience, financial stability, family commitment, community involvement, cultural practice, and health care). In both processes, relational well-being serves as an index of individual or family system resilience (see also H. McCubbin & Patterson, 1983; L. McCubbin & McCubbin, 2005; Patterson, 2002).

Summary and Conclusion

A relational perspective of well-being presents an alternative framework and lenses through which to view both individual and family

systems functioning and thus strategies for intervention. Relational well-being underscores competences in and across the functional domains of resilience, community involvement, financial stability, cultural practices, family commitment, and health care. Promoting relational well-being is about cultivating a sense of mastery and competencies in managing and finding meaning and value in six core areas. The relational perspective is based on the premise that well-being is a process of selecting, prioritizing, addressing, and balancing complex and competing relational dimensions of well-being. A relational perspective assumes that the individual, family, community, and society are interconnected and inseparable.

Native Hawaiians, Native American Indians, and Alaskan Natives continue to have priority in both the federal and state budgets (of those states with indigenous populations) for treatment and intervention practices that are effective in promoting the well-being within these populations. In this era of tight budgets and priority setting in the use of scarce resources, funding agencies have demanded greater accountability and the demonstration of improved well-being of these at-risk populations. Although far from being complete or definitive, this investigation addresses this challenge by fostering the introduction and validation of a culturally appropriate measure of well-being to be applied in the assessment of current and future interventions.

Given the embryonic nature of this investigation in the total matrix of well-being research with other populations, the study limitations are noteworthy. First is a cautionary note on the generalizability of findings, the research design, and methodology. This investigation focused on Native Hawaiians living in the state of Hawaii. The sample used in this study may be viewed as unique, and our findings are not generalizable to the total population of Hawaiians. Nearly half of the Hawaiian population lives on the U.S. continent. Second, we need to keep in mind the methodology of landline random digit dialing. The sample did not include those who had already adopted cell phones as their primary communication system and those whose personal circumstances did not allow them to acquire a landline. This limitation was also noted for a national sample used in the Midlife investigations (Brim et al., 2004).

The application of an indigenous worldview that encompasses ethnic and cultural

considerations generates a fundamental question as to the utility of RWB II to populations (ethnic and nonethnic) other than that upon which the measure was originally developed and tested. Common practice would be to ignore cultural and ethnic factors and values unique to these populations and provide cursory evidence of the measure's reliability and face validity. This investigation offers evidence of the potential of variability in constructs and the psychometrics of well-being indices when viewed through a perspective aligned with the context and culture of the population being studied. This point was clearly demonstrated in the Midlife study by Horton and Schweder (2004) in revealing the incongruence and nonreplication of factor structure of Psychological Well-being (Ryff, 1989) when applied to a non-White population.

This investigation underscores the importance of demonstrating respect for the people and their respective cultures, values, and beliefs as a basis for developing and applying measures to assess relational well-being. The conceptualization and measure of relational well-being (RWB II) are grounded in the commitment to identify contributing factors as well as outcomes aimed at promoting physical, psychological, and interpersonal health.

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REFERENCES

- Anderson, J., & Gerbing, D. (1984). The effect of sampling error on convergence, improper solutions, and goodness-of-fit indices for maximum likelihood confirmatory factor analysis. *Psychometrika*, 49, 155–173.
- Andrews, F. M., & Withey, S. B. (1976). *Social indicators of well-being: Americans' perceptions of life quality*. New York: Plenum Press.
- Angell, R. (1936). *The family encounters the depression*. New York: Scribner.
- Bell, D., & Olson, M. (1969). Toward a social report, I. The idea of a social report, II. The purpose and plan of a social report. *Public Interest*, 15, 72–97.
- Bok, D. (2010). *The politics of happiness: What government can learn from the new research on well-being*. Princeton, NJ: Princeton University Press.

- Bollen, K. A. (1989). *Structural equations with latent variables*. New York: Wiley.
- Bond, M. (Ed.). (1986). *The psychology of the Chinese people*. New York, NY: Oxford University Press.
- Brim, O., Ryff, C., & Kessler, R. (Eds.). (2004). *How healthy are we: A national study of well-being at midlife* (pp. 350 – 372). Chicago: University of Chicago Press.
- Bronfenbrenner, U., & Ceci, S. (1994) Nature-nurture reconceptualized in developmental perspective: A biological model. *Psychological Review*, 101, 568 – 586.
- Campbell, A., Converse, P., & Rodgers, W. (1976). *The quality of American life*. New York, NY: Russell Sage Foundation.
- Christopher, J. (1999). Situating psychological well-being: Exploring the cultural roots of its theory and research. *Journal of Counseling & Development*, 77, 141 – 152.
- Cross, T. (1998). Understanding family resilience from a relational world view. In H. I. McCubbin, E. A. Thompson, A. I. Thompson, & J. E. Fromer (Eds.), *Resiliency in ethnic minority families: Native and immigrant American minority families* (Vol. 1, pp. 143 – 157). Thousand Oaks, CA: Sage.
- Denzin, N., Lincoln, Y., & Smith, L. (Eds.). (2010). *Handbook of indigenous methodologies* (pp. 135 – 156). Thousand Oaks, CA: Sage.
- Diener, E. (1984). Subjective well-being. *Psychological Bulletin*, 95, 542 – 575.
- Diener, E., Suh, E. M., Smith, H., & Shao, L. (1995). National and cultural differences in reported subjective well-being: Why do they occur? *Social Indicators Research*, 34, 7 – 32.
- Dubos, R. (1974). *Of human diversity*. New York, NY: Clark University Press.
- Ellis, A. (1962). *Reason and emotion in psychotherapy*. Secaucus, NJ: Citadel Press.
- Garnezy, N. (1991). Resiliency and vulnerability to adverse developmental outcomes associated with poverty. *American Behavioral Scientist*, 34, 416 – 430.
- Hill, R. (1949). *Families under stress*. New York: Harper & Row.
- Hoelter, J.W. (1983). The analysis of covariance structures: Goodness-of-fit indices. *Sociological Methods & Research*, 11, 325 – 344.
- Horton, R. (2006). Indigenous peoples: Time to act now for equity and health. *Lancet*, 367, 1705 – 1707.
- Horton, R., & Shweder, R. (2004). Ethnic conservation, psychological well-being and the downside of mainstreaming: General differences. In O. Brim, C. Ryff, & R. Kessler (Eds.), *How healthy are we: A national study of well-being at midlife* (pp. 373 – 397). Chicago: University of Chicago Press.
- Hu, H. (1944). The Chinese concept of “face”. *American Anthropologist*, 46, 45 – 64.
- Hu, L.-T., & Bentler, P. M. (1995). Evaluating model fit. In R. H. Hoyle (Ed.), *Structural equation modelling: Concepts, issues, and applications* (pp. 76 – 99). Thousand Oaks, CA: Sage.
- Hu, L.-T., & Bentler, P. (1998). Fit indices in covariance structure modeling: Sensitivity to underparameterized model misspecification. *Psychological Methods*, 3, 424 – 453.
- Hu, L.-T., & Bentler, P. M. (1999). Cutoff criteria for fit indices in covariance structure analysis. Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6, 1 – 55.
- Joreskog, K. G., & Sorbom, D. (1996). *LISREL 8 user's reference guide*. Chicago: Scientific Software International.
- Keyes, C., & Shapiro, A. (2004). Social wellbeing in the United States: A descriptive epidemiology. In O. Brim, C. Ryff, & R. Kessler (Eds.), *How healthy are we: A national study of well-being at midlife* (pp. 350 – 372). Chicago: University of Chicago Press.
- Keyes, C. L. M. (1998). Social well-being. *Social Psychology Quarterly*, 61, 121 – 140.
- Kim, U., & Berry, J. (1993). *Indigenous psychologies: Experience and research in cultural context*. Newbury Park, CA: Sage.
- Kim, U., Yang, K., & Hwang, K. (2006). Contributions to indigenous and cultural psychology: Understanding people in context. In U. Kim, K. Yang, & K. Hwang (Eds.), *Indigenous and cultural psychology: Understanding people in context* (pp. 3 – 23). New York: Springer.
- Kincheloe, J., & Steinberg, S. (2010). Indigenous knowledge in education. In N. Denzin, Y. Lincoln, & L. Smith (Eds.), *Handbook of indigenous methodologies* (pp. 135 – 156). Thousand Oaks, CA: Sage.
- Larson, J. (1993). The measurement of social well-being. *Social Indicators Research*, 28, 285 – 296.
- Luthar, S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child Development*, 71, 543 – 562.
- Macallum, R., & Austin, J. (2000). Applications of structural equation modeling in psychological research. *Annual Review of Psychology*, 51, 201 – 226.
- Markus, H., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review*, 98, 224 – 253.
- Marsella, A., Oliveira, J., Plummer, C., & Crabbe, K. (1998). Native Hawaiian (Kanaka Maoli) culture, mind and well-being. In H. McCubbin, E. Thompson, A. Thompson, & J. Fromer (Eds.), *Resiliency in Native American and immigrant families* (pp. 93 – 114). Thousand Oaks, CA: Sage.
- Masten, A. (1989). Resilience in development: Implications of the study of successful adaptation

- for developmental psychopathology. In D. Cichetti (Ed.), *The emergence of a discipline. Rochester Symposium on Developmental Psychopathology* (Vol. 1, pp. 261 – 294). Hillsdale, NJ: Erlbaum.
- McCubbin, H., Kehl, L., & McCubbin, L. (2007). *Relational well-being (I)*. Honolulu, HI: Center for Training, Evaluation, and Research of the Pacific University of Hawaii at Manoa.
- McCubbin, H., Kehl, L., Strom, I., & McCubbin, L. (2010). *The physical and mental health of native Hawaiians: Monoethnic and multiethnic perspectives*. Honolulu, HI: Center for Training, Evaluation, and Research of the Pacific University of Hawaii at Manoa.
- McCubbin, H., & Patterson, J. (1983). The family stress process: The double ABCX model of family adjustment and adaptation. *Marriage and Family Review*, 6, 7 – 37.
- McCubbin, L. (2006). The role of indigenous family ethnic schema on well-being among native Hawaiian families. *Contemporary Nurse*, 23, 170 – 180.
- McCubbin, L., & McCubbin, H. (2005). Culture and ethnic identity in family resilience: Dynamic processes in trauma and transformation of indigenous people. In M. Unger (Ed.), *Handbook for working with children and youth: Pathways to resilience across cultures and contexts* (pp. 27 – 44). Thousand Oaks, CA: Sage.
- McCubbin, L., & McCubbin, H. (2012). Resilience in ethnic minority families. In D. Becvar (Ed.), *Handbook on resilience* (pp. 223 – 241). New York: Springer.
- McCubbin, L., McCubbin, H., Kehl, L., Strom, I., & Zhang, W. (2012). Relational Well-being (II). In *Assessment inventories for stress, coping, resilience and well-being: Theory, research and practice* (pp. 35 – 44). Pullman, WA: Washington State University.
- McGregor, D., Morelli, P., Matsuoka, J., & Minerbi, L. (2003). An ecological model of well-being. In H. Becker & F. Vanclay (Eds.), *The international handbook of social impact assessment: Conceptual and methodological advances* (pp. 109 – 126). Northampton, MA: Edward Elgar.
- Patterson, J. (2002). Integrating family resilience and family stress theory. *Journal of Marriage and Family*, 64, 349 – 360.
- Rutter, M. (1989). Pathways from childhood to adult life. *Journal of Child Psychology and Psychiatry*, 30, 23 – 51.
- Ryff, C. (1989). Happiness is everything or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*, 57, 1069 – 1081.
- Smith, G. (2000). Protecting and respecting indigenous knowledge. In M. Battiste (Ed.), *Reclaiming indigenous voice and vision* (pp. 209 – 224). Vancouver, Canada: University of British Columbia Press.
- Smith, L. (2012). *Decolonizing methodologies: Research and indigenous people* (2nd ed.). New York, NY: Zed.
- SMS Hawaii (2008). *Hawaii Health Survey 2008*. Honolulu, HI: Author.
- Steiger, J., & Lind, J. (1980). *Statistically based tests for the number of common factors*. Paper presented at the Psychometric Society annual meeting, Iowa City, IA.
- Stephens, C., Nettleton, C., Porter, J., Willis, R., & Clark, S. (2005). Indigenous peoples' health: Why are they behind everyone, everywhere. *Lancet*, 366, 10 – 13.
- Tucker, L., & Lewis, C. (1973). A reliability coefficient for maximum likelihood factor analysis. *Psychometrika*, 38, 1 – 10.
- U.S. Census Bureau. (2000). *Racial and ethnic classifications used in Census 2000 and beyond*. Retrieved from <http://www.census.gov/population/www/socdemo/race/racefactcb.html>
- Ware, J., Kosinski, M., & Keller, S. (1996). A 12-item short-form health survey. *Medical Care*, 34, 220 – 223.
- Ware, J., Kosinski, M., Turner-Bowker, D. M., & Gandek, B. (2002). *How to score version 2 of the SF-12® Health Survey (with a supplement documenting version 1)*. Lincoln, RI: Quality Metric.
- Werner, E. (2010). Risk and resilience: Lessons from the lives of children from multiethnic families. In H. McCubbin, K. Ontai, L. Kehl, L. McCubbin, I. Strom, H. Hart, B. Debaryshe, R. Ripke, & J. Matsuoka (Eds.), *Multiethnicity and multiethnic families: Development, identity, and resilience* (pp. 239 – 252). Honolulu, HI: Le'a Xlibris Publications.
- Werner, E., & Smith, R. (1998). *Vulnerable but invincible: A longitudinal study of resilient children and youth*. New York: Adams, Bannister & Cox.
- World Health Organization. (1948). *World Health Organization constitution*. Geneva: Author.
- Yang, Y. (2008). Social inequalities in happiness in the United States, 1972 to 2004: An age-period-cohort analysis. *American Sociological Review*, 73, 204 – 226.