Analyzing Dyadic Data from Sandwiched Generation Couples: A Comparison of Multilevel Regression and Structural Equation Modeling

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11/17/99

Paper presented at the 52nd Annual Scientific Meeting of the Gerontological Society of America, November, 1999, San Francisco, CA. This presentation was part of a symposium titled "Dual-Earner Couples in the Sandwiched Generations: Findings from a national study." I would like to thank Leslie Hammer and Margaret Neal for use of the data, helpful discussions regarding couple-level effects with dual-earner couples, and comments on the presentation. EQS syntax for the SEM analysis is available from the author upon request. Questions or comments can be sent to Jason Newsom at newsomj@pdx.edu.
Abstract

Traditional statistical analyses pose serious problems when data from dyads, such as married couples, are used in analyses. Structural equation modeling and multilevel regression analysis (also called hierarchical linear modeling) offer two approaches to analyzing data from couples. The statistical issues, appropriate application of these procedures, and the advantages and disadvantages of the two approaches are discussed. Results are presented from data collected from a national sample of couples who both work, care for children, and care for parents. To illustrate, multilevel regression (MLR) and structural equation modeling (SEM) are used to test hypotheses about the couple-level effects of spousal relationship, child care, and parent care role quality on life satisfaction.
Individual attitudes, behaviors, and psychological states are often best understood by considering their social context (Cronbach & Webb, 1975; Fishbein & Ajzen, 1975), and marital and family relationships are particular social contexts that have important effects on an individual. Stressors that affect an individual within a family unit are often connected to family events or family-related stressors that also affect other members of the unit similarly (Hammer, Allen, & Gigsby, 1997; Zedeck & Mosier, 1990). An individual family member's attitudes or behaviors may be influenced by other family members attitudes or behaviors, they may influence others' attitudes or behaviors, or all family members may be affected by the same stressors, life events, or family conflict. Moreover, some variables, which may be called group-level variables, pertain only to the family or a couple as a unit rather than an individual within the family. Although there are a number of obvious group-level variables, such as family income or major life events, one can also conceptualize a variety of constructs that may operate at the couple level as well as the individual level.

The experience of life satisfaction or depression, for instance, are frequently interdependent for couples (Bookwala & Schulz, 1996; Joiner, 1994). Bookwala and Schulz found that, for older marital couples, husbands' and wives' levels of life satisfaction, perceived health, and depression corresponded even after most known predictors of these variables had been controlled. Moreover, correspondence was stronger for the same domain (e.g., husbands' and wives' life satisfaction) than was across domains (e.g., husbands' life satisfaction and wives' depression). Researchers have posited a number of theoretical variables that may account for this association, such as emotional contagion, mate selection, and common environmental influences, but these factors have rarely been directly investigated.

Related phenomena, known as "cross-over effects," result when the stress and strain of one member of the couple affects the stress and strain of the other member (Hammer et al., 1997; Westman & Vionkur, 1998). Cross-over effects may be caused by the interdependence of couples' family roles. The quality of family roles for husbands and wives are, at least in part,
jointly determined by the common aspects of the spousal relationship, child care, and parent caregiving responsibilities. Aspects of the level of child care burden (e.g., caring for a newborn infant), parents health, and shared attitudes about family roles are couple-level causal factors that may affect husbands and wives individual attitudes and affective states.

Traditional analytic approaches, such as ordinary least squares regression, may not be adequate for examining individual and couple-level effects for several reasons. First, if husbands and wives are treated as separate individuals within the data set (i.e., the total sample size is based on the number of individuals rather than the number of couples), serious statistical problems can arise, because assumptions about independence of observations are violated (e.g., Cochran, 1977). These violations tend to lead to underestimation of standard errors and, thus, inflated estimates of significance. Second, another approach is to examine husbands and wives separately. This not only presents difficulties for making statistical comparisons (Newsom, Prigerson, Schulz, & Reynolds, 1999), but it also leaves out important information about couple-level effects. Another possible approach is to combine data for husbands and wives and examine the relationships between couple-level variables only. This approach, however, does not allow one to separate the effects of these couple-level variables from those of individual-level variables.

Multilevel regression (MLR; Bryk & Raudenbush, 1992; Kreft & de Leeuw, 1998) and structural equation modeling (SEM) are two general statistical approaches that are well-suited for directly testing both individual and couple-level effects. The MLR approach explicitly models the independent effects of group-level and individual-level variables through a two step regression process. Prior work has also used SEM to analyze dyadic or family data by modeling nonindependence with correlated measurement errors (Cook, 1994; Kashy & Kenny, 1990). But these approaches have not examined the effects couple-level and individual-level factors together. In the present paper, however, I extend this prior work by explicitly estimating the couple-level and individual-level components and then examining their independent effects.
on other variables. Comparisons with the MLR approach are then made by examining the extent to which three areas of perceived family role quality, measured at the individual and couple-level predict general life satisfaction.

Method

Sample. Data for this analysis are from the Dual Earner Couples in the Sandwiched Generation Project (Neal, Hammer, Rickard, Isgrigg, & Brockwood, 1999), a longitudinal, national survey of 309 couples who are both employed full-time, caring for children, and who are providing at least 3 hours of care to elderly or disabled parents or parents-in-law. Three hundred nine couples were recruited via telephone, and completed the survey by mail. Couples were paid $40 for participation. The present analyses focus on data from the first wave of the study. Because of missing data, only 284 couples were used in both the MLR and SEM the analyses.

Measures. In this paper, the relationship between three domains of role quality and life satisfaction are examined. Both positive (rewards) and negative (concerns or stressors) aspects of role quality with the spouse, children, and parents were used as measures of family role quality.

Measurement of parenting role quality was based on reported rewards and stressors in caring for children. The measurement of parenting (referred to as child) rewards and stressors were adapted from Stephens and Townsend (1997) and consisted of 4-point, 8-item and 13-item scales (respectively), coded such that 1=not at all rewarding (or stressful) and 4=very rewarding (or stressful). Those who indicated that a particular reward or stressor was not applicable were recoded to 1 (not at all rewarding or stressful). The stressors measure was recomputed so that higher scores both rewards and stressors measures would reflect higher role quality. The Cronbach's alphas in the present study were .91 for husbands and .87 for wives for the rewards measures and .86 for husbands and .88 for wives for the stressors measure.
Parent care role quality was based on measures of rewards and stressors adapted from Stephens and Townsend (1997). Two 4-point measures of 8 and 10 items, respectively, were used (1 = not at all rewarding (stressful), 4 = very rewarding (stressful)). Those who indicated that a particular reward or stressor was not applicable were recoded to 1 (not at all rewarding or stressful). The stressors measure was recomputed so that higher scores both rewards and stressors measures would reflect higher role quality. The Cronbach's alphas in the present study were .91 for husbands and .92 for wives for the rewards measure and .88 for husbands and .78 for wives for the stressors measure.

The measures of spouse role rewards and concerns used were adapted from Barnett, Marshall, Raudenbush, and Brennan (1993) and consisted of 4-point, 9-item and 8-item scales (respectively), coded such that 1 = not at all rewarding (or concerned) and 4 = very rewarding (or concerned). Those who indicated that a particular reward or concern was not applicable were recoded to 1 (not at all rewarding or stressful). The concerns measure was recomputed so that higher scores both rewards and concerns measures would reflect higher role quality. The Cronbach's alphas in the present study were .92 for both husbands and wives for the rewards measure and .91 for husbands and .90 for wives on the concerns measure.

For all of the role quality domains, the measures were combined differently in the SEM and MLR approach. In the SEM approach, summed scores for positive and negative measures were used as separate indicators of each type of family role reward (spouse, child, and parent). In the MLR analyses, the summed scale scores for positive and negative aspects of role quality were averaged to create one composite for role quality. In both cases, concerns or stressors measures were reversed so that higher scores would indicate better role quality.

Life satisfaction was measured by an 8-item semantic differential scale, with possible scores ranging from 1 to 7 for each item (Campbell, Converse, & Rodgers, 1975; Quinn and Staines, 1979). Individual items were used as indicators in the SEM analysis and scales scores were computed by taking the mean of the 8 items in the MLR analysis.
Analytic approaches

SEM. Analyses for the SEM approach were conducted using Lisrel 8.3 (Joreskog & Sorbom, 1993). Syntax for the measurement model using Lisrel can be found in the Appendix (EQS syntax is available from the author upon request). The structural equation modeling approach used here partitions the variance of spouse, child, and parent role quality into two independent components: individual-level and couple-level. The approach presented here is an extension of models discussed by Cook (1993) and Kenny and Kashy (1989). In the present approach (depicted in Figure 1), however, three latent variables are specified that represent couple-level role quality for spouse, child, and parent relationships, and two latent variables are specified, one for wife and one for husband, to model individual-level variance. The couple-level and individual-level factors can then be used to predict life satisfaction, representing independent effects of individual and couple-level factors (see Figure 2). Correlations among spouse, child, and parent couple-level role quality are estimated, and a correlation between husband and wife individual-level role quality is estimated; but the two sets of variables are assumed to be uncorrelated with one another.

An alternative approach to modeling the individual-level variance would be to create one individual-level factor each for husbands’ and wives’ spouse, child, and parent role quality, producing six individual-level factors. It would then be possible to examine the effects of the individual-level and couple-level components for each domain of role quality on individual life satisfaction. This approach, however, requires at least three indicators each for husbands’ and wives’ spouse, child, and parent role quality. In the present study, only two indicators of each role quality domain were available.¹

¹ Two additional specifications are also possible. First, to examine the effects on couple-level outcomes, one could use a similar partitioning of the dependent variable, life satisfaction, into individual and couple-level components. This would allow for the examination of the effects of individual and couple-level predictors on both individual and couple-level outcomes. Second, because one can construct structural equation models that are equivalent to most multilevel regression models (Kaplan & Elliot, 1997; Muthen & Satorra, 1989), one could also specify a latent variable version of the MLR model described below.
MLR. Multilevel regression is an extension of traditional regression analysis that is capable of modeling both individual and group-level effects. Two equations, which are combined for the actual analyses, are used to estimate these effects. In the context of marital relationships, the individual effects concern relations among variables measured for each individual within a couple. The individual-level effects are assessed with the familiar regression equation that involves both predictors and outcome measured at the individual level. With one predictor, the regression model at the individual-level is:

\[ Y = \beta_0 + \beta_1 + r \]  

In this equation, \( Y \) is the outcome variable, \( \beta_0 \) is the intercept, \( \beta_1 \) is the slope for the first predictor, and \( r \) is the residual (or error term). This analysis is performed using every individual in the data set, so that estimates of the slope, intercept, and error term are obtained for each couple. For this stage of the analysis, the effective sample size is 568, because all individuals were used in the analysis. In this first level of analysis, the predictors are often centered around the group mean (i.e., the group mean subtracted from each score), then the intercept represents the level of the dependent variable for each couple when all of the predictors are at the mean level (Kreft, de Leeuw, & Aiken, 1995).

In the second stage of the analysis, couple-level variables are used to predict intercept or the slope values obtained from the first stage of the analysis. Thus, the effective sample size for the second stage of the analysis is 284, because one set of intercept and slope values is produced for each of the 284 couples in the sample. Either the intercept or the slope values can be predicted in the second stage of the analysis, represented by the two equations presented below:

\[ \beta_0 = \gamma_0 + \gamma_1 + u \]  

or,

\[ \beta_1 = \gamma_0 + \gamma_1 + u \]
In the above two equations, $\beta_0$ represents the intercept values, or the level of the dependent variable for each couple obtained for each couple in the first level analysis; $\beta_1$ represents slopes for $X_1$ for each couple obtained in the first-level analysis; $\gamma_0$ is the intercept for the couple-level analysis; $\gamma_1$ is the slope for the couple-level analysis, and $u$ is the error term or residual. One can think of the intercepts as a type of average level on the dependent variable for each couple. It is not, strictly speaking, an equally-weighted arithmetic average, but the intercept represents the value on the dependent variable when the predictors are equal to their mean values within the couple. In predicting the intercept values in the second stage of the analysis (Equation 2 above), however, results can be interpreted as the effects of couple-level variables on couple-level outcomes.

Couple-level analyses using slopes as outcomes (as in Equation 3 above) are also possible, and represent the interaction effect of the couple-level and individual-level predictors (called "cross-level interactions"). A significant relationship between a couple-level predictor and the individual-level slopes indicates that the effect of that individual-level variable has a different effect depending on the value of the couple-level variable. Slopes are not used as outcomes in the present analyses, however.

Multilevel regression analyses were conducted using HLM, Version 4.04 (Bryk, Raudenbush, Seltzer, & Congdon, 1988). To model the effects of role quality on life satisfaction using MLR, spouse, child, and parent role quality were used to predict individual life satisfaction in the individual level of the analysis. Each of these predictors were centered around the couple mean. Gender was included as a covariate at the individual level and was also centered in order to retain the interpretation of the level-1 intercept as the couple mean (Kreft et al., 1995). A positive relationship would indicate greater life satisfaction for men. In the present analysis, the slopes in the individual-level equation are assumed to be fixed, meaning that the effect of the individual-level variables on individual life satisfaction were assumed to be equal across
couples. The intercepts are random, meaning that their values may vary over couples. In the second stage of the analysis, couple-level spouse, child, and parent role quality were used to predict the intercept values for each couple. Thus, the second-level analysis represents the relationship between couple-level spouse, child, and parent role quality and mean life satisfaction for each couple.

Results

SEM

Results from the SEM analysis give information about the effects of couple-level spouse, child, and parent role quality on life satisfaction of the individual (i.e., husband and wife separately). These couple-level effects are independent of individual-level effects, because the measurement model estimation of couple-level role quality removes variation due to husband and wife individual role quality (as seen in Figure 1). Moreover, any effects of husband and wife individual-level role quality are controlled when examining the effects of spouse, child, and parent role quality on life satisfaction, because husband and wife individual-level role quality are included as predictors of life satisfaction.

Although the chi-square was significant, alternative fit indices which are less affected by sample size and model complexity indicated the model was a good fit to the data ($\chi^2 (38), N = 284) = 84.81, p < .001; \text{Tucker-Lewis Index} = .918, \text{Bollen's IFI} = .954, \text{Standardized Root Mean Square Residual} = .044$). The predictive model, in which individual and couple-level role quality predict life satisfaction (Figure 2), also fit the data well ($\chi^2 (323, N = 284) = 617.65, p < .001, \text{Tucker-Lewis Index} = .935, \text{Bollen's IFI} = .944, \text{Standardized Root Mean Square Residual} = .04$). These findings indicate that only couple-level spousal role quality significantly predicted life satisfaction (see Table 1). This is the case for both husbands’ and wives’ satisfaction. Neither child nor parent role quality was a significant predictor of life satisfaction. The results also suggests that couple-level spousal role quality may be a stronger predictor of life satisfaction for
husbands than it is for wives, although a statistical comparison was not made. As expected, individual-level role quality was only a significant predictor of wives' life satisfaction, and individual-level role quality for husbands only significantly predicted life satisfaction for husbands. The estimate of the intraclass correlation coefficient for life satisfaction is represented by the correlation between the latent variables for husband and wife life satisfaction, and indicates a moderately high dependency within couples ($\rho = .390$). This value can be obtained by running a separate model and estimating the correlations between the variables or can be found in the matrix Eta correlations in the standard Lisrel output.

**MLR**

Results from the multilevel regression model are consistent with the results obtained from the SEM approach for couple-level effects. In the couple-level analysis, only spousal role quality was a significant predictor of life satisfaction. However, the individual-level analysis indicates a significant effect for spousal and child role quality and a marginally significant effect for parent role quality. The latter findings suggests that once couple-level effects have been controlled, there is a relationship between each type of role quality and the individual's life satisfaction. Although gender was included as an individual-level predictor, it did not significantly predict life satisfaction, indicating that there were no differences between husbands and wives in their level of life satisfaction. The SEM analysis also indicated a general effect for role quality at the individual level, but, as specified in the present analysis, does not provide information about each of the individual role quality types. Finally, the intraclass correlation can be computed from the residual variance of the individual and couple-level variables (Bryk & Raudenbush, 1992), and is slightly lower than that obtained from the SEM analyses ($\rho = .355$). This difference is likely to be a result of a disattenuation of the correlation once measurement error is accounted for in the SEM analysis.
Discussion

The two analytic approaches suggest that life satisfaction is a function of both individual and couple-level family role quality. However, both SEM and MLR findings showed that couple-level effects of role quality were limited to spousal role quality. Neither couple-level child care nor parent care role quality was significantly related to life satisfaction using either approach. The results are generally consistent with prior work that has suggested that role quality of multiple family roles are related to life satisfaction and general psychological well-being (e.g., Baruch & Barnett, 1986; Stephens, Franks, & Townsend, 1994; Stephens & Townsend, 1997). Stephens and Townsend, who also examined effects spousal, parenting, and parent care roles on wives' life satisfaction, found that spousal rewards and stress and maternal rewards predicted life satisfaction. Their findings are generally consistent with those obtained in the MLR analysis at the individual level, but the greater importance of spousal role quality on life satisfaction indicated by the results of the couple-level analyses using both the MLR and SEM represents new findings about the process of how role quality may affect life satisfaction.

The present analyses examined role quality by combining positive and negative effects of role quality. Previous work, however, has found that these roles may interact in their effects on psychological well-being (e.g., Barnett & Marshall, 1993; Stephens & Townsend, 1997), and, thus, some caution is warranted in interpreting these results without the inclusion of such interactions. Future work might extend the present findings by examining the interactive effects of various family or work roles on outcomes at the individual and couple level.

Comparing the SEM and MLR approaches

Both analytic techniques represent useful ways to examine the effects of couple and individual-level variables, but there are several strengths and weakness with regard to investigating particular hypotheses.

First, both approaches allow one to examine gender effects and to examine the effects of role quality when the effects of gender have been controlled. In MLR models, gender can be
included as an individual-level predictor, whereas, in the SEM model, individual-level variables are specified separately for husbands and wives. In the SEM model, a chi-square difference test can be conducted by comparing the fit of a model in which the effects of the husband and wife individual-level variables are constrained to be equal in the effects on life satisfaction to a model in which no constraint is imposed.

Interactions involving gender (e.g., the effects of spousal role quality on life satisfaction) is different for husbands and wives) can be tested with either approach, but it is simpler to use the MLR approach. With this approach, one simply uses couple-level variables to predict slopes for gender obtained in the first level of the analysis. Testing interactions using the SEM approach are possible but are somewhat more complex, because must specify a moderator factor using product variables of gender and individual or couple-level factors (Bollen & Paxton, 1998; Jaccard & Wan, 1996).

Although both approaches are capable of examining the effects on individual and couple level predictors, the MLR approach is limited to predicting couple-level outcomes when couple-level predictors are examined. The SEM approach allows for an examination of the effect of couple-level variables on individual outcomes. Moreover, if a similar partitioning of individual and couple-level variation is used in specifying the dependent variables, the SEM approach allows for an examination of the effects on individual and couple-level outcomes simultaneously. Thus, under conditions in which this approach is possible, the SEM analysis is considerably more flexible. In the current SEM specification, however, separate effects for individual-level spouse, child, and parent role quality were not examined, because a minimum of three indicators for each is required.

The MLR approach has greater power for testing individual effects, because the individual-level slopes are tested using a sample size based on individuals rather than couples. In the SEM approach, standard errors and significance tests are based on the number of couples rather than the number of individuals.
One advantage of the SEM approach is that, by examining the relations among latent variables, measurement error is accounted for in estimating predictive relationships. Without measurement error estimation, relations among variables are attenuated. This attenuation can lead to underestimates of some relationships but overestimates of other relationships because the effects of any covariates are attenuated.

With the MLR approach, random variation of slopes across couples can be examined. This not only provides information about the whether the effects of the predictors differ across couples, but, when these slopes are modeled in the second-level analysis, explanatory variables can be used to understand what factors lead to different effects for different couples. Thus, interactions between couple-level and individual-level variables is more conveniently tested with the MLR approach.

In summary, both statistical approaches are useful for testing particular hypotheses, but there are advantages and disadvantages to each. Only by comparing the two approaches, can we gain a better understanding the analytic circumstances under which each are most useful.
References


presented at the 52nd Annual Scientific Meeting of the Gerontological Society of America, San Francisco, CA.


Table 1
Results from SEM approach to predicting life satisfaction for husbands and wives.

<table>
<thead>
<tr>
<th>Role Quality</th>
<th>Unstandardized coefficient</th>
<th>SE</th>
<th>Standardized coefficient</th>
<th>z</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual-level</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Husband</td>
<td>.324</td>
<td>.136</td>
<td>.329</td>
<td>2.37</td>
<td>&lt;.05</td>
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<tr>
<td>Wife</td>
<td>.010</td>
<td>.237</td>
<td>.021</td>
<td>&lt;1</td>
<td>ns</td>
</tr>
<tr>
<td>Couple-level</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spouse</td>
<td>.053</td>
<td>.021</td>
<td>.195</td>
<td>2.50</td>
<td>&lt;.05</td>
</tr>
<tr>
<td>Child</td>
<td>.008</td>
<td>.017</td>
<td>.031</td>
<td>&lt;1</td>
<td>ns</td>
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<tr>
<td>Parent</td>
<td>.018</td>
<td>.024</td>
<td>.054</td>
<td>&lt;1</td>
<td>ns</td>
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</table>

Wife's Life Satisfaction

<table>
<thead>
<tr>
<th>Role Quality</th>
<th>Unstandardized coefficient</th>
<th>SE</th>
<th>Standardized coefficient</th>
<th>z</th>
<th>p</th>
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</thead>
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<tr>
<td>Individual-level</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Husband</td>
<td>-.105</td>
<td>.083</td>
<td>-.120</td>
<td>-1.26</td>
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<tr>
<td>Wife</td>
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<td>.042</td>
<td>.345</td>
<td>3.13</td>
<td>&lt;.01</td>
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<tr>
<td>Couple-level</td>
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<tr>
<td>Spouse</td>
<td>.033</td>
<td>.019</td>
<td>.134</td>
<td>1.73</td>
<td>&lt;.10</td>
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<tr>
<td>Child</td>
<td>.020</td>
<td>.016</td>
<td>.091</td>
<td>1.29</td>
<td>ns</td>
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<tr>
<td>Parent</td>
<td>.015</td>
<td>.021</td>
<td>.051</td>
<td>&lt;1</td>
<td>ns</td>
</tr>
</tbody>
</table>

N = 284, \( \chi^2 \) (323) = 617.65, p < .001, Tucker-Lewis Index = .935, Bollen's IFI = .944, Standardized Root Mean Square Residual = .04.
Table 2
Results from MLR approach to predicting life satisfaction individuals and couples.

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Unstandardized coefficient</th>
<th>SE</th>
<th>t</th>
<th>p</th>
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<tbody>
<tr>
<td>Individual-level</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spouse (Fixed)</td>
<td>.065</td>
<td>.018</td>
<td>3.62</td>
<td>&lt;.005</td>
</tr>
<tr>
<td>Child (Fixed)</td>
<td>.040</td>
<td>.017</td>
<td>2.36</td>
<td>&lt;.05</td>
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<tr>
<td>Parent (Fixed)</td>
<td>.028</td>
<td>.015</td>
<td>1.83</td>
<td>= .07</td>
</tr>
<tr>
<td>Gender (Fixed)</td>
<td>-.030</td>
<td>.076</td>
<td>&lt;1</td>
<td>ns</td>
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<tr>
<td>Couple-level</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
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<td>97.40</td>
<td>&lt;.001</td>
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<tr>
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<td>.012</td>
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<td>&lt;.001</td>
</tr>
<tr>
<td>Child</td>
<td>.025</td>
<td>.015</td>
<td>1.66</td>
<td>ns</td>
</tr>
<tr>
<td>Parent</td>
<td>.018</td>
<td>.013</td>
<td>1.44</td>
<td>ns</td>
</tr>
</tbody>
</table>

Variance Components
- Level-1 intercept $\sigma^2 = .427$
- Level-2 intercept $\tau = .777$
- Intraclass correlation $\rho = .355$

Note: All level-1 effects were fixed. Variance component for intercept (variation in couple means across couples) = .427, df = 280, $\chi^2 = 587.86$, p < .001. Improvement in model fit over baseline model, $\chi^2 (7) = 10.08$, p < .05.
Appendix

Lisrel Syntax for SEM Measurement Model

GSA 99
Couple-level Role Quality Measurement Model
da ni=12 no=299
LA; srcon1h ssrew1h srcon1w ssrew1w crstr1h csrew1h crstr1w csrew1w
   prstr1h psrew1h prstr1w psrew1w
ra fi=c:\jason\spsswin\sandwich\reward\gsa6.dat FO
   (12f9.6)
mo ny=12 ne=5 ly=fu,fi te=sy,fi be=fu,fi ps=sy,fi
le; spouse child parent husband wife
va 1.0 ly 1 1
fr ly 2 1 ly 3 1 ly 4 1
va 1.0 ly 5 2
fr ly 6 2 ly 7 2 ly 8 2
va 1.0 ly 9 3
fr ly 10 3 ly 11 3 ly 12 3
va 1.0 ly 1 4
fr ly 2 4 ly 5 4 ly 6 4 ly 9 4 ly 10 4
va 1.0 ly 3 5
fr ly 4 5 ly 7 5 ly 8 5 ly 11 5 ly 12 5
fr ps 1 1 ps 2 2 ps 3 3
fr ps 1 2 ps 1 3
fr ps 2 3
fr ps 4 4 ps 5 5
fr ps 4 5
fr te 1 1 te 2 2 te 3 3 te 4 4 te 5 5 te 6 6 te 7 7 te 8 8
fr te 9 9 te 10 10 te 11 11 te 12 12
ou ml xm sc nd=6 it=200 add=off