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THE SELF-CONCEPT AND CONJUGAL LOSS: EVIDENCE FOR STRUCTURAL CHANGE

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Abstract

The self-concept is often considered to be a personal resource that individuals may use to cope with life stressors, but little is known about how this entity might itself change in response to profound stress. The present study examines structural change in self-concept following conjugal loss in later life. Analyses were conducted on data collected from 57 widows every four months over the first two years post-loss. The first objective was to explore the adequacy of an operational definition of the self-concept as a latent construct lying at the confluence of self-esteem, perceived environmental mastery, and optimism. Because Confirmatory Factor Analysis (CFA) supported this theoretically-based conceptualization, the second objective of the study was to model stability and change in the structure of the self-concept over the two-year study period. Results suggested that there is both stability and change in the self-system during the adjustment to major life stress.

Although significant, self-relevant losses are often the norm in later life, many older adults adjust well, reporting high levels of well-being. Of these normative life events, widowhood is considered the most stressful (Holmes & Rahe, 1967), making it a primary transition in later life (Johnson, Lund, & Diamond, 1986). During times of intense stress, personal adaptive capacities may be called upon to aid the coping process (Aldwin, 1991; Carver & Scheier, 2002; Johnson, Lund, & Diamond, 1986), but these adaptive resources may, themselves, change in response to stress (Pearlin & Skaff, 1995). The present study seeks to understand how bereavement might influence change in the structure of the self-concept during the first two years of adjustment.

Connell and Furman (1984) contend that human lives are marked by spans of relative stability punctuated by periods of rapid change or even growth, called *transitional periods*. It is important to note that the notion of transition is not unidimensional; instead, transitions involve a transitional event, transitional period, and transitional mechanism (Connell & Furman, 1984). A *transitional event* is the factor that initiates a change or reorganizational process; in the case of this bereavement study, death of the spouse is considered a transitional event. The *transitional period* is a time of relatively greater change in an individual's characteristics; the present study examines change over the first two years after conjugal loss. Nesselrode (1990) argued that in order truly understand change, developmental psychologists must no longer be content to merely *describe* developmental

change, but to *understand the process* by which it occurs. For this reason, identifying and exploring *transitional mechanisms*, the “reorganizational processes that trigger and maintain the relatively greater change in an organism's pattern of functioning” (Connell & Furman, 1984, p. 154), seem to be of primary interest in understanding the adjustment to widowhood. Because personal resources have been shown to strongly influence the appraisal of stress (Jerusalem, 1993; Roberts, Dunkle, & Haug, 1994) and the differential application of adaptive resources (Markus & Herzog, 1991), the present study explores the self as one such transitional mechanism.

Although definitions of self-concept abound, here the *self-concept* is construed as a construct that integrates an individual's life experience, supplying both continuity and meaning to life's constituent feelings and events (Markus & Herzog, 1991). The self-concept has been operationalized as the confluence of optimism, self-esteem, and a sense of environmental mastery (Montpetit, Bergeman, Bisconti, & Rausch, 2006). *Optimism* is the belief that one will generally experience positive, as opposed to negative, outcomes in life (Scheier & Carver, 1985); *self-esteem*, the evaluative component of the self-concept, reflect self-evaluation and attitudes about the self (Ben-Zur, 2002; Rosenberg, 1965); and, *environmental mastery* is the belief that one can deal efficaciously with various aspects of the physical and social environment (Ryff, 1995). Together, these elements speak comprehensively to many aspects of the individual human experience, especially in older adults (see Markus & Herzog, 1991 for an exploration of self-concept in elderly individuals). Here, salient elements of elderly adults' self-concepts are thought to include self-worth based on past and current experience (self-esteem), control over personal affairs (environmental mastery), and expectations for the future.

In previous work exploring the nature of the self-concept, relatively high correlations between variables of interest motivated the creation of a composite self-concept variable; increases in the level of the self-concept were associated with gains in health and well-being as women adjusted to conjugal loss (Montpetit, et al., 2006). The question remains whether the inherent structure of self-understanding also changes in response to this profound stressor. The first objective of the present study is to empirically test the adequacy of this operational definition; thus, a confirmatory factor model of self-concept will be fit such that the self-concept is a latent construct lying at the confluence of self-esteem, sense of environmental mastery, and optimism. Predicated on the notion that the adaptive resources people call upon in times of stress may be changing themselves (Pearlin & Skaff, 1995), the second objective of the present study is to move beyond assessing the appropriateness of the triadic model of self-concept to understanding whether or not the basic structure of the self is fluid during the bereavement process.

In sum, transitional periods, which allow for the assessment of continuities or discontinuities in developmental change, are especially important to understanding development of the self, and comprise one or more of several types of change, such as level, structural, or centrality change (Connell & Furman, 1984). Of interest to the current study, *structural change* involves change in the degree or pattern of the relationship between a latent factor and its component manifest variables. Shifts in the magnitude or patterns in the manifest variables' loadings onto the latent self-concept over the two-year period would indicate that the self is indeed a dynamic entity. It is believed that trauma, such as losing a spouse, may be so disruptive that the self-concept undergoes profound reorganization during the bereavement process. For example, optimism may supply hope for better times at the outset of bereavement, and may later be replaced in relative importance by environmental mastery as the widow begins to marshal her resources, tackling tasks formerly accomplished by her spouse. These proposed changes in the structure or integration of the self-concept can be assessed by applying structural equation models (SEMs) to the self-concept across time. To

the extent that the loadings of each measure on the latent construct change over the seven points of measure, there will be evidence to suggest that the self-concept is undergoing structural change.

Although compelling research suggests that human beings are more resilient to trauma than was once believed (Bonnano, 2004), loss has the potential to be, at least temporarily, profoundly disruptive and disorganizing. It has been suggested that so-called “seismic” life events, such as bereavement, present major challenges to a person's general set of beliefs or assumptions about the world, and may even challenge one's sense of identity, meaning, and purpose (Tedeschi & Calhoun, 2004). Neimeyer and colleagues (Neimeyer, Holland, Currier, & Mehta, 2007) suggest that from a life narrative perspective, post-loss resilience may be achieved through assimilation of the loss into an existing, generally positive pre-loss self-narrative, or accommodation “in the form of reorganization, deepening, or expansion of the self-narrative to be adequate to the changed life of the survivor” (p. 271). Failure to integrate the loss into a cohesive narrative by either route – assimilation or accommodation – may leave the survivor with the fragmented remains of the pre-loss self-story would be maladaptive, and would necessitate therapeutic intervention.

Whether loss represents threat or merely challenge for an individual's sense of self may also depend upon an individual's pre-loss sense of self (Hobfoll & Lilly, 1993; Tedeschi & Calhoun, 2004). In particular, Conservation of Resource (COR) Theory suggests that a “rich get richer” phenomenon may exist whereby those individuals enjoying stronger resource pools will benefit from application of these considerable resources in the coping process, while those having fewer pre-loss resources may suffer increasing depletion of already-shallow resource pools (Hobfoll & Lilly, 1993). In the present context, COR Theory would suggest that for those women enjoying cohesive, adaptive self-concepts (replete with feelings of self-esteem, optimism, and environmental mastery) prior to the deaths of their husbands, the post-loss period may be a time of increasing self-understanding that facilitates further self-development.

Although research does show that people commonly emerge from life crises with enhanced personal resources (Schaefer & Moos, 1998), hypothesis is difficult because little is known about how the sense of self, *qua* the structure of the self-concept, may change over the course of bereavement, especially at the individual level. As detailed above, profound loss may, temporarily or otherwise, disrupt an individual's life narrative, prompting considerable reorganization of relationships, roles, and self-reflections (Neimeyer, et al., 2007). Evidence suggests that although some older adults will face persistent difficulties following loss, most elders will eventually successfully adapt (Bonnano, Wortman, & Nesse, 2004), and many will, in fact, achieve post-traumatic growth (Neimeyer, 2005; Tedeschi & Calhoun, 2004). Consistent with COR Theory (Hobfoll & Lilly, 1993), as discussed above, it is expected that discontinuities in the structure of the self-concept will be found whereby reconstruction (or renewed understanding) of the self occurs as an individual uses extant resources to face the acute stressors accompanying losing a spouse (e.g., getting the deceased's affairs in order, reading the will and distributing personal effects, handling insurance claims and funeral costs), and begins to understand the self differently because of the discovery of new capacities or the establishment of new roles (i.e., engages in the loss-oriented and restoration-oriented activities as conceptualized by Stroebe and Schut, 2001). The new sense of self is then hypothesized to stabilize as the individual understands him/herself in a new way and readjusts to life post-bereavement.

METHOD

Participants

Participants included 57 Caucasian widows recruited in 1999 and 2000 for the Notre Dame Widowhood Study (for additional sample details, see Montpetit, et al., 2006). The mean age of women in the sample was 71.6 years, with a standard deviation of 6.3 years. Additionally, all but two of the participants completed high school, 22 completed some college courses or vocational training, 4 completed college, and 4 earned graduate or professional degrees. Income levels were difficult to assess at the first point of measure, but all but seven widows had a better sense of their financial picture by the second point of measure. Therefore, to compensate for uncertainty in reports of income, available data were used to create an average income variable for each person. Using this index, 5 women reported a yearly income below \$7,500; 16 reported receiving between \$7,500 and \$14,999; 24 reported an income between \$15,000 and \$24,999; 10 fit into the income bracket of \$25,000 to \$40,000; 3 earned greater than \$40,000 per year. Most widows lived alone, although three lived with children, and one lived with her grandson. For 45 women, the deceased spouse was a first husband; for 12 women, the deceased spouse was a second husband.

Measures

Questionnaire data were collected on seven occasions: two weeks to one month post-loss, three months later, and at 8, 12, 16, 20, and 24 months after the spouse's death.

Self-Esteem—The Rosenberg Self-Esteem Scale (Rosenberg, 1965) assessed self-worth and attitudes toward the self. The four answer choices ranged from “strongly agree” to “strongly disagree.” The ten items included, “I feel that I am a person of worth, at least on an equal plane with others” and “I wish that I could have more respect for myself.” Items were reverse scored as necessary such that a higher score indicates greater overall self-esteem. The measure demonstrated good internal consistency reliability in this sample (Cronbach's $\alpha=.81$), consistent with published estimates (see Blascovich & Tomaka, 1991).

Environmental Mastery—The Ryff Environmental Mastery Scale is one subscale of a global measure of psychological well-being (Ryff & Keyes, 1995). The five answer choices ranged from “strongly agree” to “undecided” to “strongly disagree.” Items were reverse scored as necessary, with a higher score indicating greater perceived environmental mastery. The 14 items included: “In general, I feel I am in charge of the situation in which I live” and “I often feel overwhelmed by my responsibilities.” The measure achieved good internal consistency reliability in this sample (Cronbach's $\alpha=.89$), consistent with published estimates (Ryff & Keyes, 1995).

Optimism—The Life Orientation Test (LOT) assessed optimism and pessimism (Scheier & Carver, 1985). The four response options ranged from 1 “strongly agree” to 4 “strongly disagree,” to statements such as, “In uncertain times, I usually expect the best,” and “I am always optimistic about my future.” Items were reverse scored as necessary such that a high score indicates greater optimism. In addition, it has been demonstrated that the scale demonstrates adequate levels of convergent and discriminant validity, and internal consistency reliability (Scheier & Carver, 1985). Cronbach's Alpha was .82 in the current sample.

RESULTS

Descriptive statistics and data reduction

Means, standard deviations, and correlations with demographic variables for the various components of self are presented in Table 1. There were no significant correlations between any of the self-concept variables and either age or income. Interestingly, there was a significant, positive correlation between educational attainment and Environmental Mastery at Time 1, with better educated women reporting a greater sense of this aspect of control at the start of the study.

Analyses

The first objective of the study was to test the appropriateness of the proposed operational definition of self-concept. Thus, a Confirmatory Factor Analysis (CFA) model was fit such that the identified components of a theoretically-conceived self-concept (self-esteem, sense of environmental mastery, and optimism) loaded on a single, latent self-concept variable. As expected, the three constructs came together in a latent factor that accounted for 68.7% of the variance in scores on these measures (Eigenvalue=2.07). The resulting factor loadings for self-esteem, environmental mastery, and optimism were 0.88, 0.80, and 0.81, respectively.

Next, structural change in the self-concept was assessed by examining changes in the magnitude or pattern of the loadings describing the relationship between the three manifest components and the latent self-concept during the first two years of bereavement. To the extent that the loadings of each measure on the latent construct change over time, there will be evidence to suggest that the self-concept is a flexible, dynamic adaptive resource.

Because a single measurement model cannot be tested in its entirety because of limitations imposed by the number of participants, changes in the structure of the latent self-concept were tested by modeling the self at contiguous time points (e.g., 1 month and 4 months, 4 months and 8 months, ..., 20 months and 24 months; see Figure 2), using the structural equation modeling package EQS (EQS; Bentler, 2003). The models in Figure 1 are contiguous time point models in which the loadings of each measure onto its respective latent factor were allowed to be freely estimated; measurement errors were allowed to correlate across time, with the latter latent factor predicted by its antecedent. EQS¹ was used to estimate the maximum likelihood parameter estimates, standard errors, and goodness of fit indices for the models in Figure 1.

The results of fitting these models were then compared against the fits of models in which the loadings of each manifest variable onto its respective latent factor were constrained to be equal to one another across time. To the extent that the difference in model fit was not significantly worse (as assessed by change in χ^2 on the difference of degrees of freedom), one model to another, there was nascent evidence to suggest stability in the structure of the self across time.

Table 3 contains the results relative to the fit of the models. In addition to the χ^2 , Root Mean Square Error of Approximation (RMSEA) was used to assess model fit; this fit statistic assesses the discrepancy per degree of freedom for the model (Duncan, Duncan, Strycker, Li, & Alpert, 1999), and is not influenced by sample size. According to Browne and Cudeck

¹It should be noted that EQS identifies participants with outlying scores contributing to multivariate kurtosis. Because of the small sample size, it is not known whether these scores represent aberrations or important phenomena important for a subset of bereaved individuals. Therefore, all participants were included in all analyses; the inclusion of these outliers influenced the results in only one instance, in which the model fit worsened after the exclusion of outlying values.

(1993), an RMSEA of .05 or less represents a good model fit. Overall, the RMSEA estimates were consistent with the χ^2 .

The results of the model-fitting suggest that there is a significant change in the fit of the model when the loadings of each measure of the components of the self are constrained to be equal across the first two time points; this suggests that there is a change in the way the components parts of the self come together during the initial months of bereavement. In particular, Lagrange Multiplier (LM) tests indicated that freeing the parameters constrained to be equal across time would significantly improve fit. In addition, although difficult to interpret, the LM tests indicated that allowing self-esteem at 1 month to load on self-concept at 4 months would significantly improve the fit of the model. This suggests that there is a significant amount of covariance between these constructs that cannot be accounted for through either the correlated measurement errors across time or through a direct relationship between the latent constructs across those time points.

Although the fit of the two types of models (free versus constrained) was not significantly different in the other pieces of the contiguous time point models, it is interesting to see that not even the free model fit the data well between the fourth and fifth time point, that is, between months 16 and 20.² LM tests indicated that the fit of the this model could be improved significantly by allowing environmental mastery at 16 months to load directly onto the latent self-concept at 20. Again, this suggests that there is a significant amount of covariance between these constructs that cannot be accounted for through either the correlated measurement errors across time or through a direct relationship between the latent constructs across those time points.

To summarize, there appears to be evidence that the self is reorganizing during the first four months of bereavement since the constrained models fit significantly worse than the models in which variables were permitted to load freely onto their latent factors. The apparent stability in the structure of the self-concept between 4 months and 16 months post-loss will be explored further below. In addition, there appears to be some discontinuity occurring with the structure of the latent self-concept between 16 months and 20 months post-loss; in particular, self-concept at 16 months seems to be comprised primarily of self-esteem, whereas by 20 months, environmental mastery seems to take center stage. The structure of the self-concept appears to stabilize once again during the last four months of the second year of bereavement.

As indicated above, some evidence exists for discontinuity in the structure of the self-concept between the start of the study and approximately 4 months post-loss and relative stability in the structure of the latent self-concept between 4 months and 8 months, between 8 months and 12 months, and again from 12 months to 16 months. Because the contiguous time point models take into account only data from the time points contained in the analyses, additional analyses were included to assess any changes in the structure of the latent self-concept between 4 months and 12 months, and again, because the difference between the full and constrained models was nonsignificant (see Table 2), between 4 months and 16 months. There was no significant difference in fit between the free and constrained models in this case or similar models fit between 8 months and 16 months (see Table 2), further supporting the inference that the structure of the self-concept is not meaningfully changing over the period from 4 months and 16 months post-loss. Figure 2 depicts the series of models tested.

²As a result, fitting constrained models, which necessarily fit worse, would have been inappropriate and, therefore, was not done.

Important to note is that there seems to be no consistent pattern in the loadings of the component parts of the self-concept onto the latent construct across time, even across the time period in which the structure of the self-concept appears to remain stable. The loadings do seem to suggest that self-esteem is the most prominent element of the latent self-concept at 1 month. Between 4 months and 20 months, environmental mastery seems to play the major role, although self-esteem yields loadings of similar magnitude at some time points. Optimism appears to yield the smallest loading at nearly every point of measure. By 24 months, however, each variable loads similarly onto the latent construct.

DISCUSSION

The question of change in the structure of the self-concept is central to bereavement research; in fact, reconstruction of the self-concept is considered to be one of the most important tasks in adapting to conjugal loss (Walter, 2003). Given the results of the CFA and the large amount of variance accounted for by the resulting factor, as well as the consistently strong relationships between each component and the latent factor over time, this operational definition of self-concept as a confluence of self-esteem, sense of environmental mastery, and optimism seems to represent, at the very least, a reasonable starting point for understanding how the self-system is organized and may change with bereavement.

Previous research involving this theoretically-based operational definition of the self-concept suggested that the three component parts eventually selected, self-esteem, sense of environmental mastery, and optimism, are particularly salient in recovery (Montpetit, et al., 2006). Specifically, *transitional changes in level* of the self-concept variables was related to positive adaptation to loss; significant negative correlations between intercepts and slopes of regression trajectories for the self-concept variables and for depression and grief measures indicated that as intraindividual levels of self-esteem, environmental mastery, and optimism (which are not captured by the group means found in Table 1) increased, depression and grief tended to resolve.

The results of the model-fitting analyses in the current study suggested that there is both stability and change in the latent self-concept over the first two years of bereavement. In particular, it appears that the self-concept undergoes a reorganization following conjugal loss. This is not surprising given literature on the impact of conjugal loss on the self-concept. Helena Lopata (1996) argues that in American marriages, bonds with spouses, rather than with families or kin networks, are incorporated into the self-concept, modifying its prior content and dimensions. Thus, the severing of this marital bond by death disrupts this entity that supplies continuity and meaning to the bereaved's life. Lopata notes, however, that the degree to which conjugal loss disorganizes the self-concept depends on the way in which the death changes the contours of the surviving spouse's life. In particular, the degree to which a woman defined herself based upon her husband, her married life, and on being a married woman affects the degree of this disorganization. In particular, women in historically traditional marriages (i.e., those of the 1950s; Coontz, 1999), whose primary roles were in the home, were not encouraged to learn skills that would assist them in developing support relationships outside the home (Moss, Moss, & Hansson, 2001). It would be expected, then, that conjugal loss would be more disruptive to the self-concepts of older women, like those studied here, than those from younger cohorts.

Second, there is evidence to suggest that the structure of the self-concept remains relatively stable during the period from 4 months to 16 months. Although pairwise comparisons yielded no significant differences in the free versus constrained models across that period, no consistent pattern was evident across the loadings. There was limited evidence to suggest

that perceived environmental mastery might play the key role during that period, which is consistent with the literature on personal growth. Recall that it was not until four months into the study that most widows were able to estimate their new household income. Because most women in the study chose to live alone, it seems reasonable to suggest that many would begin assuming roles previously filled by their husbands; these might include, for instance, overseeing vehicle and home maintenance. The gains in self-confidence and pride gleaned during this transition to independence could help explain the importance of self-esteem during this time, as well (Schaefer & Moos, 2001).

There is also evidence to suggest that there may be discontinuity in the structure of the self-concept between 16 and 20 months post-loss, although no clear picture emerged as to the structure of the latent construct. It is interesting to note that by 24 months, the three resources under consideration – considered “key resources” in COR Theory (Hobfoll & Lilly, 1993, p. 135) – self-esteem, sense of environmental mastery, and optimism, loaded approximately equally onto the latent self-concept. Perhaps, by this time, a newfound sense of self may be achieved whereby new roles and abilities are incorporated into the (intrapersonal) self-concept and the focus could then shift to other tasks, such as renewed engagement with the outside world (i.e., the physical and social environments).

General Discussion

Overall, the results of the study suggest that the self-concept appears to undergo structural change over the first two years of bereavement. This was expected because of the profound impact conjugal loss was thought to have on the contours of widows' lives. Parkes (1990, p. 90) writes: “When somebody dies a whole set of assumptions about the world that relied upon the other person for their validity are suddenly invalidated. Habits of thought ... built up over many years must be reviewed and modified ... it inevitably takes time and effort.” This notion is supported by the data in that the substantive meaning of the self-concept, the way in which people understand themselves and integrate their life experience, seems to change from one month to four months, then remains stable for a period of time, and change once again toward the middle of the second year of bereavement, at the end of which, all three components are approximately equally salient.

Strengths, limitations and future directions

This study appears to be one of the first of its kind in examining how the relationships between a latent self-concept and its component parts might change in response to a profound life stressor.

Generalizability of the current findings may be limited by the relatively small sample size with respect to the number of parameters estimated in the structural models. Although the employment of contiguous time-point models maximized the amount of information used for parameter estimation, the results of the present study await replication to differentiate potentially spurious findings from genuine hallmarks of the adjustment to widowhood. Relatedly, it is assumed that the immense stress of a major life event is driving structural change in the self-concept; because the present study lacks baseline comparison data, however, replication is needed to understand whether the self-concepts of aging individuals may change in response to more ordinary life stress.

The longitudinal design of the present study, however, does allow for a more thorough examination of change in the adjustment process. In particular, examining the unfolding bereavement experience in real time avoids problems associated with both retrospective questioning and cross-sectional data collection (Ferraro, 1989) in which later understanding of the self may render previous self-schema inaccessible. Although a potential limitation, the

sole inclusion of women may actually be a strength of the current study. Umberson, Wortman, and Kessler (1992) reported that men reported more emotional distress following the loss of their wives; structural change in the self-concept may be obfuscated by gender differences in the bereavement experience.

In addition, the search for alternative conceptualizations of the self-concept could be a particularly interesting avenue for research; inclusion of different measures of the current components, as well as of additional constructs, could potentially yield a more thorough understanding of the self-system and the personal resources supporting adaptation and growth.

Despite potential limitations, the present study represents a strong contribution toward a process-oriented understanding of how the self-concept might change or reorganize in response to significant stress. In particular, the apparent discontinuities in the structure of the latent self-concept may indicate that the very way in which people understand themselves undergoes profound redevelopment during the transition to widowhood.

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Figure 1.

Models of the self-concept across contiguous points of measure in which loadings of manifest variables onto the latent trait are free; reported loadings are standardized. Note that indicators of factor variance (first factor in each model) and prediction error (second factor in each model) have been removed for clarity.

Figure 2.

Model of the self-concept across 8 months and 16 months in which loadings of manifest variables onto the latent trait are free; reported loadings are standardized. Note that indicators of factor variance and prediction error, as well as correlation measurement errors, have been removed for clarity.

Table 1
Descriptive Statistics of Self-concept Variables At Each Time point, and Correlations with Demographic Variables

Variable	Mean	SD	ρ Age	ρ Education	ρ Income
Self-Esteem, Time 1	32.85	4.31	-0.23	-0.05	0.11
Self-Esteem, Time 2	33.10	3.80			
Self-Esteem, Time 3	32.40	3.94			
Self-Esteem, Time 4	32.70	4.31			
Self-Esteem, Time 5	32.53	4.10			
Self-Esteem, Time 6	32.02	4.07			
Self-Esteem, Time 7	32.71	4.01			
Env. Mastery, Time 1	42.60	5.65	-0.10	0.33	0.15
Env. Mastery, Time 2	43.92	5.64			
Env. Mastery, Time 3	42.93	6.08			
Env. Mastery, Time 4	43.57	5.54			
Env. Mastery, Time 5	43.69	5.15			
Env. Mastery, Time 6	42.58	5.91			
Env. Mastery, Time 7	43.62	6.46			
Optimism, Time 1	25.13	3.25	-0.09	0.04	0.16
Optimism, Time 2	25.16	3.65			
Optimism, Time 3	24.77	3.65			
Optimism, Time 4	24.84	3.38			
Optimism, Time 5	25.08	3.09			
Optimism, Time 6	24.94	3.13			
Optimism, Time 7	24.88	3.14			

Note: N=38-56. Env. Mastery = Environmental Mastery. Correlation in **bold** was significant at the $\alpha=0.05$ level.

Table 2

Differences in χ^2 between Models in which A) Factor Loadings of Each Manifest Variable are Allowed to be Freely Estimated and B) Loadings of the Same Variable are Constrained to be Equal across Time

Model	A) Figure 2 χ^2 , <i>df</i> , <i>p-value</i>	B) Figure 3 χ^2 , <i>df</i> , <i>p-value</i>	$\Delta \chi^2$, Model A to Model B χ^2 , <i>df</i> , <i>p-value</i>
1 mo–4 mos	2.85, 5, <i>p</i> =.72	9.86, 7, <i>p</i> =.20	7.01 , 2, .05< <i>p</i> <.025
4 mos–8 mos	4.96, 5, <i>p</i> =.42	5.76, 7, <i>p</i> =.98	0.80, 2, <i>p</i> =.75
8 mos–12 mos	2.18, 5, <i>p</i> =.82	2.28, 7, <i>p</i> =.94	0.10, 2, <i>p</i> =.95
12 mos–16 mos	3.52, 5, <i>p</i> =.62	3.89, 7, <i>p</i> =.79	0.37, 2, <i>p</i> =.90
4 mo–12 mos	3.00, 5, <i>p</i> =.70	4.90, 7, <i>p</i> =.67	1.90, 2, <i>p</i> =.50
4 mo–16 mos	6.06, 5, <i>p</i> =.30	8.25, 7, <i>p</i> =.31	2.19, 7, <i>p</i> =.50
8 mos–16 mos	4.47, 5, <i>p</i> =.48	5.89, 7, <i>p</i> =.55	1.42, 2, <i>p</i> =.50
16 mos–20 mos	18.44 , 5, <i>p</i> =.00	NA	NA
20 mos–24 mos	3.57, 5, <i>p</i> =.61	6.67, 7, <i>p</i> =.46	3.1, 2, <i>p</i> =.25

NOTE: N=58; mos=months; *df* = degrees of freedom. **Bold** print indicates a statistic significant at the $\alpha=.05$ level. Note that because several pairwise comparisons were made, a Bonferroni adjustment should be applied to the critical alpha level in order to maintain a family-wise Type I error rate of $\alpha=.05$; a family was defined as a set of analyses used to infer stability or change in the structure of the latent self-concept over a section of the model. In this case, $\alpha'=.00$ for the analyses concerning the structure of the self-concept over 4 mos–20 mos.