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A proposed Model of Lifestyle Balance

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Validity Evidence of a Model and Measure of Life Balance

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ABSTRACT

This study examined the construct validity of a model and measure of life balance conceptualized as congruence among both desired and actual time spent in activities, and equivalence in the degree of discrepancy between desired and actual time spent across activities that meet health, relationship, challenge/interest, and identity needs. Structural equation modeling was used to test the hypothesized relationships between life balance, perceived stress, personal well-being, and need satisfaction. A total of 458 participants representing mixed demographic groups participated in the study by completing four instruments. Structural equation modeling results indicated that congruence moderated by equivalence predicted lower stress, higher personal well-being, and higher need satisfaction, but equivalence alone did not. Working, having children at home, and being non-white negatively moderated congruence and larger family size positively moderated congruence. This study provides initial construct validity evidence for the model and measure of life balance.

The theoretical Life Balance Model (LBM) that underlies this construct validity research was proposed by Matuska and Christiansen (2008). The definition of life balance in this model is “a satisfying pattern of daily activity that is healthful, meaningful, and sustainable to an individual within the context of his or her current life circumstances” (Matuska & Christiansen, 2008, p. 11). The model proposes that everyday activity configurations should enable people to: “(1) meet basic instrumental needs necessary for sustained biological health and physical safety; (2) have rewarding and self-affirming relationships with others; (3) feel engaged, challenged, and competent; (4) create meaning and a positive personal identity” (Matuska & Christiansen, 2008, p. 11). The model proposes that to the extent people are able to engage in configurations of activities that address all of these need-based dimensions, they will perceive their lives as more satisfying, less stressful, and more meaningful or balanced. Finally, Matuska and Christiansen (2008) proposed a fifth

need-based dimension, “to organize their time and energy in ways that enable them to meet important personal goals and renewal” (p. 11), but in the revised LBM described here, this dimension has been re-conceptualized as a skill dimension rather than a need-based dimension.

Figure 1 displays the theoretical LBM with the expected relationships between activity configurations, the environment, and associated life outcomes. The two large ovals in the center represent the activity configurations in which people engage. It is expected that activity configurations vary across people because individuals have different personalities, values, and interests. It is also expected that activity configurations vary for individuals across situations and time because people have different roles and role requirements in different situations.

The focus on activity configurations (ovals A and B) as the means for meeting important needs differentiates life balance from other positive state constructs such as happiness and satisfaction with life. Defini-

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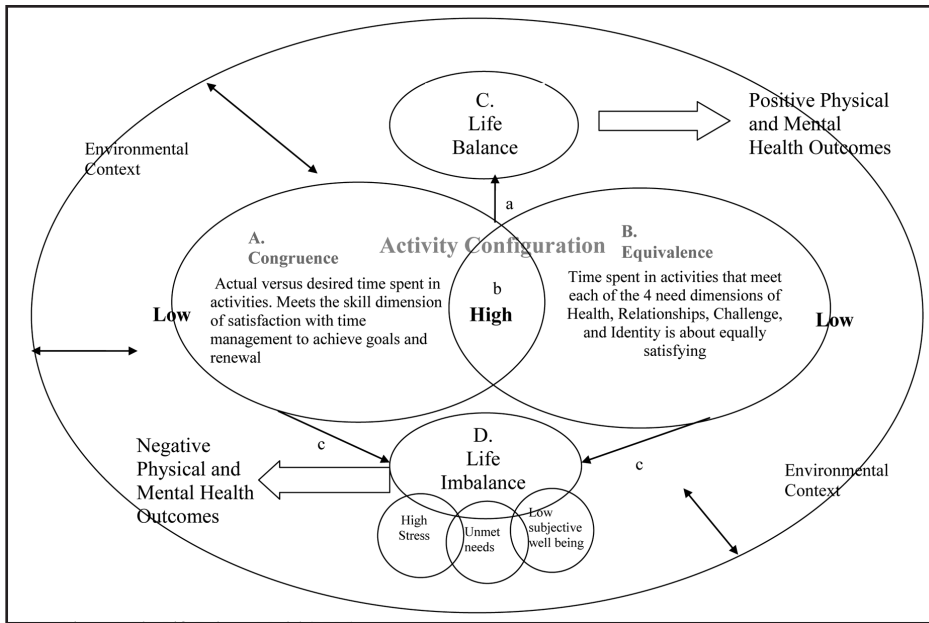


Figure 1. The Life Balance Model.

tions of those constructs (happiness and life satisfaction) typically focus more on global, subjective appraisals of well-being. The LBM proposes that life balance is best understood by knowing how people live their lives and that life balance can be conceptualized through actual configurations of activities that people engage in on a regular basis. In other words, what people actually do (activity configurations) is a representation of their lives and that certain configurations are considered balanced or imbalanced depending on whether their needs are met.

But what constitutes a balance among these need dimensions? And is a balance among the need dimensions important for positive physical and mental health outcomes? If people report satisfaction with their activity configurations, it might not represent life balance, but simply a level of life satisfaction.

To address the balance part of the LBM, two components are considered: activity configuration congruence and activity configuration equivalence. Oval A (in Fig. 1) represents congruence of activity configurations, which means that one's actual activity configuration in everyday life matches one's desired activity configuration in everyday life. The LBM proposes that one component of a balanced life is high activity configuration congruence. If people report the amount of time spent in most activities is about right, not too much or too little, then they would have high congruence. This represents the skill dimension in the LBM about organizing time and energy to meet goals and renewal, and is reflected by a person's reported congruence in activity configurations. Partitioning a prescribed amount of time to various activities is not what is proposed

in the LBM. Rather, it is the contextual influence of time relative to meeting needs (health, positive relationships, challenge, and identity) that is proposed to contribute to lower stress and life satisfaction. In balanced lives, need-based activities are engaged in through time in a manner that, at the end of the day, week, month, or year, people feel satisfied that their needs have been met and that their important goals have been achieved.

Congruence is conceptualized as only one part of activity configurations in the LBM because it does not take into consideration the holistic nature of lives and health. It is conceivable that an individual might regularly spend a large amount of time in one activity with very little time in other activities. For example, 0 hours desired and 0 hours actual in a given activity or 15 hours desired and 15 hours actual in a given activity shows congruence. Thus, for example, a person who works 15 hours a day (as desired) and spends no time in relationships (as desired) would be considered balanced. The LBM addresses the potential limitations by proposing another component to life balance, activity configuration equivalence.

Oval B represents equivalence of activity configurations. The LBM proposes that the second component of a balanced life includes activity configurations that allow people to meet the four need dimensions identified in the LBM. High equivalence means that there is an approximate equal apportion of satisfaction with time use across various activities that meets the need-based dimensions in the LBM. Low equivalence means that people do not perceive equal levels of satisfaction with time use across various activities that meet the need dimensions of the

LBM (e.g., being satisfied in all health-related activities and challenging activities, but feeling dissatisfied with time spent in relationships or in activities that contribute to a satisfactory identity). An important distinction of the LBM is that it does not prescribe certain activities as important for life balance. Rather, it suggests that the activities engaged in meet the needs of physiological health, satisfactory relationships, positive identity, and challenge.

The LBM depicts an overlap between equivalence and congruence because both are proposed as necessary for a balanced life (Matuska & Christiansen, 2008). Figure 1 suggests that both high congruence and high equivalence lead to a balanced life (line a), and low congruence or low equivalence (or both) lead to an imbalanced life (lines c).

Life balance, represented by oval C in Figure 1, is expected to relate to lower stress, higher need satisfaction, and higher personal well-being. Life balance is expected to share some common attributes with these three constructs, but it is also expected to have its own unique dimensions. If the relationship between life balance and any of these constructs is too strong (e.g., if personal well-being shares 80% of the variance with life balance), then it is possible that life balance and personal well-being are the same thing.

Life imbalance is represented by oval D. Low congruence and/or low equivalence in activity configurations are expected to relate to life imbalance and to reports of high stress, low need satisfaction, and low personal well-being. Life imbalance is characterized by configurations of daily activities that are perceived to be unsatisfactory to the individual and: (1) increase the risk for physical and mental health problems, (2) limit participation in valued relationships, (3) are incongruent with a satisfactory identity, (4) are believed to be mundane, uninteresting, or unchallenging, or (5) are not sufficiently organized or comprehensible to enable self-renewal or goal achievement (Matuska, 2010; Matuska & Christiansen, 2009).

Finally, the entire figure is surrounded by a large oval representing the supports and barriers of the environmental context (physical, social, cultural, political, economic, and temporal). The interaction between the person and the environment is dynamic; where one's presence and actions influence the environment and, alternatively, the characteristics of the environment influence the emotions and actions of the individual (Shaw, 2003). This person-environment interaction is shown in Figure 1 by the arrows representing a two-way relationship between the activity configuration and the surrounding environment. In some contexts, the interaction is one-way only, where one's gender, race, or age may influ-

ence activity configurations, but are not malleable to change based on one's actions. The LBM suggests that choosing activity patterns that are optimal for one's overall perception of a balanced life is not entirely within one's personal control. The forces of the environment may make it difficult to engage in the kinds of activities desired.

This research focused on the life balance dimension of the LBM by examining the relationships between activity configuration congruence and equivalence, and stress, personal well-being, and need satisfaction.

Research Questions

This research was a non-experimental, cross-sectional design looking for relationships among variables at a given point in time. The overarching research purpose is to examine the construct validity of the Life Balance Inventory (LBI) and the underlying theoretical model, the LBM.

The specific research questions are:

1. Does overall congruence (match between actual and desired time spent in valued activity categories) relate to lower perceived stress, higher personal well-being, and higher need satisfaction?
2. Does equivalence across the four need-based dimensions of the LBM relate to lower perceived stress, higher personal well-being, and higher need satisfaction?
3. Is congruence (as measured by the total LBI score) related to equivalence (an equal distribution of subscale scores on the LBI)?
4. Do gender, age, race, education, marital status, income level, employment status, number of children, or number of children living at home moderate the relationship between equivalence and congruence?

Methods

Measures Used

LBI. The LBI is an instrument to measure life balance. Its theoretical foundation is the LBM (Matuska & Christiansen, 2008). The LBI measures the degree of congruence between desired and actual time use in 53 activity categories and equivalence among the four need-based scales of physiological health, relationships, identity, and challenge/interest. (The LBI can be accessed online at <http://minerva.stkate.edu/LBI.nsf>.) On a dichotomous scale of yes/no, respondents record whether they do or want to do the activity. For each of the items that they do, or want to do, they rate their perceived satisfaction with the amount of time they spent doing that activity in the

past month compared to the amount of time they wanted to do the activity as: always less than I want (1), sometimes less than I want (2), about right for me (3), sometimes more than I want (2), or always more than I want (1). The LBI generates a total average score across all items respondents do or want to do and reflects the congruence component of the LBM. The four subscales are scored by taking an average satisfaction score across all items respondents do or want to do within the subscale items. Matuska (2012) reported development and content validity.

Stress. The stress subscale of the Depression Anxiety Stress Scales: Short Version (DASS21) was used to measure the perceived stress variable. The Depression Anxiety Stress Scales (DASS) (Lovibond & Lovibond, 1995) is a set of self-report scales designed to measure the negative emotional states of depression, anxiety, and stress. The three scales (depression, anxiety, and stress) can be used independently because they have internal consistency and yield meaningful discriminative scores. The short version of the scales is referred to as the DASS21. The Stress subscale of the short version was used for this research. It contains seven items that assess a self-reported state of stress over the past week on a 4-point scale. The reliability of the DASS21 Stress subscale is acceptable, with an alpha value of 0.81.

Personal Wellbeing Index-Adult (PWI-A). The PWI-A (International Wellbeing Group, 2006) measures the subjective dimensions of quality of life and personal well-being through questions of satisfaction directed to people's feelings about themselves. The PWI-A contains eight items of satisfaction, each corresponding to a quality of life domain: standard of living, health, achieving in life, relationships, safety, community-connectedness, future security, and spirituality/religion. Participants rate their current level of satisfaction on an 11-point rating scale in each area. The PWI-A has demonstrated construct validity evidence in multiple studies in multiple countries (International Wellbeing Group, 2006). Convergent validity evidence was demonstrated ($r = .78$) with the Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985). The PWI-A has demonstrated good sensitivity, and acceptable reliability (test-retest reliability, with intraclass correlation of .84) and Cronbach alpha between .70 and .85.

Basic Psychological Needs Scale (BPNS). The BPNS was developed according to the Self Determination Theory (SDT) proposed by Deci and Ryan (2000). According to the SDT theory, it is assumed that competence, autonomy, and relatedness needs are innate and universal and must be satisfied for people to develop and function in optimal ways. The

BPNS measures the degree to which people experience satisfaction in these needs yielding subscale scores for each need area. Participants are asked to respond to 21 items, thinking about how each item relates to their life, and how true the statement is for them using a 7-point scale. Psychometric properties of the scale are not published but the scale has been widely used in psychological research.

Demographic Questions Added to the LBI. The demographic questionnaire included age, gender, race, marital status, number of children, number of children living with the respondent, employment status, education level, and income.

Participant Recruitment

Recruitment and data collection began after receiving institutional review board approval. Stratified and snowballing sampling methods were used (Dillman, 2007; Goodman, 1961) and were described in Matuska (2012). With permission from a key contact person, the potential participants were approached when they were already in a group or classroom for another purpose. After the consent process and explanation of the purpose, potential subjects were asked to complete the surveys anonymously and return them either immediately or later by mail in a stamped envelope provided.

Data Analysis

The ordinal raw data from the LBI total score was converted to interval data using Rasch analysis, creating the congruence score. The LBI subscales were converted to a single equivalence score by determining the Euclidian distance (ED) between subscale scores. This represents the sum of the individual's raw score on each of the four subscales minus the average score across subscales, squared. Structural equation modeling (SEM) was run to determine the fit of the data with the hypothesized model. SEM tested both the LBI total (congruence) scores and the LBI subscales (ED) scores with the scores from the PWI, DASS21, and BPNS measuring Autonomy, Relatedness, and Competence. Estimated standard path coefficients among all variables were calculated in the SEM analysis. Using the standardized coefficients allowed different variables to be directly compared when they had different scales (Kline, 2005). The coefficient is reported in a proportion of 1.0 where, for example, a coefficient of .822 means a .82 to 1 relationship between variables. When one variable is one full standard deviation above the mean, the variable with a coefficient of .822 will be .822 standard deviations above the mean. Probability (p values) is also estimated, indicating whether

Table
Model Fit Indices (N = 458)

Model	SRMR (Good fit ≤ .08)	RMSEA (Good fit ≤ .10)	RMSEA (90% CI)	CFI (Good fit ≥ .90)
Congruence Model	.03	.10	(.07-.14)	.97
Equivalence Model	.03	.10	(.08-.15)	.95
Combined Model	.03	.09	(.07-.13)	.96
Demographic-Added Model	.04	.09	(.07-.10)	.92

the observed relationship occurred by chance. Finally, demographic variables were added to the SEM models to determine whether they moderated and improved the models.

Findings

Participants

A total of 458 participants completed the surveys with approximate demographic representation from the general population; 45% male, 55% female, 25% non-white, ages from 18 to 90 years with a mean age of 41.1 years, and a mix of education levels, income, marital status, and employment status (Matuska, 2012).

Congruence Model

SEM was run with the total congruence score, stress (DASS21), personal well-being (PWI-A), and basic psychological need satisfaction (BPNS, by relatedness, autonomy, competence) for the entire sample. The table illustrates the model fit indices for the congruence model. Based on these fit indices, congruence between actual and desired time spent in valued activities fits the observed data and the congruence model is supported. There were no additional model fit indices recommended in the output. All pathways in the model were significant ($p \leq .000$) and in the directions expected based on the life balance theory and existing research. Congruence was positively associated with personal well-being ($r = .49$), and basic psychological need satisfaction in relatedness ($r = .62$), competence ($r = .67$), and autonomy ($r = .86$). Congruence was negatively associated with stress ($r = -.40$).

Equivalence Model

SEM was run with ED values, stress (DASS21), personal well-being (PWI-A), and basic psychological need satisfaction (BPNS, by relatedness, autonomy, competence) for the entire sample. The table illustrates the model fit indices for the equivalence model. Based on these fit indices, equivalence between subscales fits the observed data and the mod-

el is supported. There were no additional model fit indices recommended in the output. However, even though some of the model fit indices support the equivalence model, it was clear in the path coefficients that equivalence is not strongly related to personal well-being ($r = -.02$, $p = .63$) or basic psychological need satisfaction ($r = .00$, $p = .99$). There was a significant negative relationship with stress ($r = -.09$, $p = .04$), but it only explained 3% of the variance. The equivalence model is not as favorable as the congruence model.

Combined Congruence and Equivalence Model

The table shows the model fit indices for the combined model and Figure 2 shows the combined model with path coefficients. Based on these fit indices, a combined model of congruence and equivalence fits the observed data. To test whether the combined model is better than the equivalence or congruence models alone, the differences in model chi-square values were compared. If there was a significant difference in chi-square values between models, then the model with added variables is a better fit. The combined model chi-square value was 42.40 ($df = 8$) and the congruence model chi-square value was 31.23 ($df = 5$). The difference between chi-square values for the congruence model and combined model was significant ($p \leq .01$, $df = 3$), indicating the combined model is the best fit. The congruence model alone was robust, with significant path coefficients, and was strengthened even more when combined with equivalence. Congruence and equivalence were also significantly related to each other in the combined model.

It is clear in the SEM path coefficients (Fig. 2) that equivalence contributes to the model through its relationship to congruence only. The significant relationship is negative, as expected, because a low equivalence score (a score of 0 means complete equivalence) and a high congruence score (about right for me) were hypothesized to each contribute to life balance in the LBM. However, the path coefficients show that equivalence alone is not significant-

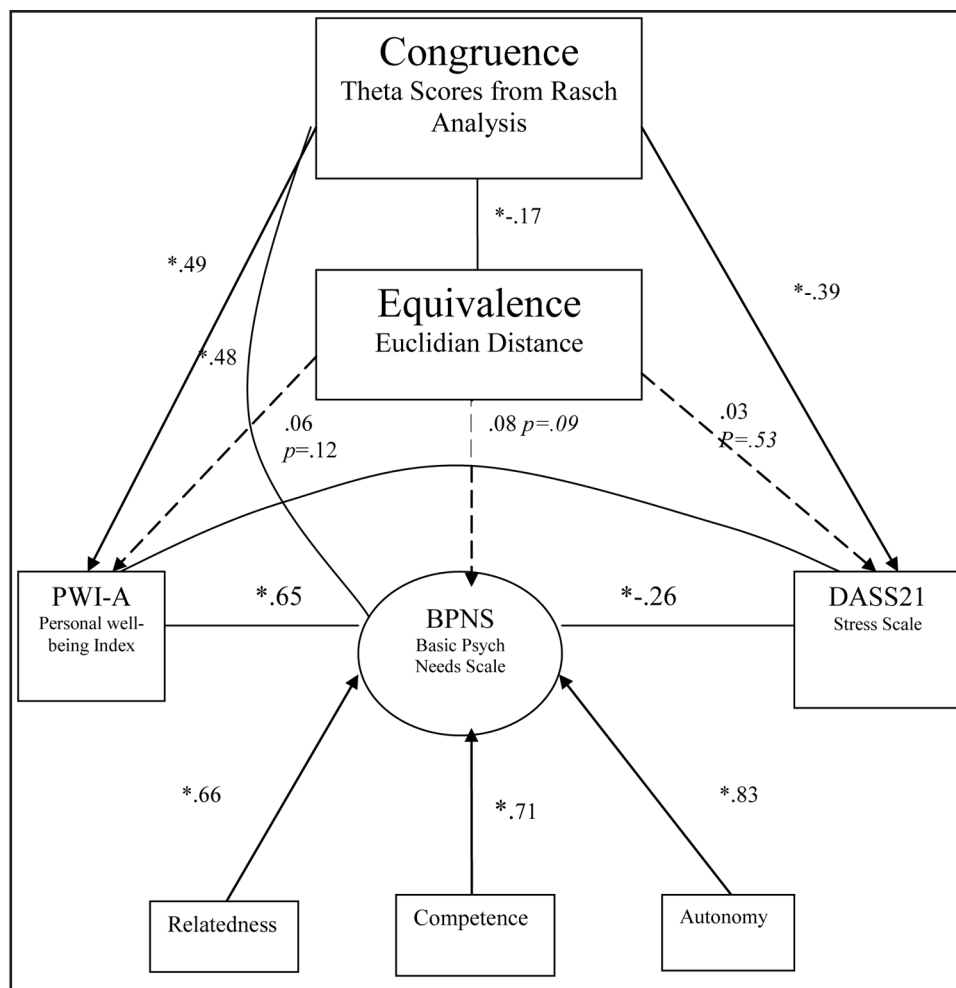


Figure 2. Structural model with standardized path coefficients (combined model) ($N = 468$). $*p \leq .000$. Broken/dashed lines indicate an insignificant relationship.

ly related to stress, psychological need satisfaction, or personal well-being.

Combined Model With Demographics Added

When the demographic variables were added to the combined model, the model was improved again. Equivalence continued to be significantly related to congruence but unrelated to the other variables. Congruence continued to be related to stress, need satisfaction, and personal well-being, but moderated by employment status, race, number of children, and number of children living with you. The model fit indices for this model were good and are displayed in the table, and Figure 3 shows the combined model with path coefficients.

Discussion

The findings that the congruence data reflected the hypothesized relationships in the LBM suggests an association between a person's satisfaction with how his or her time is spent in a configuration of

activities, stress levels, well-being, and need satisfaction. The overall configuration of activities could vary between people, some having a wide range and others having a more narrow range. The overall configuration of activities is without judgment in the types of activities people choose, as long as they are satisfied with their time spent doing them.

With equivalence moderating congruence, however, the findings also suggest that when a person is satisfied with time spent across certain types of activities, the association with stress, need satisfaction, and personal well-being is stronger. In other words, the equivalence variable adds a certain prescriptive quality to the LBM, where satisfaction with a certain mix of activities that meet health, relationship, identity, and challenge needs are also deemed important for life balance.

The findings in this research are similar to findings in other research about a match between actual and desired time spent in broad activity categories relating to positive health and well-being outcomes (Sleean, 1982; Sheldon, Cummins, & Khamble, 2010;

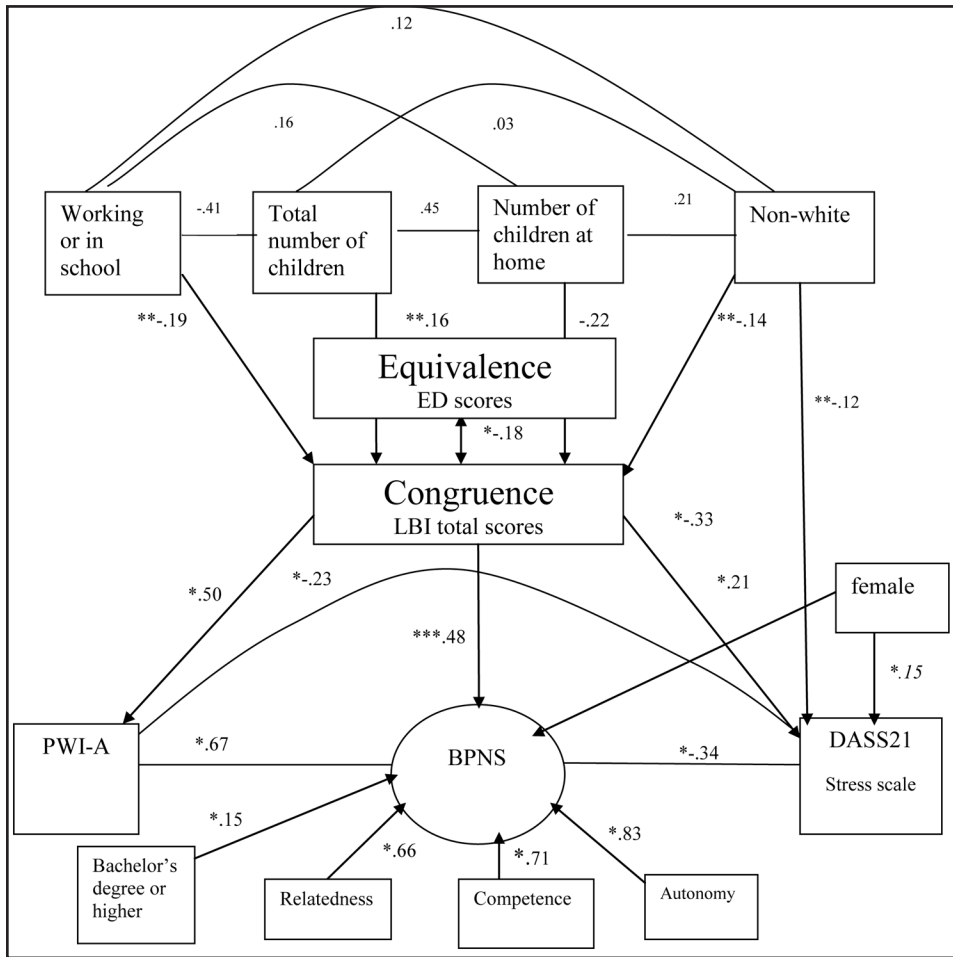


Figure 3. Structural model with standardized path coefficients (combined model with demographics added) ($N = 468$). * = $p \leq .000$. ** = $p \leq .001$. *** = $p \leq .006$. LBI = Life Balance Inventory; PWI-A = Personal Wellbeing Index-Adult; BPNS = Basic Psychological Needs Scale.

Wilcock, Hall, & Hambley, 1997). Findings are also consistent with research showing that people need a balance of activities meeting different needs (Deci & Ryan, 2000; Ryff, 1989). The current study extends Sheldon et al.'s (2010) research by addressing the satisfaction with time spent across activity categories, not just the time apportionment itself.

One of the differences in this study compared to the other related studies is the use of the LBI for a measure of life balance that incorporated more specific activity categories corresponding with everyday life, including such things as participation in art, going to restaurants, dancing, and other activities that were not specified in past research. Previous research categorized activities broadly, such as leisure or work. Arguably, even if some valued activities do not consume large amounts of time, or are engaged in sporadically, the match between how often people want to engage in them and how often they actually engage in them may influence their sense of balance and ultimately their personal well-being, stress, and psychological need satisfaction.

The findings related to different demographic

groups in this study support the hypothesis that life balance is influenced by the environmental context. Employment status moderated congruence, which is consistent with a theoretical view that participating in work or school would interfere with satisfaction of time spent in other activities. This supports the finding that nearly half of U.S. workers report that their jobs interfere some or a lot with their personal lives, and nearly three-quarters of working mothers and fathers feel they do not have enough time to spend with their children (Bond, Galinsky, Swanberg, & Prottas, 2002). This research showed that managing work with other demands can be challenging, as found in other research (Wallen, 2002).

The number of children at home moderated congruence, suggesting that having children at home interfered with satisfaction in time spent doing other activities. The idea that parenting is stressful is not new. A large body of literature (Hill, 1949, 2003) emphasizes the significance of stress consequences in families. For example, parenting stress has been linked to high blood pressure (Taylor, Washington,

Artiniam, & Lichtenberg, 2007), lower marital satisfaction (Lavee, Sharlin, & Katz, 1996), and perceived time stress (Craig & Pooja, 2009), among others. This study adds a new perspective to the stress research, suggesting that parents with children at home are not satisfied with their time use in other activities, a possible contributor to their stress. Time use studies found that leisure time use changes for parents, but more so for mothers (Beck & Arnold, 2009), and women take on the greater workload associated with parenting (Craig, 2006). In this study, women had significantly higher perceived stress than men, which seems consistent with research showing the increased role demands of motherhood.

The only group that had a significant and positive relationship with congruence was, interestingly, the group with the largest total number of children, whether the children were at home or not. This group included more people across more age categories because it was basically a rating of family size, not a rating of having children at home. The positive relationship of congruence with the other overall positive outcomes might be explained by the increased type of social activity opportunities when families are larger. Considerable evidence shows the positive mental and physical health effects of social support (Achat et al., 1998; Repetti, Taylor, & Seeman, 2002; Seeman, Lusignolo, Albert, & Berkman, 2001; Thompson & Heller, 1990) and larger families could conceivably be providing that positive support to each other. Family size as a moderator to congruence might also reflect a more satisfied, less stressed, more reflective older adult (with adult children) whose life characteristics include conditions such as retirement.

The equivalence hypothesis was supported in this research, but only as a moderator to congruence. The finding that equivalence alone was not a strong predictor may suggest that people simply do not need to have balanced levels of satisfaction with activities that meet health, relationship, identity, and challenge needs as long as, overall, they are satisfied with what they are doing. Accumulated past research does not support this conclusion, however (Seleen, 1982; Sheldon et al., 2010; Wilcock et al., 1997)

Another potential explanation is that equivalence might be a predictor of positive health outcomes, but the subscales in the LBI did not adequately discriminate between activities that met health, relationship, identity, and challenge/interest needs. Additional testing of the LBI subscales is warranted.

Limitations in this research concern the generalizability of the findings. The inferences that can be made from this research are limited to people

in developed, relatively affluent western societies. The concept of life balance may be completely inappropriate for people in environments where personal choices are constrained by poverty or limited resources (Birchenbach & Glass, 2009; Whiteford, 2009). Additionally, the life balance concept reflects a western value of individualism and may not resonate with cultures with collectivist values (Pentland & McColl, 2009).

This research tested the life balance component of the LBM and future research should directly test the relationships between life imbalance and health outcomes as indicated in the LBM. The LBI subscales reflecting equivalence need continued testing and refinement because of their weaker contribution to the model. One of the challenges mentioned in the use of the subscales was the idea that the meaning of each activity in the subscales to the person responding could change with context or over time. Qualitative research that addresses the meaning of activities to people would be a useful way to learn about the appropriateness of the subscales and to further refine them. Research to modify the items and subscales on the LBI should also occur in non-western cultures.

Conclusion

This research supported the validity of the LBM and the LBI. Structural equation modeling showed that the best model is where congruence moderated by equivalence predicts lower stress and higher need satisfaction and personal well-being. Congruence was negatively related to being non-white, having children at home, and working full time or in school. Family size was positively related to congruence. These findings indicate the impact of context on life balance. This research adds validity to the idea that having a balanced life is something of value and contributes to the overall evidence about what a balanced life might look like. This research also provided evidence that creating a balanced life may not be entirely within one's control, that life circumstances and contexts may limit the opportunities available for doing what one desires to do. Finally, this research is a valuable first step for additional research about life balance because it provided a model and measure that can be used as a foundation for additional study.

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