The Conservation of Resources Model Applied to Work–Family Conflict and Strain

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As more employees are juggling work and family demands, it is important for researchers to study the consequences of role stress and work–family conflict. In this study, predictions for a sample of university professors were based on past research and Hobfoll’s (1989) Conservation of Resources Theory. Using a time-lagged research design and path analysis, we assessed the relationships of work and family stressors with outcomes of work, family, and life distress, physical health, and turnover intentions. The proposed path model was generally supported. In addition, we extended the work of other researchers by testing the moderating effects of self-esteem. Self-esteem was not found to be a moderating variable, although its main effects explained variance in the outcomes. Last, we describe and analyze qualitative data about the changes this sample experienced between the first and second data collection.

By the year 2000, almost 80% of women (between the ages of 25 and 54 years) will be paid U.S. employees (National Commission on Working Women, 1989). This increase in female representation in the workforce means that more couples are juggling both work and family roles (Gupta & Jenkins, 1985). Having multiple roles has been associated with positive outcomes like higher self-esteem and life satisfaction (Barnett & Baruch, 1985; Barnett & Marshall, 1992; Roskies & Carrier, 1994). However, perceptions of insufficient time and energy to successfully perform work and family roles (work–family conflict) have been associated with job and family dissatisfaction, work and family tension, depression, and life stress (e.g., Frone, Russell, & Cooper, 1991; Greenhaus, Collins, Singh, & Parasuraman, 1997; Kopelman, Greenhaus, & Connolly, 1983; Watkins & Subich, 1995).

Work–family researchers have made three recommendations for studying this source of stress. First, they recommend that both work and family domain stress (i.e., work role conflict and family role conflict) be included in models of how work and family interfere with each other (Burke, 1989; Kopelman et al., 1983; Voydanoff, 1988). Second, they recommend that researchers measure both
directions of work–family conflict: how work interferes with family (WFC) and how family interferes with work (FWC; e.g., Frone, Russell, & Cooper, 1992; Gutek, Searle, & Klepa, 1991; Netemeyer, Boles, & McMurrian, 1996). Third, they recommend longitudinal prospective studies because stress research has been limited by cross-sectional data (Kahn & Byosiere, 1991; Zedeck & Mosier, 1990). Gathering predictors and outcomes at the same time can spuriously increase the relationships (Sanchez & Viswesvaran, 1996). The present study follows all of these recommendations.

In addition to these recommendations, previous researchers have suggested specific additions to the work–family literature. Frone et al. (1992) requested that more outcome variables be considered by work–family researchers. Individual difference variables affecting the relationship between work–family conflict and strain are another necessary area of study (Kahn & Byosiere, 1991; Eagle, Miles, & Icenogle, 1997; Watkins & Subich, 1995). Last, very few work–family researchers have merged qualitative findings into empirical works (Ganster & Schaubroeck, 1991). This study attempted to address all three of these research needs. A potential explanation for the shortage of studies with broader outcome variables, individual difference variables, and integrated qualitative data is the lack of a good theory to guide predictions and explain findings. In response, this study is the first to apply the Conservation of Resources Theory (Hobfoll, 1989) to the work–family literature.

CONSERVATION OF RESOURCES THEORY

Often, work–family and stress researchers have not based their predictions on strong conceptual frameworks (Hobfoll, 1989). If a theory is mentioned at all, work–family conflict researchers have relied mainly upon role theory (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964). Role theory states that experiencing ambiguity and/or conflict within a role (intrarole) will result in an undesirable state. Role theory also proposes that multiple roles lead to personal conflict (interrole) as it becomes more difficult to perform each role successfully, due to conflicting demands on time, lack of energy, or incompatible behaviors among roles (Greenhaus & Beutell, 1986; Kahn et al., 1964). In this study, experiencing ambiguity or conflict within the work or family domain will be referred to as work role stress or family role stress.

Role theory has some limitations when applied to work–family conflict studies. To date, role theory has paid less attention to family roles, which is, by definition, essential to understanding work–family conflict. Furthermore, role theory does not directly specify moderating variables which might buffer the relationships between work and family stressors and stress outcomes (Jackson & Schuler, 1985). Other theories more specific to work–family research exist, such as spillover theory and segmentation models (Zedeck & Mosier, 1990). Although some support exists for each model, they have not been integrated into one comprehensive theory that can guide work–family research (Kelley & Streeter, 1992).
A more general stress model may offer an appropriate framework for future work–family studies. The Conservation of Resources (COR) model encompasses several stress theories (see Hobfoll, 1989). The COR model proposes that individuals seek to acquire and maintain resources. Stress is a reaction to an environment in which there is the threat of a loss of resources, an actual loss in resources, or lack of an expected gain in resources. Resources include objects, conditions, personal characteristics, and energies. Especially relevant for this body of research are the last three categories. The conditions of married status and tenure are examples of both family and work resources that are valued and sought. Personal characteristics are resources which buffer one against stress. Self-esteem is considered to be such a resource (Rosenberg, 1979). Energies include resources such as time, money, and knowledge—they allow one to acquire other resources. Loss of these resources, or the threat of such a loss, may cause the experience of stress.

The COR model explains stress outcomes for both intra- and interrole stress. For example, employees experiencing work role conflict may come to believe that they cannot successfully perform the job. Consequently, they may be forced to invest more of their resources into the work role for fear of losing their job status. The COR model proposes that interrole conflict leads to stress because resources are lost in the process of juggling both work and family roles. These potential or actual losses of resources lead to a negative “state of being,” which may include dissatisfaction, depression, anxiety, or physiological tension. Some type of behavior, such as planning to leave the work role, is needed to replace or protect the threatened resources. If this type of behavior is not taken, the resources may be so depleted that burnout ensues (Hobfoll & Shirom, 1993; Wright & Cropanzano, 1998).

Individual difference variables are included as a component of the COR model. According to COR, individual differences can be treated as resources. These differences in levels of resources may affect how individuals react to stress (or the loss of resources). Some persons may have better skills at minimizing their losses. For example, those who have high self-esteem may have a “reserve” of self-worth and confidence upon which they can draw in problematic situations. Thus, those with high self-esteem may not be as bothered by the potential loss of time and energy because they know they can cope with such a loss.

Finally, COR also provides an additional insight that has not been widely considered in the work–family conflict literature. The COR’s emphasis on threatened resources suggests that certain critical events are a source of stress as well. Specifically, events which result in a loss of resources are predicted to create stress and strain outcomes. For example, Hobfoll (1989) refers to the stressful event surveys (Dohrenwend & Dohrenwend, 1974; Holmes & Rahe, 1967) in emphasizing that items rated “most severe” are events where loss occurs. Hobfoll argues that change itself is not the source of stress, but change resulting in a loss of valued resources is most problematic. Qualitative data describing specific events in people’s lives can reveal such losses.
In summary, Hobfoll’s (1989) COR model offers a theoretical guide for comprehending the work–family literature. First, it suggests specific hypotheses about relationships between work and family roles and a broad range of outcomes. Second, COR allows for predictions about the moderating relationship of self-esteem among these work–family variables. Last, the COR model incorporates the effect of life change events on stress levels.

**RELATIONSHIPS OF WORK AND FAMILY STRESSORS AND STRAIN**

*The Work Domain: Predictors of Work Role Stress and WFC*

In light of the COR model, it could be argued that those who are older would have more valued work resources, such as seniority, tenure, and status. In support of that assumption, research has found a high correlation between age and tenure (Parasuraman, Greenhaus, & Granrose, 1992). With more resources, work stress and work interfering with family become less likely. Gender may also relate to one’s resources. In one study, women had significantly lower levels of job tenure and salary than men (Parasuraman et al., 1992). These are two resources according to the COR model. Women may also face more stressors at work, such as sexual harassment, the glass ceiling, and a lack of mentors (e.g., Cooper & Davidson, 1982; Gutek & Koss, 1993). Research has suggested that gender is related to perceptions of work–family conflict (Duxbury & Higgins, 1991; Gutek et al., 1991; Parasuraman, Purhoit, Godshalk, & Beutell, 1996).

Last, work role stress and WFC are expected to be related to one another. In particular, those who experience work role stress will be more likely to report WFC. According to the COR model, as more conflict is experienced in one domain, fewer resources are available to fulfill one’s role in another domain. Experiencing high levels of conflict at work might tap available resources and leave fewer resources available for family demands. In this manner, work role stress should relate to how work interferes with fulfilling family demands (WFC).

*The Family Domain: Predictors of Family Role Stress and FWC*

The lower left corner of Fig. 1 shows the predictors of family role stress and FWC. The number of children living at home and marital status were expected to relate to family role stress and how family interferes with work. More children at home would mean less of the valued resources of time and energy. Eagle et al. (1996) found that the number of children one had was significantly related to FWC. As stated in the COR model, married status can be considered a valued resource. Those who are married and living together may have more resources to draw on (i.e., their spouse, more finances), than those who are not living with someone in a committed relationship. Those who are married/living together should have lower levels of stress. It is important to note here that this literature has had a heterosexual focus in the past. There are employees who view themselves as in committed relationships and thus have the resource of their
partner, but cannot call themselves legally married. This study referred to relationships in a general way, rather than “spouse,” and defined “family” very broadly.

Research suggests that women are still primarily responsible for the household (Pleck, 1985), suggesting more family role stress. The expectations that women will take care of the family may cause family demands to interfere with work more for women than for men. Thus, gender is predicted to have a main effect on these outcomes. Family role stress and FWC are expected to be related to one another. In particular, the experience of family role stress is expected to relate to the level of family demands interfering with work (FWC).

HYPOTHESIS 1. Demographic variables of age, marital status, number of children at home, and gender relate to the work and family stressors.

HYPOTHESIS 1a. Age and gender relate to work role stress and WFC such that younger persons and women report more role stress.

HYPOTHESIS 1b. Number of children at home, marital status, and gender relate to family role stress and FWC such that those with more children, unmarried persons, and women report more role stress.

HYPOTHESIS 2. Work role stress relates positively to WFC, and family role stress relates positively to FWC.

Job Distress and Family Distress

Job distress and family distress are two proposed outcomes of work and family stressors. Distress in either domain involves a negative “state of being,” or dissatisfaction and tension, in that role. The COR model proposes that intrarole stress might tax a person’s resources, leading to the experience of same-domain stress. That is, trouble in the work domain might cause job distress, while family troubles might lead to family distress. Prior research has found evidence for

FIG. 1. Path model for the relationships of work and family role stress, work–family interference, and strain. Beta coefficients are shown for significant ($p < .05$) hypothesized paths. Dotted lines represent hypothesized relationships that were not supported.
same-domain stress outcomes. For example, research has found that work role stress relates to the unpleasant states of higher job tension and lower job satisfaction (e.g., Frone et al., 1992; Kahn et al., 1964; Kopelman et al., 1983). Likewise, family role stress is also related to negative states of family tension and satisfaction (Frone et al., 1991; Kopelman et al., 1983).

In terms of interrole stress, studies which have assessed both WFC and FWC suggest opposing path models. One set of results suggests that WFC relates to work outcomes and FWC relates to family outcomes (Adams, King, & King, 1996; Judge, Boudreau, & Bretz, 1994; Netemeyer et al., 1996; O’Driscoll et al., 1992). According to these findings, conflict in one domain does not affect outcomes in the other. However, other results suggest a less restrictive pattern, where both WFC and FWC relate to work-related outcomes (Parasuraman et al., 1996; Frone et al., 1992; 1997). The COR model proposes that interrole conflict leads to stress because resources are lost in the process of juggling both roles. If resources are lost from the experience of interrole conflict, then distress should occur in both the work and family domains. It seems possible, from these results and from predictions based on the COR model, that WFC and FWC directly relate to both work and family outcomes of distress.

HYPOTHESIS 3. Work role stress, WFC, and FWC directly relate to job distress.

HYPOTHESIS 4. Family role stress, FWC, and WFC directly relate to family distress.

Physical Health and Life Distress

On the far right side, Fig. 1 displays the ultimate consequences of work–family conflict. Physical health refers to general health and somatic symptoms, while life distress includes dissatisfaction and an overall perception that life is stressful. Prior research supports that work role stress, family role stress, and work–family conflict all directly relate to the outcomes of decreased physical health and increased life distress (Frone et al., 1991; Kahn et al., 1964; Netemeyer et al., 1996; Parasuraman et al., 1996).

However, when other stress outcomes are taken into consideration, it has typically been reported that the work–family intrarole stressors have an indirect relationship with physical health and life distress (Adams et al., 1996; Kopelman et al., 1983; Frone et al., 1992). For example, researchers have demonstrated that job distress mediates the relation between work role stress to general life distress. If work role conflict and ambiguity do not lead to a feeling of job distress, then physical health and life distress are not significantly affected by work role stressors. Likewise, empirical support exists for work–family conflict to be mediated in its relationships to general life outcomes and health (Frone et al., 1992; Kopelman et al., 1983; O’Driscoll et al., 1991). This finding fits the COR model; as people’s resources from one role are drained so that they cannot complete another role, they may experience a negative state of being about both roles (domain distress). This distress may lead to dissatisfaction with life and to illness.
HYPOTHESIS 5. Work role stress, family role stress, WFC, and FWC relate to life distress and poor physical health. Job and family distress mediate this relation.

Turnover Intentions

The present model proposes that as resources become scarce, individuals try to change their situations to protect them. By decreasing their effort within their work and/or family roles, people conserve resources which might otherwise be lost. Quitting a job would conserve the resources being lost from the stress of that role. As one might expect, work role stress has been linked to decreased job performance and increased absenteeism and turnover (Kahn et al., 1964; Wright & Cropanzano, 1998). Netemeyer et al. (1996) found that both WFC and FWC correlated with turnover intentions. Work–family conflict, as a single variable, had a significant path to intentions to leave the job in a sample of public accountants (Greenhaus et al., 1997).

No known path analyses have demonstrated a relation between both types of work–family conflict and turnover intentions. Our model proposed that when both directions of work–family conflict are considered, work role stress and WFC relate to turnover intentions beyond family role stress and FWC. More specifically, work role stress and WFC will relate to the experience of job distress, which will mediate the desire to leave that job. As portrayed by the COR model, employees who experience role stress will try to diminish the negative state of being. If they feel distress from work, or if work interferes with their families, they may need to eliminate this resources drain by leaving the organization.

HYPOTHESIS 6. The intent to leave the job relates to work role stress and WFC, and job distress mediates this relation.

SELF-ESTEEM AND WORK–FAMILY CONFLICT

The COR model proposes that with more personal resources individuals might be able to offset the loss of other resources, like job or marital status. In this study, we assessed how the resource of self-esteem (Rosenberg, 1965) affects one’s response to stress. At least two studies have found that general self-esteem moderates role stress. Both studies were limited to work role stress as a predictor and only found a moderating effect for certain relationships. Mossholder, Bedelian, and Armenakis (1981) reported that when nurses experienced role conflict, those low in self-esteem exhibited lower job performance than those high in self-esteem. Nurses experiencing role ambiguity reported less job satisfaction if they were lower in self-esteem. Ganster and Schaubroeck (1991) reported that low self-esteem firefighters who experienced role conflict had higher levels of somatic symptoms.

The present study extended work on the moderating effect of self-esteem by examining whether self-esteem is a useful resource when an individual is faced with work–family conflict. Besides work role stress, the present research in-
cluded family role stress, WFC, and FWC as predictors and a wider range of outcome variables than in previous studies.

HYPOTHESIS 7. Self-esteem moderates the predicted relationships between each of the four role stressors (work role stress, family role stress, WFC, and FWC) to work, family, and life distress. Lower self-esteem increases the relationships between the role stressors and the outcomes of distress.

Critical Change Event

As stated earlier, the COR model proposes that a life change where one’s resources are diminished, as opposed to change in general, is a source of stress (Hobfoll, 1989; Hobfoll & Shirom, 1993). Such events relevant to the present study might include divorce, financial downfall, or a sick relative. In these events, the resources of marital status, money, and time (respectively) are lost. In contrast, those who have a gain in resources, such as marriage, tenure, or improved health, should report less stress. Given the time-lagged design of our study, we were able to ask participants to report any “major changes” that occurred between time 1 and time 2. We used this information to test how respondents’ stress levels differed depending on the loss or gain of resources experienced by the change.

HYPOTHESIS 8. Those who lose, or could lose, valued resources report higher levels of distress, worse physical health, and a greater intention to leave the job.

METHOD

Participants

Surveys were sent to all paid faculty (about 1250) at a land-grant state university campus. Three hundred twenty-six professors completed the first round of surveys, and of that 326, 148 agreed to participate in the second collection of data. The original response rate was 26% of the entire population. The second sample was 45% of the original sample and 12% of the population. However, we decided to only include full-time employees, since only 15 part-time employees responded the second time. Our final sample was 132 respondents.

The representativeness of the participants was difficult to determine because the only demographic data available from the university was gender. The general population had 26% women. Female professors made up 43.2% the participants, so women were overrepresented. The majority of participants were married (83.3%), with the other 17% being either divorced or single. Fifty percent of the respondents had no children living at home, 25% had one child at home, 20% had two, and 4.5% had three or more. Only 6 respondents were between the ages of 21 to 30 years, and only 8 were over 61 years old. The remaining 118 respondents were fairly evenly distributed across the ages 31–60.

We compared the demographics of time 1 respondents with those completing
both time 1 and time 2. This comparison was done to determine if there was a bias in the type of individual who was willing to be involved in both rounds of data collection. The time 1 respondents were very similar to the final sample of respondents in terms of gender (40% women), marital status (85.3% married), children (51% had no children at home), and age (81% between 31 and 60). Thus it seems those who completed both surveys were similar in demographics to those who completed only the time 1 survey.

**Measures**

All of the following items were measured on a 5-point Likert-type scale. Anchors were (1) strongly disagree, (2) inclined to disagree, (3) neither agree nor disagree, (4) inclined to agree, (5) strongly agree. Scale items were averaged for further analysis.

**Work role stress.** Role conflict and role ambiguity in the workplace were measured by seven items from Kopelman et al.’s (1983) validation study (one item was not used due to a low factor loading in the validation study). Five items were from a scale by Rizzo, House, and Lirtzman (1970), and two were developed by Kopelman et al. (1983). The reliability coefficient $\alpha$ for this scale was .71. Sample items include: “On the job I work under incompatible policies and guidelines” and “At work I receive an assignment without adequate resources to complete it properly.”

**Family role stress.** Family was defined on the survey as “spouse, live-in partner, parents, children, in-laws; any and all committed relationships that might affect your non-work life.” This broad definition attempted to avoid the assumption that “family” means a heterosexual, married relationship. Family role stress was measured using three items from a scale by Pleck, Staines, and Lang (1980), which were validated in Kopelman et al. (1983). One item that referred to “spouse” was changed to “family.” Five additional items were developed by the present authors to tap role conflict and ambiguity within the family role. Principal components analysis was done to assess the internal structure of this scale. Based on the results of this analysis, one item was dropped. The final scale yielded one factor with an eigenvalue of 3.55, explaining 51% of the variance. Coefficient $\alpha$ for this scale was .83. Sample items are: “Because of my family situation, I have too little time to pursue my personal interests” and “I am not sure what to do to please my family.”

**Work → family conflict.** Work interfering with family (WFC) was measured with a scale validated in the Kopelman et al. (1983) study. Two of the items were dropped due to low factor loadings in the validation study, leaving six items. Principal components analysis yielded one factor with an eigenvalue of 3.95. This factor explained 66% of the variance in the items. The coefficient $\alpha$ for WFC was .90. Sample WFC items are: “My work schedule often conflicts with my family life” and “My work takes up time that I’d like to spend with my family.”
Family → work conflict. Six items were written to tap how family interferes with work (FWC). These items parallel the WFC items, reversing the source of the stressor. One item with a low factor loading was dropped from the FWC scale, leaving five items. The final scale had an eigenvalue of 2.70 and explained 54% of the variance. The coefficient α for FWC was .78. Sample FWC items are: “Family events or appointments often conflict with my work demands” and “My personal life takes up time that I’d like to spend at work.” When both the WFC and FWC items were tested in an exploratory factor analysis, two distinct factors emerged. The items loaded appropriately on the separate factors.

Job distress. Work satisfaction and work tension, coded so that they moved in the same direction, were combined to make this composite variable. The general work satisfaction scale is three items, and validation evidence can be found in Seashore, Lawler, Mirvis, and Camman (1982). A sample item is: “Generally speaking, I like working here.” The measure of work tension was a 7-item scale developed by House and Rizzo (1972). The scale and validation evidence can be found in Cook, Hepworth, Wall, and Warr (1972). A sample item is: “I have felt fidgety or nervous as a result of my job.” These two scales were aggregated for both theoretical and statistical reasons. Theoretically, they both represent a state of well-being in response to the job. Statistically, the α coefficient for the aggregated outcome of job distress was .89. An unrotated principal components analysis revealed that the variables loaded on the first factor.

Family distress. The variables of satisfaction (dissatisfaction) and tension were also aggregated to form a single construct. Family satisfaction was measured using Hackman and Lawler’s (1971) job satisfaction three-item scale, with the word “job” replaced by “family.” For example, one item stated “Generally speaking, I am very satisfied with my family situation.” Likewise, family tension was measured with the above job tension scale replacing “job” with “family.” “Problems associated with my family have kept me awake at night” is an example from this scale. The coefficient α for family distress was .87. Principal components analysis showed that all the variables loaded strongly on the first factor.

Life distress. Measures of life satisfaction and life stress were combined into a composite variable of life distress. Life satisfaction was measured by a five-item scale developed by Diener et al. (1985). A sample item is: “So far I have gotten the important things I want in life.” Life distress was measured by two items written by the author for this study. This scale states “In general, I would say my life is stressful,” and “I would say I have more going on than I can handle.” The coefficient α for life distress was .88, and the principal components analysis showed a strong first factor.

Poor physical health. Two five-item scales developed by House and Rizzo (1972) of general health and somatic tension were combined into a composite measure, which had a coefficient α of .73. The items were coded so that higher scores indicated poor health. Sample items are: “I would consider myself in good or excellent health” and “I sometimes feel weak all over.”
Turnover intentions. Intention to leave the current job was measured by three items (Cropanzano, James, & Konovsky, 1993), with a coefficient $\alpha$ of .74. “I intend to remain with this organization indefinitely” was a reverse scored item from the turnover intentions scale.

Self-esteem. Rosenberg’s (1989) 10-item global measure of self-esteem was used to measure self-esteem. For the participants in the present study, the coefficient $\alpha$ was .85. Sample items are: “I feel I have a number of good qualities” and “At times I think I am no good at all” (reverse scored).

Critical change event. We obtained this descriptive data by asking participants to “Describe any major changes which have occurred since the first time you completed this survey.”

Procedure

The first round of surveys was delivered to all paid faculty in all departments of the university. An identification number was written on each survey. After 2 weeks, a reminder was sent to each faculty member to complete the survey. Respondents were asked to write their names on a separate piece of paper and return it with their survey if they were willing to complete the survey again later in the year. We kept a master list of names matched with the code number so that respondents’ names were never on the survey. About 5 months later, we used the master list to send the second round of surveys. These were coded with identification numbers that matched the participants’ original number so that time 1 and time 2 surveys could be matched.

Analysis

Based on the model shown in Fig. 1, we assessed relationships simultaneously via path analysis. Based on the hypothesized model, we performed hierarchical multiple regression analyses with all variables which had a direct or indirect path with each endogenous variable. The demographic variables were entered on step 1, the work and family role stress variables on step 2, and the work–family interference variables on step 3 and job and family distress was entered on step 4 when a mediated relationship was proposed. The $\beta$ coefficients when the variables were first entered, and after all hypothesized variables were entered, indicate the direct and indirect relationships. Increases in variance explained by each step show the effect size of each step.

The hypothesis for self-esteem was tested by moderated regression (Baron & Kenny, 1986). Self-esteem as a main effect was entered along with the demographic variables and work and family stressors. The interaction variable of self-esteem with each stressor was entered on the last step of the equation. We assessed whether the change in variance explained was significant beyond the variance explained by the main effects.
RESULTS

Correlational Analysis

Table 1 shows the correlation matrix of the work and family stress variables at time 1 with stress outcomes reported 5–6 months later. The $\alpha$ coefficients shown on the diagonal of Table 1 range from .71 to .90. Overall, the means were high for positive variables (self-esteem) and low for negative outcomes (role stress, turnover intentions). This should be considered when interpreting the following results.

Hypothesis 1 stated that the demographic variables relate to the work and family stressors. As predicted, being older, male, married, and with fewer children were related to lower levels of stress for almost all relationships. Overall, the remaining relationships were in the predicted directions. Correlations ranged greatly in size from zero to .58.

Results of Path Analysis

Intra- and interrole stressors. Hypothesis 1 was tested by regressing each work–family stressor variable on the predicted antecedent. Thus, work role stress was regressed onto gender and age. Likewise, WFC was regressed onto work role stress, gender, and age. Neither age nor gender had a significant path to work role stress. However, the path from age to WFC had a significant negative $\beta$ weight beyond the effect of work role stress. Age and gender together explained a nonsignificant 4% of the variance in work role stress and a significant 12% of the variance of WFC. These findings partially supported Hypothesis 1a. Marital status and number of children had a significant path to family role stress in the predicted directions. The FWC was regressed onto marital status, gender, number of children and family role stress. While family role stress had a significant path, number of children was the only significant demographic variable. Hypothesis 1b was partially supported. Marital status, number of children at home, and gender explained 22% of the variance of family role stress and 26% of FWC.

Hypothesis 2 predicted that work role stress relates positively to WFC and that family role stress relates positively to FWC. Even when the demographic variables were entered first, both intrarole stressors had significant paths to the predicted work–family interference variable. The path coefficients found in Fig. 1 represent the relationships above and beyond the predicted demographic variables. Hypothesis 2 was supported. Work role stress explained an additional 18% of the variance in WFC. Family role stress explained an additional 16% of the variance of FWC.

Job distress and family distress. Hypothesis 3 posited that work role stress and both directions of work–family conflict (WFC and FWC) relate directly to job distress. As can be seen in Fig. 1, this was partially supported. Age and gender related significantly to job distress when first entered ($\Delta R^2 = .14$), but no longer had a direct effect after the other predictors were considered. The entry of work and family role stress increased the variance explained by a significant amount
TABLE 1
Correlation Matrix of All Variables in the Path Model

<table>
<thead>
<tr>
<th>Variables</th>
<th>Means</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Age</td>
<td>2.50</td>
<td>.80</td>
<td>-0.18</td>
<td>-0.08</td>
<td>0.11</td>
<td>0.71</td>
<td>0.83</td>
<td>0.90</td>
<td>0.40</td>
<td>0.78</td>
<td>0.89</td>
<td>0.58</td>
<td>0.57</td>
<td>0.45</td>
<td>0.86</td>
<td>0.88</td>
</tr>
<tr>
<td>2. Marital status</td>
<td>2.40</td>
<td>.89</td>
<td>-0.25</td>
<td>-0.18</td>
<td>0.37</td>
<td>0.22</td>
<td>0.29</td>
<td>0.51</td>
<td>0.24</td>
<td>0.59</td>
<td>0.56</td>
<td>0.37</td>
<td>0.39</td>
<td>0.57</td>
<td>0.48</td>
<td>0.75</td>
</tr>
<tr>
<td>3. Children at home</td>
<td>1.92</td>
<td>.74</td>
<td>-0.25</td>
<td>-0.07</td>
<td>0.45</td>
<td>0.24</td>
<td>0.24</td>
<td>0.59</td>
<td>0.40</td>
<td>0.78</td>
<td>0.89</td>
<td>0.58</td>
<td>0.57</td>
<td>0.45</td>
<td>0.86</td>
<td>0.88</td>
</tr>
<tr>
<td>4. Gender</td>
<td>2.52</td>
<td>.81</td>
<td>-0.24</td>
<td>-0.19</td>
<td>0.10</td>
<td>0.29</td>
<td>0.56</td>
<td>0.39</td>
<td>0.56</td>
<td>0.37</td>
<td>0.34</td>
<td>0.74</td>
<td>0.52</td>
<td>0.57</td>
<td>0.48</td>
<td>0.17</td>
</tr>
<tr>
<td>5. Work role stress</td>
<td>1.85</td>
<td>.81</td>
<td>-0.09</td>
<td>-0.33</td>
<td>0.21</td>
<td>0.29</td>
<td>0.15</td>
<td>0.58</td>
<td>0.37</td>
<td>0.57</td>
<td>0.45</td>
<td>0.86</td>
<td>0.52</td>
<td>0.57</td>
<td>0.48</td>
<td>0.19</td>
</tr>
<tr>
<td>6. Family role stress</td>
<td>2.73</td>
<td>.88</td>
<td>-0.19</td>
<td>-0.22</td>
<td>0.20</td>
<td>0.21</td>
<td>0.46</td>
<td>0.51</td>
<td>0.57</td>
<td>0.48</td>
<td>0.75</td>
<td>0.52</td>
<td>0.57</td>
<td>0.48</td>
<td>0.19</td>
<td>0.73</td>
</tr>
<tr>
<td>7. Work-family conflict</td>
<td>2.12</td>
<td>.99</td>
<td>-0.13</td>
<td>-0.11</td>
<td>0.04</td>
<td>0.32</td>
<td>0.18</td>
<td>0.21</td>
<td>0.19</td>
<td>0.48</td>
<td>0.19</td>
<td>0.34</td>
<td>0.74</td>
<td>0.52</td>
<td>0.33</td>
<td>0.58</td>
</tr>
<tr>
<td>8. Family-work conflict</td>
<td>1.31</td>
<td>.65</td>
<td>-0.03</td>
<td>-0.09</td>
<td>-0.01</td>
<td>0.23</td>
<td>0.27</td>
<td>0.33</td>
<td>0.43</td>
<td>0.28</td>
<td>0.52</td>
<td>0.33</td>
<td>0.58</td>
<td>0.17</td>
<td>0.73</td>
<td></td>
</tr>
<tr>
<td>9. Job distress</td>
<td>2.12</td>
<td>.64</td>
<td>-0.07</td>
<td>-0.23</td>
<td>-0.09</td>
<td>-0.23</td>
<td>-0.30</td>
<td>-0.36</td>
<td>-0.30</td>
<td>-0.41</td>
<td>-0.25</td>
<td>-0.55</td>
<td>-0.32</td>
<td>-0.45</td>
<td>-0.85</td>
<td></td>
</tr>
</tbody>
</table>

Note. Correlations above .17 are significant (p < .05). The values in italics on the diagonal contain the α-coefficients for each scale. Age was measured by choosing one of five categories of age ranges. Marital status was measured as a dichotomous variable (not married = 0, married = 1). Children at home was measured by choosing one of five categories ranging from no children at home to more than three. Gender (men = 0, women = 1).
As predicted, only family role stress was a significant predictor. On the last step, WFC and FWC contributed a significant 5% of variance explained. However, only WFC had a significant \( \beta \) weight. Thus, Hypothesis 3 was partially supported. The direct effects of work role stress and WFC, as found in Fig. 1, were beyond the effect of family role stress, FWC, and the four demographic variables.

Hypothesis 4 stated that family role stress and both directions of work–family conflict relate directly to family distress. When the demographic variables were entered first, all but age had significant \( \beta \) weights and explained 22% of the variance of family distress. After the other predictors were entered, only marital status retained a significant \( \beta \) weight (\( \beta = -.21 \)). Work role stress and family role stress explained 19% of the variance above and beyond the demographics, and the work–family conflict block explained another 8% of the variance. Once all the variables were entered, only family role stress and FWC had significant direct paths with family distress above and beyond the other variables. Hypothesis 4 was partially supported. Overall, the demographic variables and the four predictors together explained almost 50% of the variance in family distress.

**Life distress and physical health.** Hypothesis 5 stated that work and family role stress, WFC, and FWC relate to life distress and physical health. An indirect path through the work and family distress variables was posited. As shown in Fig. 1, almost all components of Hypothesis 5 were supported.

Marital status and children at home had significant \( \beta \) weights when first entered (\( \beta = -.23, .20 \), respectively), and the demographics together explained 14% of the variance in life distress. The work–family predictors contributed 34% of the variance explained, with significant \( \beta \) weights for work role stress (\( \beta = .34 \)), family role stress (\( \beta = .36 \)), WFC (\( \beta = .29 \)), and FWC (\( \beta = .19 \)). After job and family distress were entered into the equation (\( \Delta R^2 = .18 \)), none of these predictors remained significantly related to life distress. Thus, the relationships of work and family stressors were mediated by the job/family distress block. Family distress did not have a significant \( \beta \) weight, so the mediational role was played by job distress. Altogether, the hypothesized variables explained over 65% of the variance in life distress.

With physical health, similar outcomes emerged. The demographic variables explained 6% of the variance in physical health, with gender having the only significant \( \beta \) weight (\( \beta = .23 \)). However, this did not remain significant when the other predictors were entered. Work role stress (\( \beta = .19 \)), family role stress (\( \beta = .32 \)), and WFC (\( \beta = .29 \)) each had significant total effects beyond the effects of the demographic variables. Together, they explained an additional 20% of the variance in lack of physical health. Once job and family distress were entered into the equation (\( \Delta R^2 = .10 \)), all of these \( \beta \) weights dropped to nonsignificant status. Family distress was not significantly related to physical health beyond the other variables, so job distress again played a mediational role. All the entered variables explained 35% of the variance in lack of physical health.
Turnover intentions. Hypothesis 6 stated that turnover intentions relate indirectly to work role stress and WFC through their relation to job distress. None of the demographic variables had a significant $\beta$ coefficient. Only work role stress was initially related to turnover intentions when the other predictors were entered ($\beta = .28$). The WFC did not have a significant relationship with turnover intentions. Together, the work–family predictors explained 9% of the variance in turnover intentions. As predicted, work role stress’ relationship with turnover intentions was mediated by job distress. When job distress was entered into the equation ($\Delta R^2 = .14$), work role stress no longer had a significant direct effect. Hypothesis 6 was partially supported. Job distress and the other variables explained 28% of the variance in the intent to leave the job.

Moderation Analysis of Self-Esteem

Hypothesis 7 predicted that self-esteem moderates the relationship of predicted stressor variables with the outcomes. Despite empirical and theoretical support for the moderating effect of self-esteem, no such effects were found with this sample. Only main effects existed between self-esteem and the outcome variables.

For four of the five outcome variables, self-esteem had a significant direct effect after all of the demographic variables and predicted work–family stressors had been entered. In particular, self-esteem related to job distress ($\beta = -.15$), life distress ($\beta = -.24$), lack of physical health ($\beta = -.27$), and turnover intentions ($\beta = -.17$). The direction of the relationships supported the hypothesis that self-esteem is a resource. Self-esteem contributed an additional, significant 2% to 9% of variance explained in these four outcome variables. Self-esteem did not have a direct relationship with family distress.

Comparison of Critical Change Events

Hypothesis 8 stated that individuals reporting a change involving a loss of resources would report greater distress, worse physical health, and higher turnover intentions. Thirty-three participants responded to the stimulus item. Four respondents wrote about things that were not changes (i.e., ongoing health problems, continuing problems with work), leaving 29 participants with usable responses. Those who reported a change do not seem different from the rest of the sample, except that slightly more than 50% of the responses were from women.

To determine if an individual had experienced a loss or a gain of resources, each change event was written on a separate notecard. The first author categorized each event as a gain or a loss of resources. Eighteen respondents reported more than one event. A net loss or gain was determined: if the respondent reported two loss-of-resource events and one gain, that person was determined to have an overall loss of resources. Two categories of respondents were formed, those with a net loss of resources and those with a net gain of resources. Those who did not respond to this item were excluded from analysis. One-tailed
independent t tests were used to compare mean stress outcomes experienced by persons who gained resources to persons who had lost resources.

Ten persons (7.6%) reported an overall gain in resources. Following are descriptions of gains in resources: “Financial investments in mutual funds did well” (gain in finances); “I got engaged, which is good” (gain in relationship); “As a result [of a leave of absence] I will have a year with my two young children and husband with the possibility to return to my full-time job, so I am delighted, thrilled, and relieved that much of my work–family conflict stress will be solved” (gain in time/energy). Nineteen (14.5%) of the participants reported an overall loss or potential loss in resources. Examples are as follows: “Turned down for an award at work which I felt I should have gotten” (loss of status); “I was in a same-sex long term relationship/living situation which ended suddenly with the other person moving out” (loss of relationship); “Job is not as secure and has now been changed to part-time” (loss of finances and security); “My migraines/cluster headaches have worsened” (loss of health). Those individuals who described a net gain in resources different significantly from those who reported a loss of resources ($p < .05$) on two outcome variables. Those who had a critical change involving a loss of resources reported significantly higher mean levels of job distress (3.12) and family distress (2.46) than those who reported a gain of resources (2.71, 2.22, respectively). Hypothesis 8 was partially supported.

**DISCUSSION**

The results of this study supported previous empirical research and the Conservation of Resources model (Hobfoll, 1989). In general, the path model demonstrated that most of the predicted relationships remained even after the predictors and strain outcomes were separated by several months. As the chronic work and family stressors drained resources over time, the participants experienced job and family dissatisfaction and tension, life distress, and lack of physical health. As predicted by the COR model, experiencing these negative states was related to a desire to minimize this loss of resources, in this case by intending to leave the job.

In contrast with role theory (Kahn et al., 1964), which would predict that more roles leads to more stress, the COR model views married status as a resource. In fact, it was negatively related to family role stress, as predicted. The number of children at home related positively to family role stress and FWC, as expected. Age related negatively to WFC, which could be due to the fact that as professors become older they have more resources at work, and so work is less likely to interfere with family. Interestingly, gender was not related to any of the work–family stressor variables, in contrast to other researchers’ findings. Gender was a significant predictor of turnover intentions, however, with women being less likely to intend to leave the job. As predicted, role stress at work related to WFC, while role stress at home related to FWC. The model did not predict any crossover relationships between WFC and FWC, which is consistent with previous researchers (Parasuraman et al., 1996).
The mediated model was supported for the work predictors and the outcomes of turnover intentions, life distress, and physical health. As work role ambiguity and conflict increase, and work demands interfere with family demands (WFC), one experiences more distress about the job. This negative state related to distress about one’s life, poor health, and thoughts of leaving the job. Experiencing family role stress and family interfering with work (FWC) created family distress. Contrary to expectations, family distress did not have a significant path to life distress, somatic symptoms, or turnover intentions. Work-related stress seemed to eclipse the effect of family-related stress on these outcome variables.

These results also extend previous research. Specifically, we tested the relationships between the two work–family conflict measures and a wide range of outcome variables. Previous researchers had found contradictory results. We predicted WFC and FWC would both relate to the work and family distress variables. Instead, we found that WFC related to work variables and FWC related to family variables. It seems for these participants that the source of the interference (work in the case of WFC, family in the case of FWC) drives the negative response. This suggests that when work demands interfere with the ability to be a parent/spouse (WFC), one might be more likely to report job tension than family tension.

Based on the findings of how work and family role stressors and work–family conflict relate differentially to the work, family, life, health, and turnover variables, it could be concluded that individuals in this sample seem to compartmentalize their roles. The resulting model (see Fig. 1) shows little crossover between work and family domains. Separating work and family domains may serve an adaptive function. Compartmentalization may allow professors to maintain their resources rather than allow one role to drain the other. Therefore, it may act as a coping technique to minimize resource loss. Future research should assess personal coping techniques that minimize how work and family interfere with each other.

Beyond the substantive model, we also predicted that self-esteem moderates the relation between each type of stressor and the outcomes. There were no significant effects for any of the proposed relationships. A power analysis revealed that to find a moderately small effect at .80 power, over 300 subjects would be needed (Cohen, 1988). Thus, it is possible that this sample of 132 was too small to find the effects of self-esteem. Another possibility for these null findings is the restricted range of responses in levels of self-esteem. The mean self-esteem score for this sample was 4.26 on a 5-point scale. Thus, the majority of our respondents had high self-esteem. It could be that self-esteem does have a moderating effect, but the effect is driven by those with low self-esteem. This speculation corresponds with findings by others who have found moderating effects (Mossholder et al., 1981). Lastly, it is possible that self-esteem does not interact with role stressors in predicting stress outcomes.

The main effect findings suggest that self-esteem is an important variable to consider in the work environment. Self-esteem related directly to all work and
life outcomes, but not to family outcomes. Such findings suggest that high self-esteem people do not indiscriminately respond positively. If this were the case, then family outcomes would relate to self-esteem as well. Perhaps having high self-esteem is a resource when in a work environment, yet it may do little to reduce dissatisfaction and tension in the family environment. Other resources may be more helpful. For example, being married had a direct negative relationship with family distress, whereas self-esteem did not.

We would be remiss not to mention this study’s methodological shortcomings. One limitation is that the data were all self-report. Thus, method bias cannot be totally discounted. However, our large and variable correlations argue against that as a complete explanation. If method bias were to explain the relationships, all correlations would be falsely inflated and probably to a similar degree. The fact that the relationships vary in the predicted directions argues against method bias as the sole explanation for our results.

The low response rate raises more serious concerns. It may be that this sample did not represent the population. Perhaps only certain types of professors decided to be involved with a two-phase study on work–family conflict. The comparison of the demographic data compared to the population showed that women were overrepresented. People who have higher work–family conflict, or who are sympathetic to this issue, may be more likely to respond to a survey on work–family conflict. It is possible that women are more likely to find this to be an issue that resounds with them. This may explain the overrepresentation of women; identification and, thus, self-interest with the issue being studied. However, it does not seem that gender itself is the explanation for differences in levels of work–family conflict. There was no gender main effect when age and number of children at home were taken into account. While women may on the whole identify with the issue more than men, and so be more likely to complete the survey, it does not seem that an overrepresentation of women would alter the results significantly. In fact, the moderately low mean levels of both directions of work–family conflict argues against the idea that only men and women with high levels of work–family conflict completed the survey. A last concern with the attrition from time 1 to time 2 (326 respondents to 132) might be that the groups of respondents differ in substantive ways. The lack of change in demographics from time 1 to time 2 argues that the loss of respondents, while it decreased power, did not change the make-up of the respondents and bias the results significantly.

Using professors also makes it difficult to generalize the results. However, this group of employees is an interesting one to understand. Professors have flexibility and autonomy, but these characteristics may also make it difficult to compartmentalize work and family roles. The mean scores show that, in general, this sample is fairly satisfied with their lot in life. The range restriction in responses, however, may have minimized the effects of the predictors. Finally, we cannot conclusively infer causality. Time-lagged designs provide some evidence for temporal causality, but not enough. Future research should assess the
effects of coping with work–family conflict over a longer period of time than we have done.

The COR model received support from this study as a guide for work–family research. It provided a means for predicting and understanding work–family conflict and the ensuing attitudinal and behavioral outcomes. It also provided the mechanism by which individual differences and stressful events can create stress in people. This comprehensive model provides work–family researchers a theoretical basis which has been lacking from previous work.

REFERENCES


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