Herst, D., & Brannick, M. T. (2004, April). *Cross-Cultural Measurement Invariance of Work/Family Conflict Scales Across English-Speaking Samples*. Poster presented at the 19th Annual Conference of the Society for Industrial and Organizational Psychology, Chicago.

Poster Session

TITLE

# Cross-Cultural Measurement Invariance of Work/Family Conflict Scales Across English-Speaking Samples

ABSTRACT

Multisample confirmatory factor analysis was used to determine cross-cultural measurement invariance of the Carlson, Kacmar, & Williams (2000) work/family conflict scale. Invariance was found between US and Australian/New Zealand sets of men and women for factor patterns, but not for item loadings. Implications for work/family conflict measurement standardization are discussed.

PRESS PARAGRAPH

Conflict between the work and family domains has been found to effect an individuals attitudes and behaviors at work, home, as well as their emotional and physical well-being. However past research has been largely based on non-standardized measures that do not conform to a common work/family conflict model. Carlson, Kacmar, & Williams (2000) were the first to provide a measure of work/family conflict that conformed to a common model and was developed using rigorous psychometric procedures. This paper furthers the construct validity of the Carlson et al. scale by investigating its cross-cultural measurement invariance between two English-speaking samples.

Over the past 20 years a gradual shift in the makeup of the labor pool has resulted in a tremendous influx of women into the workforce (Howard, 1995), many of whom have moved into managerial and professional positions consisting of ever increasing role requirements. These requirements have resulted in less time and effort available for dealing with home and family matters. Because this shift has not been accompanied by any noticeable increase in government or private assistance in childcare, healthcare, or eldercare beyond the Family and Medical Leave Act of 1993, the result has been a situation in which both men and women are left with mounting responsibilities within their work and family roles. Not surprisingly, these mounting responsibilities have led to a greater potential for role conflict. Yet the measurement of work/family conflict has often been conducted with study-specific scales that were not developed using rigorous psychometric procedures, presenting both theoretical and practical problems for researchers. The purpose of this study is to validate the structure of a current work/family conflict scale across two English-speaking cultures, thereby furthering the standardization of work/family conflict measurement.

*Importance of Work/Family Conflict*

Greenhaus & Beutell (1985) defined work/family conflict as "a form of interrole conflict in which the role pressures from the work and family domains are mutually incompatible in some respect" (p. 77). According to their model, work/family conflict is both bi-directional (work interference with family/family interference with work) and multi-dimensional (time-, strain-, and behavior-based). In addition, the multi-dimensional nature of work/family conflict occurs in each direction. Time-based work/family conflict arises when the time demands from one role make it physically impossible to meet the requirements of another role, and when

preoccupation with one role's requirements occurs, even when one is physically involved in meeting the requirements of another role. Next, strain-based work/family conflict occurs when strain from one role interferes with fulfilling responsibilities in another. Lastly, behavior-based work/family conflict occurs when behavior in one role may be incompatible with expectations for behavior in another role (Greenhaus & Beutell, 1985).

Research on conflict between the work and family domains has proven the construct's dramatic effects on individuals (Fu and Shaffer, 2001; Burke and Greenglass, 2001). For instance, higher levels of work/family conflict are related to lower levels of job satisfaction, organizational commitment, job performance, higher levels of turnover intention, and burnout (Allen, Herst, Bruck, & Sutton, 2000; Aryee, 1992; Bacharach, Bamberger, & Conley, 1991; Kossek & Ozeki, 1998), as well as lower levels of life satisfaction, marital satisfaction, family satisfaction, and increased family distress (Allen et al. 2000; Frone, Yardley, & Markel, 1997; Kinnunen & Mauno, 1998). Levels of work/family conflict have also been linked to overall physical health, blood pressure, and health complaints (Adams & Jex, 1999; Frone, Russell, & Barnes, 1996; Thomas & Ganster, 1995), not to mention general psychological strain, substance abuse, and depression (Beatty, 1996; Burke, 1988; Frone, Russell, & Cooper, 1993). As can be seen, the impact of work/family conflict on an individual's life is vast. Clearly work/family conflict is deserving of the attention it has garnered.

The construct's influence has also been found to be similar across cultures. For example, using a Hong Kong sample, Aryee, Fields, & Luk (1999) replicated an explanatory model of work/family conflict previously validated by Frone, Russell, & Cooper (1992) on a US sample. Mastui, Ohsawa, & Onglatco (1995) found that levels of work/family conflict were related to parental demands among Japanese wives, results that were also found in Aryee, Luk, Leung, &

Lo's (1999) Hong Kong sample, and Frone, Yardley, & Markel's (1997) study using a US sample. Finally, Carlson (1999) found that negative affectivity was related to all three types of work/family conflict (time, strain, & behavior-based), and Stoeva, Chui, and Greenhaus (2000) found similar results using a Hong Kong sample. Therefore it appears that work/family conflict is not just a western phenomenon, but also an important stressor in the lives of people the world over.

*Measuring Work/Family Conflict*

Table 1 presents a list of the primary measurement tools used in generalized work/family conflict research to date. As previously stated, a lack of standardized measurement exists, which has resulted in theoretical (i.e., construct clarification) and practical (i.e., comparing results from multiple studies) problems. The vast majority of measures have either been self-developed (Frone, Russell, & Cooper, 1993 & 1994; Matsui, Ohsawa, & Onglatco, 1995; O'Driscoll, Ilgen, & Hildreth, 1992; Rice, Frone, & McFarlin, 1992), developed without using psychometrically rigorous procedures (Small & Riley, 1990; Pleck, Stains, & Lang, 1980), or failed to distinguish between either the bi-directionality of the construct (Cooke & Rousseau, 1984; Greenglass, Pantony, & Burke, 1988; Stephens & Sommer, 1996) or its multi-dimensional nature (Netemeyer, Boles, & McMurrian, 1996). To date, only one measure (Carlson, Kacmar, & Williams, 2000) has both addressed the need for rigorous test development and the multi-directional/dimensional nature of work/family conflict. Therefore, an appropriate "next step" in both the evolution of this measure and the evolution of the measurement of work/family conflict in general would be to examine the Carlson et al. scale's structure across a multitude of populations, particularly those from other nationalities and cultures.

To that end, the purpose of this study is to further validate the Carlson et al. (2000) scale by testing for measurement invariance between a US and a foreign English-speaking sample. In this case, the foreign English-speaking sample was obtained from Australia and New Zealand. By using a foreign English-speaking sample, problems with language translation are minimized and the structure of the measure can better be tested. This is particularly helpful because vast differences exist between testing the cross-cultural viability of a measure (i.e., measurement invariance, also known as measurement equivalence) and developing cross-lingual versions of it. According to Hulin (1987), "the goal of … equivalence is to provide an equivalent structure to the material to achieve equivalent stimuli rather than equivalent structure as an end in itself" (p. 117). In other words, directly translating a measure often results in confusion due to differences in how the target language expresses the concepts elucidated in the original wording of the items. One solution would be to test measurement equivalence using samples with fewer cultural differences as a first step, removing the alternative hypothesis that equivalent stimulation was not adequately achieved. Once evidence of structural cross-cultural equivalence is established, equivalent stimulation could then become the focus of further research.

*Similarities between Australia, New Zealand, and the United States.* Similarities between the three nationalities in this study have been well documented. For instance, Fallon (1996; in Fallon, 1997) successfully replicated the Frone et al. (1992) model of work/family conflict. Other studies have provided more generalized information. Sagie & Schwartz (1994) found that the levels of variance in ratings of value importance for Australia, New Zealand, and the United States fell within .14 of each other. In addition, Hofstede (1997) found many similarities between Australia, New Zealand, and the United States on his cultural dimensions of power distance, individualism/collectivism, masculinity/femininity, uncertainty avoidance, and long-

term orientation variables. On the whole these findings provide evidence that structural measurement invariance can be tested in the Carlson et al. (2000) measure of work/family conflict between the three nations with a significantly reduced threat of non-equivalent stimulation as an alternative hypothesis.

In addition to reducing the threat of non-equivalent stimulation as an alternative hypothesis, the alternative hypothesis of gender differences must also be taken into account. This is particularly relevant in work/family conflict, where findings of gender differences have been mixed (Gutek, Searle, & Klepa, 1991; Borovsky & Stepanski, 1999; Burley, 1995; Duxbury, Higgins, & Thomas, 1996; Duxbury & Higgins, 1991; Frone, Russell, & Cooper, 1992). Carlson et al (2000) also tested for gender differences in their scale development, finding that females experienced greater levels of time-, strain-, and behavior-based family interference with work, as well as greater levels of strain-based work interference with family. These findings may occur again in non-US, English-speaking samples, therefore directly testing one sample against the other may be presumptive, since it would be impossible to determine if any differences found between the Australian/New Zealand group and its US counterpart originated from dissimilarities in culture, or dissimilarities between men and women.

To control for gender differences when testing for measurement invariance, cross-cultural intra-gender comparisons were conducted. Specifically:

Hypothesis 1a:

An equivalent six-factor structure of Carlson et al.'s scale will be found between males in the English-speaking Australian/New Zealand sample and males in the English-speaking sample from the United States.

Hypotheseis 1b:

An equivalent six-factor structure of Carlson et al.'s scale will be found between females in the English-speaking Australian/New Zealand sample and females in the English-speaking sample from the United States.

## Method

### *Participants*

*Validation sample.* The second set of participants from the third study in the original Carlson et al (2000) validation research was employed as the validation sample in this paper. The sample consists of 225 individuals, who on average were 37 years old, had an average job tenure of 7.75 years, had 1.4 children (.98 children living with them), were 37% male, 84.4% white, and 62.7% were married.

*Comparison sample.* A total of 392 usable responses from employees within the Australian and New Zealand division of an S&P 500 company took the Carlson et al. (2000) work/family conflict scale. Of these, 73.2% were from Australia, and 63.5% were female. On average participants were 31.23 years old, had held at least 4 full-time positions in their lifetimes, held their current positions and been a part of their current organization for at least one year but less than three years, and 79.1% claimed that their current position was representative of their professional field.

### *Measures*

*Work/family conflict.* As previously stated, work/family conflict was measured using Carlson et al.'s (2000) 18 item scale (Table 4). The scale consists of six subscales (3 items each), measuring time-, strain-, and behavior-based conflict for both work interference with family and family interference with work. Means, standard deviations, and internal consistencies

are presented in Table 4. For the validation sample, a 5-point Likert scale was used ranging from strongly disagree (1) to strongly agree (5), whereas the comparison sample was given a Likert scale ranging between strongly disagree (1) and strongly agree (6).

*Procedure*

Archival data for the validation sample were collected by request from Dr. Carlson, who provided an American sample originally used for item purification. Next, archival responses to the Carlson et al (2000) work/family conflict scale were acquired from a study conducted by an S&P 500 company on their Australian/New Zealand division. Any missing data was imputed by predicting responses based on completed answers to same-scale items. As previously stated, both samples were measured on a strongly agree/strongly disagree Likert scale, with the validation sample scale ranging from 1 to 5, and the comparison sample scale ranging from 1 to 6. Due to this slight discrepancy between the two sample's scoring range, analyses were done using a completely standardized solution (Jöreskog and Sörbom, 1996).

*Design and Analysis*

Multi-sample confirmatory factor analysis (also known as a simultaneous factor analysis) was used to determine measurement invariance. A Diagram of the overall factor model is presented in Figure 1. Measurement invariance (also called measurement equivalence) was evaluated through a series of comparisons based upon the fundamental covariance equation for confirmatory factor analysis, namely:

$$\Sigma = \Lambda\Phi\Lambda'+\Theta$$

Where $\Sigma$ is the variance/covariance matrix of all the observed variables in the dataset, $\Lambda$ is the matrix of item factor loadings, $\Phi$ is the variance/covariance matrix of the latent variables (factors), and $\Theta$ is the diagonal matrix of unique variances. This equation is the model

describing observed item covariances as a function of common and unique factors (Vandenberg & Lance, 2000). For this study, steps comparing the covariance matrices, factor structure, factor loadings, and error variances were taken to test for measurement equivalence between the US and Australia/New Zealand populations. The sequence consisted of two separate sets of tests: (1) between males in the US and males in the Australia/New Zealand sample, and (2) between females in the US and females in the Australia/New Zealand sample. Procedures were determined using recommendations from Vandenberg (2000), and Cheung and Rensvold (1999). Actual steps taken in determining measurement invariance are presented in Table 3.

*Latent Variable Scaling and Testing Model Fit*

Estimation of latent variable scales was accomplished by equating latent variable variances across the groups and setting LISREL to determine the values wherever possible (Jöreskog & Sörbom, 1996). Latent variable scales that could not be estimated using this procedure were estimated by setting reference variable loadings to 1.0 (Byrne, 1998).

Model fit was tested using the $\chi^2$ Likelihood Ratio Test, the standardized root mean square residual (SRMR), the non-normed fit index (NNFI), and the root mean square error of approximation (RMSEA). The three were chosen for their ability to identify models with underparameterized covariances and factor loadings (Hu & Bentler, 1998), and robust results when sample sizes are small (e.g., N<250). For SRMR and RMSEA, a value less than .05 is considered a good fit. In addition for RMSEA, a value between .05 and .08 is considered fair fit, and .08 to .10 moderate to poor fit. Finally, for NNFI, a value at or above .95 is considered good fit (Hu & Bentler).

# Results

*Descriptive statistics.* Correlations and descriptive statistics for items and scales are presented in Tables 4 through 17.

## *Determining Measurement Invariance*

*Comparing variance/covariance matrices.* Significant $\chi^2$ between the sets of males ($\chi^2(171)=282.03$, $p<.01$) and females ($\chi^2(171)=427.29$, $p<.01$), as well as mediocre-to-poor fit results (males: RMSEA=.062; SRMR=.10; NNFI=.92. Females: RMSEA=.08; SRMR=.12; NNFI=.90), indicate that the groups do not share common variance/covariance matrices (see Table 18). Nevertheless, the comparison of covariances is often considered an extremely rigorous test, and additional analysis was conducted.

*Hypotheses 1a and 1b: Factor pattern invariance.* Hypotheses 1a and 1b stated that an equivalent six-factor pattern would be found between both males and females in the US and ANZ samples. While allowing the item loadings to vary freely and constraining the factor pattern, overall model fit was found to be good for females ($\chi^2(240)=464.76$, $p<.01$; RMSEA=.066; SRMR=.049; NNFI=.94), and moderate-to-poor for males ($\chi^2(240)=445.30$, $p<.01$; RMSEA=.079; SRMR=.070; NNFI=.90). Results for both sets of comparisons are similar enough to warrant further investigation of measurement invariance, supporting both hypotheses 1a and 1b. All subsequent tests of equivalence were conducted by examining the difference between this unconstrained factor pattern $\chi^2$ ($\chi^2_{uncon}$), and any more constrained model's $\chi^2$ ($\chi^2_{con}$).

*Invariance of manifest variable factor loadings.* Manifest variable factor loadings were tested for invariance by equating each sample's lambda matrix, thus holding the factor pattern

and manifest variable loadings equal across groups. Significant $\chi^2$ for both males ($\chi^2(257)=475.67$, $p<.01$) and females ($\chi^2(255)=509.91$, $p<.01$) were found, with mediocre-to-poor model fit for males (RMSEA=.081; SRMR=.14; NNFI=.84), and good-to-fair fit for females (RMSEA=.068; SRMR=.079; NNFI=.93). In addition, significant changes in $\chi^2$ between the unconstrained and constrained model for both males and females (see Table 18) indicated non-invariance of manifest variable factor loadings. The remaining fit indices also showed a decrease in overall model fit when compared to the unconstrained model, indicating that further invariance tests such as factor variance/covariance comparisons and unique variance comparisons, or scale mean comparisons across samples, would not be meaningful.

*Partial measurement invariance.* Partial measurement invariance was determined on an item-by-item basis. In turn, each manifest variable loading was constrained to be equal across samples, while simultaneously the loadings of all other items in the measure were allowed to vary freely. For males, fit statistics for each of the manifest variable loading tests between the male samples are presented in Table 19, with final lambda, phi, and error matrices, along with estimated modification indices for males, in Tables 21 through 23. Results indicated that the changes in $\chi^2$ and fit statistics were significant for items three, seven, and eleven. When the loadings for these items were allowed to vary freely, overall change in $\chi^2$ for males was not significantly different from the unconstrained model, yet fit was again mediocre-to-poor (Table 18). However, fit indices do show a small improvement using partial measurement invariance when compared to full measurement.

For females, fit statistics for each of the manifest variable loading tests are presented in Table 20, with final lambda, phi, and error matrices, along with estimated modification indices for females, in Tables 24 through 26. Results indicated that the change in $\chi^2$ and fit statistics

were significant for items one, two, four, seven, eight, ten, fifteen, and eighteen. In addition, it was found that designating item eleven as a reference variable for strain-based family interference with work resulted in better parameter invariance than using other items (Cheung and Rensvold, 1999). Although changes in SRMR for the 8 items were large, changes in RMSEA and NNFI were negligible. When the loadings for these items were allowed to vary freely, overall change in $\chi^2$ was not significantly different from the unconstrained model, and a good-to-mediocre fit with the model was realized (Table 18). However, since only 10 of the 18 items could be used in the adjusted scale, the viability of the measure as an indicator of work/family conflict is questionable.

## Discussion

The purpose of this study was to examine the level of measurement invariance on a scale of work/family conflict between samples from the United States and Australia/New Zealand. Comparisons of covariance matrices between the male and female sets of data indicated a poor fit between the samples, yet factor pattern comparisons revealed mediocre-to-poor fit between the male samples and a good fit between the female samples on the common model. This provided support for hypotheses 1a and 1b. However, testing for manifest variable loading invariance resulted in poor descriptive fit indices and significantly different changes in $\chi^2$ from the unconstrained model. Partial measurement invariance then found that fit with the common model improved for males if three items were allowed to vary freely, and if 8 items were allowed to vary freely for females.

These results indicate that although a common factor structure does appear to be shared between the samples from the US and Australia/New Zealand there is little in common regarding the strength of the item loadings on each factor. Therefore, mean comparisons between the

cultures would be difficult to interpret, and were not calculated. Some sample-specific issues, such as the size of the US male sample (n=83), may be causing this level of measurement non-invariance. Additionally, the US female sample is primarily made up of individuals in their late 30's, and the Australian/New Zealand female sample consists of individuals in their early 30's. It may be that younger women have less experience dealing with work/family role overlap, be more likely to have younger children at home, and are more likely to be in an earlier career-building phase than older women. These issues may moderate the extent to which younger women are able to leave work-related behaviors "at the office", and subsequently affect how they are responding to the work/family conflict scale.

Cultural differences may also be affecting responses. It may be that men share a greater level of household responsibility in Australia/New Zealand than in the U.S. In addition, Australian law allows for up to one year of unpaid maternity leave, and may reflect a greater tolerance for pregnancy in working women than in the US.

These results provide an important step in the standardization of work/family conflict measurement. Without measurement invariance cross-cultural mean comparisons can not be conducted. A better understanding of how different cultures, and even different cultural subgroups within a specific nation, react to specific scales will allow researchers to properly interpret similarities and differences. Developing these tools to the fullest extent will determine how well social scientists can interpret the interplay between work and family roles, and ultimately, the extent to which social science can affect change in negative work/family environments.

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Table 1

*Chronology of Primary Tools Used in Measuring Generalized Work/Family Conflict*

| Citation | Description |
|---|---|
| 1. Holahan and Gilbert (1979) | Six dichotomous measures of specific interrole conflict: a) Worker vs. Spouse (3 items), b) Worker vs. Parent (4 items), c) Worker vs. Self (4 items), d) Spouse vs. Parent (3 items), e) Spouse vs. Self (4 items), and f) Parent vs. Self (3 items). |
| 2. Burke, Weir, & DuWors (1979) | Wives indicated degree to which husbands jobs negatively impacted home and family life. Fifty items assessed 10 areas including requirement to relocate, personal relationship between husband and wife, etc. |
| 3. Pleck, Staines, & Lang (1980) | Used Quality of Employment Survey (Quinn & Staines, 1977) data to determine frequency and type of work/family conflict encountered by various family structures (i.e., with children, employed wives, etc). |
| 4. Bohen & Viveros-Long (1981) | Developed the Job-Family Role Strain scale, a 16-item measure that taps job/parent, job spouse, and generalized interrole conflict. |
| 5. Kopelman, Greenhaus, & Connolly (1983) | Developed an 8-item measure of work interference with family interrole conflict based on types of work/family conflict reported by Pleck et al. (1980). |
| 6. Wiley (1987) | Factor analyzed 22 items from the 50-item scale used by Burke et al. (1979). Found four distinct factors emerged: job/person-, job/family-, and family/job conflict, as well as role overload. |
| 7. Burley (1989; presented in Gutek, Searle, & Klepa, 1991) | Reconfigured four of the Kopelman et al (1983) items to tap family interference with work, demonstrating that work/family conflict is bi-directional and the two directions are in fact distinct. |
| 8. Stephens & Sommer (1996) | Developed the first work interference with family measure tapping generalized strain-, time-, and behavior-based conflict as delineated by Greenhaus & Beutel (1985). |
| 9. Netemeyer, Boles, & McMurrian (1996) | Developed the first bi-directional generalized work/family conflict scale utilizing prior measurement items. Each scale consists of five items, and were shown to be distinct. |
| 10. Carlson, Kacmar, & Williams (2000) | Developed the first bi-direction, multi-dimensional scale of work/family conflict. The 18-item scale consists of six three-item subscales tapping both the directions (work interference with family and family interference with work) and the dimensions (time-, strain-, and behavior-based) of conflict delineated by Greenhaus & Beutel (1985). |

Table 2

*Carlson et al. Work/Family Conflict Scale*

| |
|---|
| *Time-based work interference with family* |
| 1. My work keeps me from my family activities more than I would like. |
| 2. The time I must devote to my job keeps me from participating equally in household responsibilities and activities. |
| 3. I have to miss family activities due to the amount of time I must spend on work responsibilities. |
| *Time-based family interference with work* |
| 4. The time I spend on family responsibilities often interferes with my work responsibilities. |
| 5. The time I spend with my family often causes me not to spend time in activities at work that could be helpful to my career. |
| 6. I have to miss work activities due to the amount of time I must spend on family responsibilities. |
| *Strain-based work interference with family* |
| 7. When I get home from work I am often too frazzled to participate in family activities/responsibilities. |
| 8. I am often so emotionally drained when I get home from work that it prevents me from contributing to my family. |
| 9. Due to all the pressures at work, sometimes when I come home I am too stressed to do the things I enjoy. |
| *Strain-based family interference with work* |
| 10. Due to stress at home, I am often preoccupied with family matters at work. |
| 11. Because I am often stressed from family responsibilities, I have a hard time concentrating on my work. |
| 12. Tension and anxiety from my family life often weakens my ability to do my job. |
| *Behavior-based work interference with family* |
| 13. The problem-solving behaviors I use in my job are not effective in resolving problems at home. |
| 14. Behavior that is effective and necessary for me at work would be counterproductive at home. |
| 15. The behaviors I perform that make me effective at work do not help me to be a better parent or spouse. |
| *Behavior-based family interference with work* |
| 16. The behaviors that work for me at home do not seem to be effective at work. |
| 17. Behavior that is effective and necessary for me at home would be counterproductive at work. |
| 18. The problem-solving behaviors that work for me at home do not seem to be as useful at my work. |

Table 3

*Steps for determining full and partial measurement invariance*

*Determining Initial Measurement Invariance*

According to Cheung & Rensvold (1999), steps for determining measurement invariance include:

1. $\Sigma^1 = \Sigma^2$. Testing invariance begins with a comparison of sample covariance matrices (Sörbom, 1976; in Jöreskog & Sörbom, 1996). If the null hypothesis is not rejected, then invariance is said to exist. However, this is a very rigorous test (Cheung & Rensvold), and rejection of the null usually follows, prompting additional analysis.
2. $\Lambda^1_{form} = \Lambda^2_{form}$. Next, the fit of the theoretically derived model presented in Figure 1 is tested for invariance across groups. In this instance, factor loadings are not constrained to be equal across groups, only the pattern of manifest (item) and latent variable loadings.

*Determining Manifest Item Loading Invariance*

Manifest (item) loading invariance involves both full and partial invariance testing. Given factor pattern invariance:

3. $\Lambda^1_{\chi} = \Lambda^2_{\chi}$. Manifest (item) loadings are held invariant and the difference between the $\chi^2_{uncon}$ and the subsequent $\chi^2$ statistic is calculated. A nonsignificant difference between the unconstrained and fully constrained model would indicate measurement invariance. Subsequent tests would then include:
   a. $\Phi^1 = \Phi^2$. A test of factor variance/covariance invariance to provide the basis for testing equality of factor intercorrelations.
   b. $\Theta^1 = \Theta^2$. Assuming factor variance/covariance similarity, invariance between unique variance matrices would indicate comparable reliability between the two samples.

*Determining Partial Measurement Invariance*

If the same pattern of loadings across groups has been established, and the equality of the set loadings across groups has been rejected, partial measurement invariance can be investigated. For the present study, the following procedure was chosen:

4. One item at a time was held equivalent. All other items in the measure were not constrained to be equal across groups.
5. As with prior tests, differences between the $\chi^2_{uncon}$ and the present $\chi^2$ were used to determine whether an item loading was equivalent across groups.
   a. For directly standardized latent variables, all three items were tested in this manner.
   b. For indirectly standardized latent variables using a reference variable, each item was alternately used both as a reference variable and a constrained variable, with the third variable set to vary freely. Results determined which items were invariant, and which item was best used as the reference variable.

Table 4

*Item Intercorrelations for Males in the United States Sample*

| | Item 1 | Item 2 | Item 3 | Item 4 | Item 5 | Item 6 | Item 7 | Item 8 | Item 9 | Item 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Item 2 | .780** | | | | | | | | | |
| Item 3 | .653** | .679** | | | | | | | | |
| Item 4 | .193 | .308** | .253* | | | | | | | |
| Item 5 | .288* | .400** | .287** | .419 | | | | | | |
| Item 6 | .267* | .416** | .337** | .428** | .726** | | | | | |
| Item 7 | .374** | .357** | .364** | .237* | .302** | .278* | | | | |
| Item 8 | .403** | .325** | .314** | .266* | .306** | .330** | .488** | | | |
| Item 9 | .402** | .300** | .357** | .225* | .332** | .329** | .464** | .726** | | |
| Item 10 | .218* | .200 | .084 | .376** | .248* | .262* | .380** | .560** | .394** | |
| Item 11 | .175 | .119 | .103 | .432** | .240* | .303** | .363** | .483** | .361** | .722** |
| Item 12 | .210 | .187 | .129 | .277* | .464** | .437** | .293** | .520** | .363** | .574** |
| Item 13 | .112 | .051 | .028 | .234* | .208 | .261* | .309** | .416** | .480** | .441** |
| Item 14 | .242* | .126 | .076 | .062 | .258* | .128 | .254* | .365** | .473** | .257* |
| Item 15 | .342** | .198 | .105 | .182 | .288** | .247* | .320** | .502** | .457** | .528** |
| Item 16 | .191 | .067 | -.043 | .080 | .182 | .235* | .139 | .494** | .379** | .404** |
| Item 17 | .155 | .005 | .064 | .123 | .131 | .152 | .174 | .355** | .452** | .393** |
| Item 18 | .242* | .133 | .143 | .241* | .200 | .171 | .113 | .497** | .476** | .442** |

Note: N=83; *=p<.05; **=p<.01

Table 4 (continued)

*Item Intercorrelations for Males in the United States Sample (continued)*

| | Item 11 | Item 12 | Item 13 | Item 14 | Item 15 | Item 16 | Item 17 |
|---|---|---|---|---|---|---|---|
| Item 12 | .701** | | | | | | |
| Item 13 | .427** | .273* | | | | | |
| Item 14 | .198 | .129 | .612** | | | | |
| Item 15 | .396** | .394** | .544** | .565** | | | |
| Item 16 | .365** | .460** | .430** | .561** | .658** | | |
| Item 17 | .392** | .261* | .514** | .625** | .585** | .752** | |
| Item 18 | .355** | .270* | .601** | .605** | .519** | .694** | .718** |

Note: N=83; *=p<.05; **=p<.01

Table 5

*Means, Standard Deviations, Reliabilities, and Intercorrelation of Scales for Males in the United States*

| | Mean | SD | WIF Time | FIW Time | WIF Strain | FIW Strain | WIF Behavior | FIW Behavior |
|---|---|---|---|---|---|---|---|---|
| WIF Time | 2.90 | 1.14 | .877 | | | | | |
| FIW Time | 1.77 | 0.81 | .412** | .769 | | | | |
| WIF Strain | 2.45 | 1.00 | .472** | .417** | .791 | | | |
| FIW Strain | 1.72 | 0.71 | .205 | .459** | .559** | .849 | | |
| WIF Behavior | 2.49 | 1.01 | .191 | .296** | .558** | .453** | .801 | |
| FIW Behavior | 2.36 | 1.04 | .133 | .225* | .451** | .471** | .741** | .885 |

Note: N=83; *=p<.05; **=p<.01; WIF = work interference with family; FIW = family interference with work; Diagonal contains reliabilities.

Table 6

*Item Intercorrelations for Males in the Australia/New Zealand Sample*

| | Item 1 | Item 2 | Item 3 | Item 4 | Item 5 | Item 6 | Item 7 | Item 8 | Item 9 | Item 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Item 2 | .772** | | | | | | | | | |
| Item 3 | .753** | .742** | | | | | | | | |
| Item 4 | .150 | .156 | .310** | | | | | | | |
| Item 5 | .068 | .182* | .205* | .541** | | | | | | |
| Item 6 | .039 | .113 | .237** | .624** | .706** | | | | | |
| Item 7 | .337** | .359** | .419** | .136 | .143 | .149 | | | | |
| Item 8 | .232** | .222** | .270** | .075 | .082 | .072 | .754** | | | |
| Item 9 | .329** | .344** | .351** | .139 | -.001 | .050 | .747** | .695** | | |
| Item 10 | -.048 | -.073 | -.059 | .409** | .307** | .409** | .055 | .147 | .132 | |
| Item 11 | -.027 | -.053 | .038 | .348** | .192* | .317** | .149 | .139 | .258** | .736** |
| Item 12 | .054 | .014 | .104 | .309** | .214* | .272** | .229** | .198* | .301** | .631** |
| Item 13 | .206* | .205* | .286** | .089 | .163* | .167* | .324** | .301** | .233** | .151 |
| Item 14 | .169 | .102 | .203* | .150 | .258** | .199* | .243** | .299** | .171* | .214* |
| Item 15 | .124 | .141 | .254** | .167* | .241** | .275** | .331** | .359** | .215* | .179* |
| Item 16 | .138 | .060 | .158 | .174* | .170* | .329** | .347** | .365** | .284** | .176* |
| Item 17 | .174* | .041 | .142 | .167* | .256** | .271** | .331** | .314** | .266** | .140 |
| Item 18 | .189* | .211* | .270** | .175* | .191* | .278** | .357** | .319** | .328** | .185* |

Note: N=143; *=p<.05; **=p<.01

Table 6 (continued)

*Item Intercorrelations for Males in the Australia/New Zealand Sample (continued)*

| | Item 11 | Item 12 | Item 13 | Item 14 | Item 15 | Item 16 | Item 17 |
|---|---|---|---|---|---|---|---|
| Item 12 | .875** | | | | | | |
| Item 13 | .325** | .427** | | | | | |
| Item 14 | .211* | .272** | .540** | | | | |
| Item 15 | .218** | .313** | .634** | .776** | | | |
| Item 16 | .245** | .316** | .473** | .614** | .687** | | |
| Item 17 | .178* | .251** | .438** | .645** | .614** | .761** | |
| Item 18 | .220** | .317** | .537** | .616** | .702** | .750** | .723** |

Note: N=143; *=p<.05; **=p<.01

Table 7

*Means, Standard Deviations, Reliabilities, and Intercorrelation of Scales for Males in Australia/New Zealand.*

| | Mean | SD | WIF Time | FIW Time | WIF Strain | FIW Strain | WIF Behavior | FIW Behavior |
|---|---|---|---|---|---|---|---|---|
| WIF Time | 3.55 | 1.33 | .903 | | | | | |
| FIW Time | 2.14 | 0.99 | .204* | .831 | | | | |
| WIF Strain | 3.10 | 1.20 | .384** | .118 | .891 | | | |
| FIW Strain | 1.64 | 0.80 | -.006 | .387** | .218** | .898 | | |
| WIF Behavior | 2.66 | 1.07 | .233** | .254** | .345** | .321** | .848 | |
| FIW Behavior | 2.54 | 1.04 | .182* | .283** | .391** | .272** | .742** | .896 |

Note: N=143; *=p<.05; **=p<.01; WIF = work interference with family; FIW = family interference with work; Diagonal contains reliabilities.

Table 8

*Item Means and Standard Deviations for Males in the United States and Australia/New Zealand Samples.*

| | US Males | | ANZ Males | |
|---|---|---|---|---|
| | Mean | St. Dev. | Mean | St. Dev. |
| Item 1 | 3.31 | 1.33 | 3.76 | 1.47 |
| Item 2 | 2.78 | 1.30 | 3.66 | 1.43 |
| Item 3 | 2.61 | 1.18 | 3.22 | 1.46 |
| Item 4 | 1.73 | 0.94 | 2.08 | 1.08 |
| Item 5 | 1.88 | 1.05 | 2.31 | 1.25 |
| Item 6 | 1.71 | 0.94 | 2.04 | 1.12 |
| Item 7 | 2.40 | 1.19 | 3.22 | 1.31 |
| Item 8 | 2.43 | 1.15 | 2.82 | 1.31 |
| Item 9 | 2.51 | 1.22 | 3.25 | 1.36 |
| Item 10 | 1.86 | 0.91 | 1.71 | 0.89 |
| Item 11 | 1.64 | 0.73 | 1.62 | 0.85 |
| Item 12 | 1.65 | 0.79 | 1.59 | 0.91 |
| Item 13 | 2.41 | 1.18 | 2.58 | 1.18 |
| Item 14 | 2.60 | 1.26 | 2.69 | 1.25 |
| Item 15 | 2.46 | 1.15 | 2.73 | 1.22 |
| Item 16 | 2.43 | 1.23 | 2.60 | 1.23 |
| Item 17 | 2.32 | 1.10 | 2.55 | 1.15 |
| Item 18 | 2.33 | 1.12 | 2.47 | 1.06 |

Note: US males: N=83; ANZ males: N=143.

Table 9

*Item Intercorrelations for Females in the United States Sample*

| | Item 1 | Item 2 | Item 3 | Item 4 | Item 5 | Item 6 | Item 7 | Item 8 | Item 9 | Item 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Item 2 | .603** | | | | | | | | | |
| Item 3 | .693** | .699** | | | | | | | | |
| Item 4 | .115 | .150 | .082 | | | | | | | |
| Item 5 | .202* | .102 | .190* | .623** | | | | | | |
| Item 6 | .144 | .063 | .195* | .568** | .615** | | | | | |
| Item 7 | .271** | .395** | .516** | .194* | .305** | .343** | | | | |
| Item 8 | .372** | .516** | .537** | .254** | .269** | .310** | .706** | | | |
| Item 9 | .304** | .455** | .543** | .157 | .279** | .326** | .709** | .747** | | |
| Item 10 | .158 | .055 | .208* | .415** | .376** | .554** | .203* | .166* | .148 | |
| Item 11 | .169* | .171* | .240** | .584** | .485** | .649** | .337** | .345** | .379** | .645** |
| Item 12 | .191* | .096 | .251** | .617** | .568** | .635** | .242** | .306** | .293** | .648** |
| Item 13 | .081 | .161 | .136 | .169* | .136 | .288** | .353** | .208* | .234** | .264** |
| Item 14 | .225** | .265** | .244** | .226** | .218** | .345** | .287** | .284** | .332** | .246** |
| Item 15 | .252** | .279** | .278** | .200* | .179* | .259** | .237** | .325** | .225** | .275** |
| Item 16 | .303** | .304** | .332** | .097 | .171* | .165* | .280** | .357** | .383** | .282** |
| Item 17 | .285** | .300** | .332** | .106 | .188* | .163 | .205* | .334** | .363** | .305** |
| Item 18 | .120 | .227** | .155 | .209* | .113 | .192* | .208* | .279** | .220** | .309** |

Note: N=139; *=p<.05; **=p<.01

Table 9 (continued)

*Item Intercorrelations for Females in the United States Sample (continued)*

| | Item 11 | Item 12 | Item 13 | Item 14 | Item 15 | Item 16 | Item 17 |
|---|---|---|---|---|---|---|---|
| Item 12 | .848** | | | | | | |
| Item 13 | .333** | .249** | | | | | |
| Item 14 | .321** | .274** | .571** | | | | |
| Item 15 | .270** | .248** | .470** | .503** | | | |
| Item 16 | .266** | .258** | .447** | .438** | .598** | | |
| Item 17 | .336** | .304** | .512** | .502** | .499** | .780** | |
| Item 18 | .335** | .302** | .380** | .243** | .411** | .540** | .496** |

Note: N=139; *=p<.05; **=p<.01

Table 10

*Means, Standard Deviations, Reliabilities, and Intercorrelation of Scales for Females in the United States*

| | Mean | SD | WIF Time | FIW Time | WIF Strain | FIW Strain | WIF Behavior | FIW Behavior |
|---|---|---|---|---|---|---|---|---|
| WIF Time | 2.84 | 1.08 | .855 | | | | | |
| FIW Time | 2.00 | 0.90 | .184* | .819 | | | | |
| WIF Strain | 2.82 | 1.12 | .544** | .351** | .886 | | | |
| FIW Strain | 1.92 | 0.83 | .214* | .698** | .328** | .878 | | |
| WIF Behavior | 2.62 | 0.95 | .293** | .316** | .371** | .373** | .760 | |
| FIW Behavior | 2.67 | 0.95 | .346** | .212* | .378** | .389** | .635** | .821 |

Note: N=139; *=p<.05; **=p<.01; WIF = work interference with family; FIW = family interference with work; Diagonal contains reliabilities.

Table 11

*Item Intercorrelations for Females in the Australia/New Zealand Sample*

| | Item 1 | Item 2 | Item 3 | Item 4 | Item 5 | Item 6 | Item 7 | Item 8 | Item 9 | Item 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Item 2 | .741** | | | | | | | | | |
| Item 3 | .762** | .729** | | | | | | | | |
| Item 4 | .247** | .212** | .293** | | | | | | | |
| Item 5 | .187** | .046 | .234** | .454** | | | | | | |
| Item 6 | .101 | .014 | .161* | .460** | .791** | | | | | |
| Item 7 | .484** | .627** | .561** | .098 | .109 | -.008 | | | | |
| Item 8 | .471** | .629** | .544** | .046 | .086 | .049 | .865** | | | |
| Item 9 | .485** | .543** | .523** | .176** | .074 | -.009 | .728** | .731** | | |
| Item 10 | .077 | .088 | .119 | .122* | .190** | .246** | .115 | .125* | .135** | |
| Item 11 | .032 | .071 | .073 | .148* | .214* | .233* | .093 | .096 | .108 | .798** |
| Item 12 | .038 | .035 | .083 | .128* | .149* | .258** | .024 | .021 | .059 | .747** |
| Item 13 | .139* | .112 | .157* | .060 | .087 | .098 | .172** | .177** | .212** | .422** |
| Item 14 | .093 | .109 | .163* | .038 | .093 | .067 | .198** | .217** | .237** | .227** |
| Item 15 | .252** | .228** | .296** | .090 | .085 | .053 | .286** | .314** | .308** | .210** |
| Item 16 | .187** | .212** | .256** | .097 | .047 | .075 | .258** | .298** | .294** | .183** |
| Item 17 | .128* | .125* | .196** | .017 | .033 | .024 | .244** | .256** | .234** | .183** |
| Item 18 | .140* | .150* | .201** | .069 | .077 | .083 | .259** | .309** | .305** | .205** |

Note: N=249; *=p<.05; **=p<.01

Table 11 (continued)

*Item Intercorrelations for Females in the Australia/New Zealand Sample (continued)*

| | Item 11 | Item 12 | Item 13 | Item 14 | Item 15 | Item 16 | Item 17 |
|---|---|---|---|---|---|---|---|
| Item 12 | .790** | | | | | | |
| Item 13 | .391** | .402** | | | | | |
| Item 14 | .260** | .179** | .387** | | | | |
| Item 15 | .227** | .167** | .437** | .652** | | | |
| Item 16 | .249** | .199** | .402** | .598** | .775** | | |
| Item 17 | .223** | .170** | .339** | .702** | .644** | .688** | |
| Item 18 | .246** | .177** | .469** | .589** | .688** | .720** | .703** |

Note: N=249; *=p<.05; **=p<.01

Table 12

*Means, Standard Deviations, Reliabilities, and Intercorrelation of Scales for Females in Australia/New Zealand*

| | Mean | SD | WIF Time | FIW Time | WIF Strain | FIW Strain | WIF Behavior | FIW Behavior |
|---|---|---|---|---|---|---|---|---|
| WIF Time | 2.90 | 1.29 | .896 | | | | | |
| FIW Time | 1.94 | 0.91 | .212** | .800 | | | | |
| WIF Strain | 3.12 | 1.33 | .644** | .089 | .912 | | | |
| FIW Strain | 1.60 | 0.77 | .082 | .240** | .103 | .912 | | |
| WIF Behavior | 2.52 | 1.02 | .234** | .109 | .316** | .365** | .745 | |
| FIW Behavior | 2.59 | 1.04 | .216** | .075 | .330** | .246** | .797** | .875 |

Note: N=249; *=p<.05; **=p<.01; WIF = work interference with family; FIW = family interference with work; Diagonal contains reliabilities.

Table 13

*Item Means and Standard Deviations for Females in the United States and Australia/New Zealand Samples*

| | US Females | | ANZ Females | |
|---|---|---|---|---|
| | Mean | Std. Dev. | Mean | Std. Dev. |
| Item 1 | 3.16 | 1.27 | 3.13 | 1.45 |
| Item 2 | 2.71 | 1.22 | 2.92 | 1.48 |
| Item 3 | 2.64 | 1.19 | 2.63 | 1.34 |
| Item 4 | 1.96 | 0.99 | 1.84 | 1.02 |
| Item 5 | 2.11 | 1.12 | 2.06 | 1.15 |
| Item 6 | 1.95 | 1.04 | 1.91 | 1.04 |
| Item 7 | 2.74 | 1.22 | 3.04 | 1.44 |
| Item 8 | 2.84 | 1.24 | 3.03 | 1.46 |
| Item 9 | 2.89 | 1.27 | 3.29 | 1.45 |
| Item 10 | 2.08 | 0.99 | 1.68 | 0.89 |
| Item 11 | 1.88 | 0.91 | 1.57 | 0.81 |
| Item 12 | 1.81 | 0.88 | 1.55 | 0.81 |
| Item 13 | 2.73 | 1.19 | 2.31 | 1.22 |
| Item 14 | 2.52 | 1.13 | 2.55 | 1.22 |
| Item 15 | 2.59 | 1.17 | 2.69 | 1.32 |
| Item 16 | 2.68 | 1.13 | 2.58 | 1.17 |
| Item 17 | 2.63 | 1.09 | 2.67 | 1.22 |
| Item 18 | 2.70 | 1.12 | 2.51 | 1.09 |

Note: US females: N=139; ANZ females: N=249.

Table 14

*Item Intercorrelations Between Males in the United States and Australia/New Zealand*

| | Item 1 | Item 2 | Item 3 | Item 4 | Item 5 | Item 6 | Item 7 | Item 8 | Item 9 | Item 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Item 2 | .776** | | | | | | | | | |
| Item 3 | .729** | .736** | | | | | | | | |
| Item 4 | .184** | .241** | .317** | | | | | | | |
| Item 5 | .158* | .286** | .257** | .519** | | | | | | |
| Item 6 | .129* | .238** | .287** | .576** | .719** | | | | | |
| Item 7 | .374** | .415** | .438** | .208** | .233** | .222** | | | | |
| Item 8 | .302** | .284** | .304** | .155* | .171** | .167* | .677** | | | |
| Item 9 | .376** | .383** | .387** | .202** | .142* | .168* | .683** | .711** | | |
| Item 10 | .032 | -.002 | -.029 | .377** | .267** | .342** | .136* | .272** | .193** | |
| Item 11 | .033 | -.003 | .052 | .366** | .200** | .308** | .202** | .238** | .276** | .727** |
| Item 12 | .097 | .056 | .102 | .290** | .278** | .313** | .228** | .288** | .300** | .610** |
| Item 13 | .182** | .165* | .213** | .147* | .186** | .205** | .324** | .344** | .324** | .252** |
| Item 14 | .197** | .114 | .165* | .124 | .258** | .178** | .245** | .321** | .272** | .227** |
| Item 15 | .209** | .184** | .225** | .186** | .269** | .278** | .343** | .414** | .311** | .292** |
| Item 16 | .164* | .079 | .105 | .151** | .182** | .303** | .282** | .412** | .321** | .254** |
| Item 17 | .180** | .056 | .135* | .166* | .229** | .243** | .294** | .337** | .341** | .222** |
| Item 18 | .214** | .194** | .234** | .204** | .201** | .247** | .276** | .384** | .382** | .277** |

Note: N=226; *=p<.05; **=p<.01

Table 14 (continued)

*Item Intercorrelations Between Males in the United States and Australia/New Zealand (continued)*

| | Item 11 | Item 12 | Item 13 | Item 14 | Item 15 | Item 16 | Item 17 |
|---|---|---|---|---|---|---|---|
| Item 12 | .823** | | | | | | |
| Item 13 | .356** | .371** | | | | | |
| Item 14 | .205** | .222** | .567** | | | | |
| Item 15 | .271** | .333** | .605** | .700** | | | |
| Item 16 | .282** | .360** | .460** | .595** | .678** | | |
| Item 17 | .244** | .249** | .469** | .638** | .608** | .759** | |
| Item 18 | .263** | .296** | .563** | .612** | .636** | .730** | .722** |

Note: N=226; *=p<.05; **=p<.01

Table 15

*Means, Standard Deviations, and Intercorrelation of Scales for Males in the United States and Australia/New Zealand*

| | Mean | SD | WIF Time | FIW Time | WIF Strain | FIW Strain | WIF Behavior | FIW Behavior |
|---|---|---|---|---|---|---|---|---|
| WIF Time | 3.31 | 1.30 | -- | | | | | |
| FIW Time | 2.01 | 0.95 | .297** | -- | | | | |
| WIF Strain | 2.86 | 1.17 | .447** | .242** | -- | | | |
| FIW Strain | 1.67 | 0.77 | .045 | .391** | .294** | -- | | |
| WIF Behavior | 2.60 | 1.05 | .232** | .276** | .416** | .359** | -- | |
| FIW Behavior | 2.47 | 1.04 | .180** | .274** | .415** | .333** | .743** | -- |

Note: N=226; *=p<.05; **=p<.01; WIF = work interference with family; FIW = family interference with work.

Table 16

*Item Intercorrelations Between Females in the United States and Australia/New Zealand*

| | Item 1 | Item 2 | Item 3 | Item 4 | Item 5 | Item 6 | Item 7 | Item 8 | Item 9 | Item 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Item 2 | .698** | | | | | | | | | |
| Item 3 | .741** | .718** | | | | | | | | |
| Item 4 | .205** | .188** | .224** | | | | | | | |
| Item 5 | .192** | .062 | .220** | .513** | | | | | | |
| Item 6 | .115* | .028 | .172** | .498** | .729** | | | | | |
| Item 7 | .418** | .565** | .544** | .121* | .167** | .101* | | | | |
| Item 8 | .440** | .599** | .540** | .107* | .142** | .131** | .820** | | | |
| Item 9 | .425** | .521** | .523** | .160** | .136** | .096 | .726** | .736** | | |
| Item 10 | .104* | .060 | .147** | .237** | .258** | .358** | .118* | .122* | .106* | |
| Item 11 | .080 | .090 | .130** | .316** | .314** | .389** | .154** | .167** | .173** | .745** |
| Item 12 | .091 | .044 | .140** | .312** | .304** | .398** | .080 | .106* | .116* | .715** |
| Item 13 | .120* | .113* | .149** | .106* | .106* | .165** | .206** | .173** | .190** | .383** |
| Item 14 | .134** | .156** | .189** | .099* | .135** | .161** | .225** | .237** | .265** | .226** |
| Item 15 | .251** | .245** | .290** | .123* | .115* | .120* | .274** | .318** | .285** | .219** |
| Item 16 | .224** | .236** | .280** | .099* | .090 | .107** | .259** | .313** | .313** | .223** |
| Item 17 | .175** | .177** | .238* | .045 | .083 | .070 | .233** | .279** | .273** | .217** |
| Item 18 | .134** | .167** | .185** | .123* | .091 | .124** | .231** | .291** | .261** | .255** |

Note: N=388; *=p<.05; **=p<.01

Table 16 (continued)

*Item Intercorrelations Between Females in the United States and Australia/New Zealand (continued)*

| | Item 11 | Item 12 | Item 13 | Item 14 | Item 15 | Item 16 | Item 17 |
|---|---|---|---|---|---|---|---|
| Item 12 | .818** | | | | | | |
| Item 13 | .386** | .361** | | | | | |
| Item 14 | .275** | .208** | .440** | | | | |
| Item 15 | .231** | .186** | .434** | .605** | | | |
| Item 16 | .257** | .224** | .418** | .544** | .715** | | |
| Item 17 | .255** | .211** | .387** | .639** | .600** | .716** | |
| Item 18 | .289** | .233** | .442** | .466** | .588** | .656** | .628** |

Note: N=388; *=p<.05; **=p<.01

Table 17

*Means, Standard Deviations, and Intercorrelation of Scales for Females in the United States andAustralia/New Zealand*

| | Mean | SD | WIF Time | FIW Time | WIF Strain | FIW Strain | WIF Behavior | FIW Behavior |
|---|---|---|---|---|---|---|---|---|
| WIF Time | 2.87 | 1.22 | -- | | | | | |
| FIW Time | 1.96 | 0.90 | .202** | -- | | | | |
| WIF Strain | 3.01 | 1.27 | .615** | .166** | -- | | | |
| FIW Strain | 1.71 | 0.81 | .118* | .409** | .151** | -- | | |
| WIF Behavior | 2.55 | 1.00 | .250** | .181** | .325** | .369** | -- | |
| FIW Behavior | 2.62 | 1.01 | .254** | .122* | .337** | .297** | .745** | -- |

Note: N=388; *=p<.05; **=p<.01; WIF = work interference with family; FIW = family interference with work.

Table 18

*Level of Overall Fit Across Multiple Models of Invariance*

| | $\chi^2$ | $\Delta\chi^2$ | RMSEA | SRMR | NNFI |
|---|---|---|---|---|---|
| *Males* | | | | | |
| Variance/Covariance Invariance | 282.03 | n/a | .062 | .100 | .92 |
| Factor Pattern Invariance ( $\chi^2_{uncon}$) | 445.30 | n/a | .079 | .070 | .90 |
| Factor Pattern and Loading Invariance | 475.67 | 30.37* | .081 | .140 | .84 |
| Partial Measurement Invariance | 460.44 | 15.14 | .078 | .100 | .91 |
| *Females* | | | | | |
| Variance/Covariance Invariance | 427.29 | n/a | .080 | .120 | .90 |
| Factor Pattern Invariance ( $\chi^2_{uncon}$) | 464.76 | n/a | .066 | .049 | .94 |
| Factor Pattern and Loading Invariance | 516.33 | 51.57* | .068 | .12 | .93 |
| Partial Measurement Invariance | 473.30 | 8.54 | .065 | .064 | .94 |

Note: *=p<.05; RMSEA=Root Mean Square Error of Approximation; SRMR=Standardized Root Mean Square Residual; NNFI=Non-Normed Fit Index.

Table 19

*Partial Measurement Invariance Fit Statistics for Males.*

| | $\chi^2$ | $\Delta\chi^2$ | RMSEA | ΔRMSEA | SRMR | ΔSRMR | NNFI | ΔNNFI |
|---|---|---|---|---|---|---|---|---|
| ( $\chi^2_{uncon}$) | 445.30 | n/a | .079 | n/a | .070 | n/a | 0.90 | n/a |
| Item 1 | 446.05 | 0.75 | .079 | 0.000 | .070 | 0.000 | .90 | 0.00 |
| Item 2 | 445.52 | 0.22 | .079 | 0.000 | .070 | 0.000 | .90 | 0.00 |
| Item 3 | 450.72 | 5.42* | .080 | +.001 | .082 | +.012 | .90 | 0.00 |
| Item 4 | 448.90 | 3.60 | .080 | +.001 | .073 | +.003 | .90 | 0.00 |
| Item 5 | 445.60 | 0.30 | .079 | 0.000 | .070 | 0.000 | .90 | 0.00 |
| Item 6 | 447.99 | 2.69 | .079 | 0.000 | .074 | 0.004 | .90 | 0.00 |
| Item 7 | 451.34 | 6.04* | .081 | +.002 | .077 | +.007 | .90 | 0.00 |
| Item 8 | 445.64 | 0.34 | .079 | 0.000 | .070 | 0.000 | .90 | 0.00 |
| Item 9 | 445.39 | 0.09 | .079 | 0.000 | .070 | 0.000 | .90 | 0.00 |
| Item 10 | 445.74 | 0.44 | .079 | 0.000 | .074 | +.004 | .90 | 0.00 |
| Item 11 | 450.36 | 5.06* | .080 | +.001 | .091 | +.021 | .90 | 0.00 |
| Item 12 | 448.74 | 3.44 | .079 | 0.00 | .082 | +.012 | .90 | 0.00 |
| Item 13 | 445.44 | 0.14 | .079 | 0.00 | .072 | +.002 | .90 | 0.00 |
| Item 14 | 445.55 | 0.25 | .079 | 0.00 | .071 | +.001 | .90 | 0.00 |
| Item 15 | 448.11 | 2.81 | .079 | 0.00 | .083 | +.013 | .90 | 0.00 |
| Item 16 | 445.37 | 0.07 | .079 | 0.00 | .070 | 0.000 | .90 | 0.00 |
| Item 17 | 445.30 | 0.00 | .079 | 0.00 | .070 | 0.000 | .90 | 0.00 |
| Item 18 | 445.30 | 0.00 | .079 | 0.00 | .071 | +.001 | .90 | 0.00 |

Note: *=p<.05; RMSEA=Root Mean Square Error of Approximation;
SRMR=Standardized Root Mean Square Residual; NNFI=Non-Normed Fit Index.

Table 20

*Partial Measurement Invariance Fit Statistics for Females*

| | $\chi^2$ | $\Delta\chi^2$ | RMSEA | ΔRMSEA | SRMR | ΔSRMR | NNFI | ΔNNFI |
|---|---|---|---|---|---|---|---|---|
| ($\chi^2_{uncon}$) | 464.76 | n/a | .066 | n/a | .049 | n/a | .94 | n/a |
| Item 1 | 470.11 | 5.35* | .067 | +0.001 | .064 | +.015 | .94 | 0.00 |
| Item 2 | 471.60 | 6.84* | .067 | +0.001 | .067 | +.018 | .93 | -0.01 |
| Item 3 | 465.11 | 0.35 | .066 | 0.000 | .050 | +.001 | .94 | 0.00 |
| Item 4 | 469.25 | 4.49* | .066 | 0.000 | .059 | +.010 | .94 | 0.00 |
| Item 5 | 467.41 | 2.65 | .066 | 0.000 | .057 | +.008 | .94 | 0.00 |
| Item 6 | 465.43 | 0.67 | .066 | 0.000 | .051 | +.002 | .94 | 0.00 |
| Item 7 | 473.06 | 8.30* | .067 | +0.001 | .080 | +.031 | .93 | -0.01 |
| Item 8 | 470.53 | 5.77* | .067 | +0.001 | .072 | +.023 | .93 | -0.01 |
| Item 9 | 464.95 | 0.19 | .066 | 0.000 | .050 | +.001 | .94 | 0.00 |
| Item 10 | 468.71 | 3.95* | .066 | 0.000 | .052 | +.003 | .94 | 0.00 |
| Item 11 | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| Item 12 | 465.23 | 0.47 | .066 | 0.000 | .049 | 0.000 | .94 | 0.00 |
| Item 13 | 467.62 | 2.86 | .066 | 0.000 | .056 | +.007 | .94 | 0.00 |
| Item 14 | 465.49 | 0.73 | .066 | 0.000 | .050 | +.001 | .94 | 0.00 |
| Item 15 | 470.64 | 5.88* | .066 | 0.000 | .065 | +.017 | .93 | -0.01 |
| Item 16 | 464.77 | 0.01 | .066 | 0.000 | .049 | 0.000 | .94 | 0.00 |
| Item 17 | 464.88 | 0.08 | .066 | 0.000 | .049 | 0.000 | .94 | 0.00 |
| Item 18 | 469.75 | 4.99* | .066 | 0.000 | .060 | +.011 | .94 | 0.00 |

Note: *=p<.05; All $\Delta\chi^2$ based on 1 degree of freedom; RMSEA=Root Mean Square Error of Approximation; SRMR=Standardized Root Mean Square Residual; NNFI=Non-Normed Fit Index.

Table 21

*Within-Group Completely Standardized Manifest Variable Loadings and Modification Indices for Males*

| | US | ANZ | MI | US | ANZ | MI | US | ANZ | MI |
|---|---|---|---|---|---|---|---|---|---|
| Item 1 | 0.88 | 0.86 | 0.32 | | | | | | |
| Item 2 | 0.91 | 0.87 | 0.03 | | | | | | |
| Item 3 | 0.78 | 0.86 | n/a | | | | | | |
| Item 4 | | | | 0.65 | 0.66 | 1.78 | | | |
| Item 5 | | | | 0.85 | 0.77 | 0.24 | | | |
| Item 6 | | | | 0.89 | 0.89 | 0.98 | | | |
| Item 7 | | | | | | | 0.61 | 0.90 | n/a |
| Item 8 | | | | | | | 0.89 | 0.83 | 0.03 |
| Item 9 | | | | | | | 0.85 | 0.83 | 0.25 |

Note: US=United States; ANZ=Australia/New Zealand; MI=Modification Index.

Table 21 (continued)

*Within-Group Completely Standardized Manifest Variable Loadings and Modification Indices for Males (continued)*

| | US | ANZ | MI | US | ANZ | MI | US | ANZ | MI |
|---|---|---|---|---|---|---|---|---|---|
| Item 10 | 0.76 | 0.76 | 3.66 | | | | | | |
| Item 11 | 0.89 | 0.99 | n/a | | | | | | |
| Item 12 | 0.85 | 0.87 | 4.86 | | | | | | |
| Item 13 | | | | 0.70 | 0.69 | 0.81 | | | |
| Item 14 | | | | 0.78 | 0.83 | 0.00 | | | |
| Item 15 | | | | 0.83 | 0.91 | 2.76 | | | |
| Item 16 | | | | | | | 0.86 | 0.88 | 0.01 |
| Item 17 | | | | | | | 0.87 | 0.85 | 0.09 |
| Item 18 | | | | | | | 0.82 | 0.86 | 0.19 |

Note: US=United States; ANZ=Australia/New Zealand; MI=Modification Index.

Table 22

*Within-Group Completely Standardized Phi Solution for Males*

| | US | ANZ | US | ANZ | US | ANZ | US | ANZ | US | ANZ |
|---|---|---|---|---|---|---|---|---|---|---|
| WIF Time | 1.00 | 1.00 | | | | | | | | |
| FIW Time | 0.54 | 0.19 | 1.00 | 1.00 | | | | | | |
| WIF Strain | 0.55 | 0.43 | 0.54 | 0.13 | 1.00 | 1.00 | | | | |
| FIW Strain | 0.30 | -0.02 | 0.56 | 0.34 | 0.69 | 0.20 | 1.00 | 1.00 | | |
| WIF Behavior | 0.32 | 0.22 | 0.43 | 0.30 | 0.73 | 0.38 | 0.58 | 0.27 | 1.00 | 1.00 |
| FIW Behavior | 0.20 | 0.19 | 0.32 | 0.33 | 0.61 | 0.43 | 0.56 | 0.25 | 0.89 | 0.84 |

Note: WIF=Work Interference with Family; FIW=Family Interference with Work; US=United States; ANZ=Australia/New Zealand.

Table 23

*Within-Group Completely Standardized Theta-Delta Error Terms for Males*

| | US | ANZ |
|---|---|---|
| Item 1 | 0.23 | 0.26 |
| Item 2 | 0.17 | 0.24 |
| Item 3 | 0.39 | 0.26 |
| Item 4 | 0.58 | 0.57 |
| Item 5 | 0.29 | 0.40 |
| Item 6 | 0.20 | 0.21 |
| Item 7 | 0.63 | 0.19 |
| Item 8 | 0.21 | 0.31 |
| Item 9 | 0.28 | 0.32 |
| Item 10 | 0.42 | 0.43 |
| Item 11 | 0.21 | 0.02 |
| Item 12 | 0.28 | 0.24 |
| Item 13 | 0.51 | 0.52 |
| Item 14 | 0.38 | 0.30 |
| Item 15 | 0.31 | 0.18 |
| Item 16 | 0.26 | 0.22 |
| Item 17 | 0.24 | 0.28 |
| Item 18 | 0.33 | 0.26 |

Note: US=United States; ANZ=Australia/New Zealand.

Table 24

*Within-Group Completely Standardized Manifest Variable Loadings and Modification Indices for Females*

| | US | ANZ | MI | US | ANZ | MI | US | ANZ | MI |
|---|---|---|---|---|---|---|---|---|---|
| Item 1 | 0.75 | 0.85 | n/a | | | | | | |
| Item 2 | 0.78 | 0.86 | n/a | | | | | | |
| Item 3 | 0.93 | 0.86 | 0.20 | | | | | | |
| Item 4 | | | | 0.77 | 0.51 | n/a | | | |
| Item 5 | | | | 0.78 | 0.86 | 1.69 | | | |
| Item 6 | | | | 0.84 | 0.90 | 0.07 | | | |
| Item 7 | | | | | | | 0.82 | 0.93 | n/a |
| Item 8 | | | | | | | 0.87 | 0.93 | n/a |
| Item 9 | | | | | | | 0.87 | 0.79 | 0.04 |

Note: US=United States; ANZ=Australia/New Zealand; MI=Modification Index.

Table 24 (continued)

*Within-Group Completely Standardized Manifest Variable Loadings and Modification Indices for Females (continued)*

| | US | ANZ | MI | US | ANZ | MI | US | ANZ | MI |
|---|---|---|---|---|---|---|---|---|---|
| Item 10 | 0.72 | 0.87 | n/a | | | | | | |
| Item 11 | 0.92 | 0.92 | 0.46 | | | | | | |
| Item 12 | 0.93 | 0.86 | 0.79 | | | | | | |
| Item 13 | | | | 0.63 | 0.57 | 4.11 | | | |
| Item 14 | | | | 0.76 | 0.74 | 1.24 | | | |
| Item 15 | | | | 0.73 | 0.86 | n/a | | | |
| Item 16 | | | | | | | 0.89 | 0.86 | 0.00 |
| Item 17 | | | | | | | 0.89 | 0.81 | 0.12 |
| Item 18 | | | | | | | 0.59 | 0.84 | n/a |

Note: US=United States; ANZ=Australia/New Zealand; MI=Modification Index.

Table 25

*Within-Group Completely Standardized Phi Solution for Females*

| | US | ANZ | US | ANZ | US | ANZ | US | ANZ | US | ANZ |
|---|---|---|---|---|---|---|---|---|---|---|
| WIF Time | 1.00 | 1.00 | | | | | | | | |
| FIW Time | 0.24 | 0.16 | 1.00 | 1.00 | | | | | | |
| WIF Strain | 0.67 | 0.70 | 0.44 | 0.06 | 1.00 | 1.00 | | | | |
| FIW Strain | 0.29 | 0.09 | 0.85 | 0.27 | 0.42 | 0.10 | 1.00 | 1.00 | | |
| WIF Behavior | 0.38 | 0.30 | 0.44 | 0.10 | 0.47 | 0.36 | 0.46 | 0.35 | 1.00 | 1.00 |
| FIW Behavior | 0.43 | 0.25 | 0.24 | 0.08 | 0.45 | 0.35 | 0.39 | 0.28 | 0.79 | 0.98 |

Note: WIF=Work Interference with Family; FIW=Family Interference with Work; US=United States; ANZ=Australia/New Zealand.

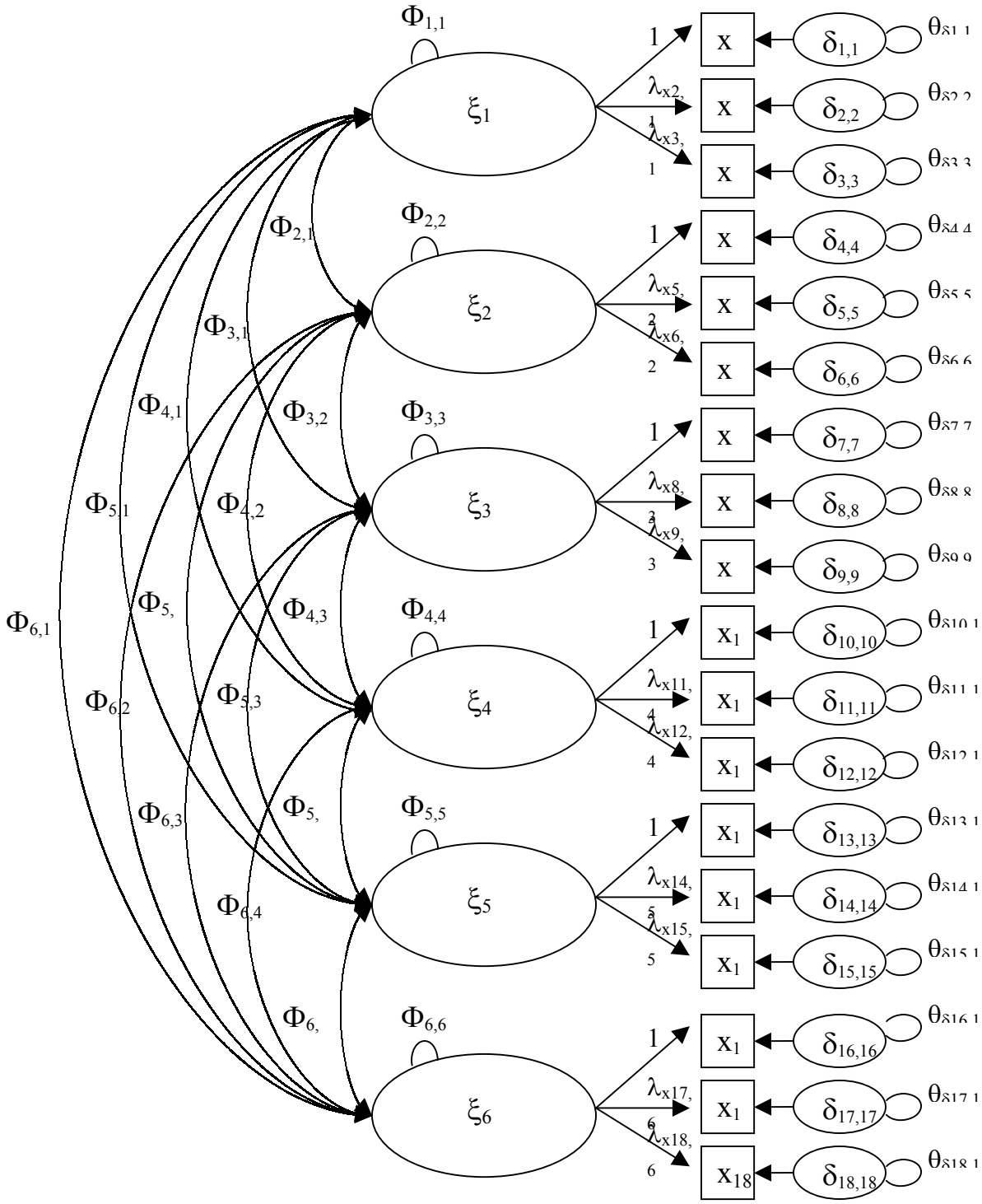
Table 26

*Within-Group Completely Standardized Theta-Delta Error Terms for Females*

| | US | ANZ |
|---|---|---|
| Item 1 | 0.44 | 0.28 |
| Item 2 | 0.40 | 0.26 |
| Item 3 | 0.13 | 0.25 |
| Item 4 | 0.41 | 0.74 |
| Item 5 | 0.39 | 0.27 |
| Item 6 | 0.29 | 0.18 |
| Item 7 | 0.32 | 0.14 |
| Item 8 | 0.24 | 0.14 |
| Item 9 | 0.24 | 0.38 |
| Item 10 | 0.48 | 0.24 |
| Item 11 | 0.15 | 0.16 |
| Item 12 | 0.14 | 0.26 |
| Item 13 | 0.60 | 0.68 |
| Item 14 | 0.43 | 0.45 |
| Item 15 | 0.47 | 0.26 |
| Item 16 | 0.21 | 0.25 |
| Item 17 | 0.21 | 0.35 |
| Item 18 | 0.65 | 0.30 |

Note: US=United States; ANZ=Australia/New Zealand.

Figure 1. Carlson et al. (2000) model of work/family conflict.


Φ1,1
ξ1
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