

Maternal employment experiences, attention problems and behavioral performance: A mediational model

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Summary

The present study posits and empirically tests a process model examining the effects of interrole conflict, satisfaction with, and commitment to the role of employed mother on a self-report measure of cognitive difficulties and a behavioral measure relevant to work performance (proof reading). Fifty-three full-time employed mothers with at least one child living at home participated. The proposed model, tested using Lisrel VI, provided an excellent fit to the data. Specifically, interrole conflict exerted an indirect effect on proof reading performance, mediated by self-reported attention and concentration difficulties. Satisfaction with and commitment to the role of employed mother were not related to either proof reading performance or self-reported cognitive difficulties.

Introduction

Holding simultaneous roles as employee and mother is now a lifestyle adopted by approximately two-thirds of North American mothers with children living at home (Mann and Thornburg, 1987; Waldman, 1983). Several assumptions or biases have generally pervaded research on the growing number of women who occupy the role of employed mother. These include the assumption that employed mothers, their marriages and their children suffer in comparison to non-employed mothers. Also because of the cultural prescription which accords priority to the maternal role, most research has focused on whether work affects a mother's family, rather than evaluating whether family demands interfere with performance at work (Barling, 1990). Furthermore, until recently, research on employed mothers has failed to focus on the experiences of being an employed mother, focusing instead on employment status alone. Finally, most studies have relied exclusively on self-report data to examine any consequences of maternal employment.

In contrast, the present study examines whether a behavioral measure of *work-related performance* is affected by how a mother *experiences* her role as employed mother. The use of a behavioral dependent variable reduces the possibility that demand characteristics or response biases could

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artificially increase the likelihood of supporting the hypotheses. In addition, the present study proposes a mechanism by which the experience of being an employed mother may affect work performance. Also, most studies have examined the employment experiences singly, whereas in the present study they are examined jointly and specific hypotheses regarding their differential effects are proposed.

Before describing the rationale underlying the study in more detail, it is first necessary to justify the use of the term 'employed mother' to denote a single role. To be an employed mother is more than the sum of being an employer/employee and being a mother. The employed and maternal aspects of being an employed mother are not two separate roles. As researchers such as Hall (1972) have found, employed mothers experience their maternal and employment demands simultaneously in the sense that while they are at work they do not place family concerns aside and *vice versa*. The concept of the role of employed mother is consistent with other research investigating maternal employment experiences. Lerner and Galambos (1985), for example, discussed the importance of satisfaction with one's role, whether that be a non-employed mother or an employed mother. Satisfaction with one's role clearly refers to satisfaction with being a mother and being employed, rather than with either of the components of maternal employment alone.

Most researchers now agree that as a group, mothers who are employed do not differ from non-employed mothers on a variety of outcomes, including their personal well-being, marital adjustment and their children's well-being, and that attempts to uncover negative effects of maternal employment are no longer empirically justifiable (Baruch and Barnett, 1986; Warr and Parry, 1982a). No differences have been found between employed mothers and homemakers in terms of self-esteem (Barnett, 1982), health, or satisfaction with life, and marriage (Allen and Keaveny, 1979). Instead, it is suggested that more research focus on differences between employed mothers in terms of the quality of their experience in the role of employed mother. Warr and Parry (1982b) suggest that findings from the literature on men's unemployment be extrapolated to the research on maternal employment. Specifically, all unemployed men do not suffer equally. Rather, it is men who are most highly committed to employment who suffer most from unemployment. Extended to employed women, this suggests that the way women experience their role as either employed mother or homemaker will be more predictive of any positive or negative outcomes than employment status (Baruch and Barnett, 1986).

Research has now begun to specify aspects of women's experience of the role of employed mother which are important for the prediction of positive and negative outcomes of employment. Four variables have been studied: satisfaction with, involvement in, commitment to the role of employed mother, and interrole conflict. Because definitions of those four constructs are not consistent within the literature, the definitions used here are now provided. These definitions were adapted from those of comparable constructs within the organizational psychology literature (Barling and MacEwen, 1988). Satisfaction with the role of employed mother is defined as a pleasurable or positive emotional state resulting from the appraisal of one's experience in the role of employed mother (Locke, 1983). Commitment to the role of employed mother involves a loyalty to being an employed mother, and a willingness to exert effort to remain an employed mother (Mowday, Steers and Porter, 1979). Interrole conflict occurs when pressures within either the employment or maternal aspect of the role is incompatible with the other aspect (Kopelman, Greenhaus and Connolly, 1983). Involvement in the role of employed mother is defined as the degree to which the role of employed mother is central to one's identity (Lodahl and Kejner, 1965). The choice of which employment experiences to study in the present research was determined by a recent multitrait-multimethod analysis which found that interrole conflict, satisfaction and commitment demonstrated adequate construct and discriminant validity, but

that involvement in the role of employed mother did not (Barling and MacEwen, 1988). Therefore, role involvement was not considered here.

Although research on the outcomes of employed mothers' employment experiences is still preliminary, results thus far have been consistent in showing that negative outcomes result when employed mothers are low in satisfaction with, and commitment to the role of employed mother, and high in interrole conflict. Specifically, Parry (1987) found that depression was higher among homemakers dissatisfied with their homemaker role than those who were satisfied, and that mothers who experienced high levels of interrole conflict reported more depression and anxiety. Similarly, Barling and Janssens (1984) found that interrole conflict and job dissatisfaction were associated with health problems for employed women.

As described above, the research has focused on the relationship between experiences of the maternal employment role and personal or family outcomes with little focus on work outcomes, despite suggestions that the work/family relationship is bidirectional (Crouter, 1984). In the present study it is proposed that of the three maternal employment role experiences, interrole conflict will be most likely to affect a behavioral measure of performance, and that this effect will occur via the mediating influence of attention and concentration. There is a body of research linking stress and cognitive performance which suggests that stress alters arousal and attention, and that performance is impaired when arousal is either below or above an optimum level (Fryer and Warr, 1984). Most of that research has involved laboratory stressors, however, and only a few studies have examined the effect of work stress on cognitive performance. Fryer and Warr (1984) examined the effect of unemployment on cognitive performance in a group of men, and found that the length of unemployment predicted the men's cognitive difficulties. They explain their finding in terms of the chronic stress involved in unemployment, suggesting that unemployment is under-arousing due to a reduction in the demands placed on an individual in the absence of employment, and over-arousing in the sense that the individual is confronted with an unusual and undesirable situation. Likewise, Cohen (1980) suggests that because of their unpredictable nature, chronic stressors are over-arousing and therefore exert a negative effect on cognitive functioning. A similar argument could apply to employed mothers experiencing high interrole conflict — a situation which involves over-arousal due to the excessive number of demands with which a mother feels she must cope. That is, a mother who is experiencing excessive and incompatible demands from her work and family may experience difficulty attending to tasks at hand because she is cognitively overloaded. In turn, low levels of the attentional and concentrational resources required to perform well on work-related tasks may result in poor performance on a behavioral measure requiring attention and concentration. Therefore, it is predicted that high interrole conflict will result in self-reported cognitive difficulties which in turn will predict performance on a proof reading task.

In contrast, it is predicted that neither maternal employment role commitment nor maternal employment role satisfaction will be associated directly or indirectly with a behavioral measure of performance. This prediction stems from the contrast between the nature of satisfaction and commitment on the one hand and that of interrole conflict on the other. Both satisfaction and commitment are affective employment experiences. Satisfaction reflects the degree to which an individual is happy with how well the actual work situation matches one's expectations of it (Locke, 1983). As defined above, commitment is a sense of loyalty and willingness to exert effort to remain in the role of employed mother. Interrole conflict is quite different from the other two variables in that time demands and overload are implied when one is high in interrole conflict, but not when one is high or low in satisfaction or commitment. That is, dissatisfaction and a lack of commitment to one's role may be unpleasant, but there is no corresponding time pressure and sense of overload entailed in experiencing high interrole conflict

(Greenhaus and Beutell, 1985). Others have presented similar arguments for why commitment should not be associated with strain. Romzek (1989) rejects the trade-off notion of commitment (e.g. Randall, 1987) which postulates that high levels of commitment can only be achieved and sustained at some personal cost. Instead, Romzek (1989) argues that the maximum level of commitment an individual can feel is not finite, because commitment is not time-based. In support of these ideas, research has found that neither satisfaction nor commitment are consistently or strongly associated with work performance (Iaffaldano and Muchinsky, 1985; Mowday, Porter and Steers, 1982). Because commitment and satisfaction are not time-based they should not exert an effect on concentration and attention and should not detract from cognitive or behavioral performance.

Method

Subjects

Fifty-three female employees working full-time as either secretaries or library staff, and having at least one child living with them at home participated in both phases of the study. Upon the initial telephone contact 101 women who qualified for the study agreed to participate, while only 12 eligible women declined. A total of 68 women returned questionnaires, yielding an initial 67 per cent response rate, but only 53 also completed the proof reading portion of the study, yielding a final response rate of 52 per cent. There were no differences between the librarians and the secretaries on any of the covariates, predictor or outcome variables, justifying pooling their data. The average age of the sample was 38 years (*S.D.* = 6.4), they had been married for an average of 15 years (*S.D.* = 6.6), on average had two children (*S.D.* = 0.85), and the average age of their children still living at home was 10 years (*S.D.* = 6.2). On average, the women had received 13 years of education (*S.D.* = 1.4) and had on average 10 years (*S.D.* = 7.4) experience in their present job.

Procedure

Lists of personnel in equivalent level jobs (secretaries and library staff) were obtained from the personnel departments of a university and a hospital in Ontario, Canada. Subjects were contacted by telephone, the inclusion criteria were outlined, and the study described. Subjects who met the inclusion criteria and agreed to participate were then mailed questionnaires. Upon receipt of their questionnaire the subjects were telephoned again and an appointment was arranged for them to complete the proof reading portion of the study. Subjects were assured that their responses on the questionnaires and their performance on the proof reading task were confidential and would not be released to their employer. To increase the rate of participation, the names of all participants were entered into a lottery upon completion of the study, and three monetary prizes of \$50.00, \$35.00 and \$15.00 were awarded.

Measures

Covariates

Demographic variables Because they may have been correlated with the predictor and outcome variables, information on several demographic variables was collected (Lewis and Cooper, 1983). Only age and education were significantly correlated with any of the predictor variables or the outcome variable (see Table 1). Thus, those two variables will be controlled in all analyses.

Table 1. Descriptive data and intercorrelations*

	<i>M</i>	<i>S.D.</i>	1	2	3	4	5	6	7
1. Age	37.8	6.4							
2. Education (years)	13.1	1.4	12						
3. Life events (Negative)	4.4	4.5	-.19	.07					
4. Interrole conflict	20.5	7.2	-.03	.12	.24†	(.85)			
5. Commitment	26.0	4.1	.19	.06	-.11	-.24†	(.63)		
6. Satisfaction	28.5	4.4	.17	.09	-.27†	-.25†	.72‡	(.81)	
7. Cognitive difficulties	22.4	5.1	.05	-.20	.12	.37‡	-.11	-.12	(.76)
8. Proof reading	34.2	12.8	.24†	.44‡	.17	.01	.03	.14	-.41‡

* Reliabilities are in parentheses.

† $p < 0.05$.

‡ $p < 0.01$.

Neither length of employment, number and age of children, or type of daycare (in the home, daycare centre, or child in school system) were correlated with any predictor variables or the dependent variable.

Life events stress Due to the possibility that general life stress may be confounded with the specific maternal employment role experiences, life stress was assessed using Sarason, Johnson and Siegel's (1978) 47-item Life Experiences Survey. This scale requires that subjects indicate which life events they have experienced in the past year, and rate the extent to which the events exerted either a positive or negative impact. Three indices can be derived from the scale: an occurrence index and a negative and positive stress index. The negative life events index was significantly correlated with interrole conflict and satisfaction with the role of employed mother, and so it too will be controlled statistically in all analyses (see Table 1).

Maternal employment role experiences

All three employment role experiences were assessed using five-point rating scales on which subjects rated the extent of their agreement with each of several statements (see Table 1 for internal reliability of scales). High scores reflect high commitment, satisfaction and interrole conflict, and summed scores were used as opposed to means when computing scale totals. All items assessing the three maternal employment role experiences can be found in Barling and MacEwen (1988).

Interrole conflict Interrole conflict was assessed using Kopelman *et al.*'s (1983) scale which requires that subjects rate their agreement with each of eight statements about the extent to which they 'experience pressures within one role that are incompatible with the pressures that arise within another role' (p. 201).

Role satisfaction To measure satisfaction with the role of employed mother, six items were adapted from Brayfield and Rothe's (1951) Overall Job Satisfaction Scale. The items in the scale correspond to Locke's (1983) definition of job satisfaction as 'a pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences' (p. 1300).

Role commitment Commitment to the role of employed mother was assessed using seven items adapted from Mowday *et al.*'s (1979) Organizational Commitment Questionnaire, chosen to

be relevant to employed mothers. That is, items which were applicable only to the employment context (e.g. 'this organization inspires the best of me in terms of job performance') were not included in the scale. Mowday *et al.* (1979) define role commitment as a loyalty towards one's role, a feeling of responsibility toward one's role and a willingness to exert greater effort than that typically prescribed for role incumbents.

Cognitive difficulties

Fryer and Warr's (1984) 12-item scale was used to assess concentration on everyday activities and mental alertness. Subjects used a four-point scale to indicate how frequently they had experienced each of 12 statements reflecting poor concentration and mental slowness over the past month. Sample items include 'been taking longer over things you do' and 'felt capable of making decisions about things'

Proof reading task

Subjects were instructed to identify as many errors as they could in a 1500 word document containing 103 punctuation, spelling and typographical errors. The task was modelled on that of other researchers (e.g. Baron, 1988; Davidson and Baum, 1986).¹ Subjects were given five minutes to identify as many errors as they could without spending time correcting the errors. The average number of errors detected was 34 (*S.D.* = 12.8), and the range of performance was wide, extending from 12 to 80 errors detected.

Results

The extent to which the proposed model (see Figure 1) adequately represented the data was evaluated using the LISREL VI program (Joreskog and Sorbom, 1984). LISREL is a statistical procedure which enables its user to specify a set of relationships among variables and then test how well the proposed set of relationships corresponds to empirical data. Due to the complexity of LISREL and its relative newness as a statistical procedure in the social sciences, debates continue regarding issues such as appropriate sample size relative to the number of variables in a model, and the effects of violating LISREL's highly restrictive assumptions.

The issue of sample size is pertinent to the present study. The procedure that LISREL uses to derive its maximum-likelihood estimations of parameters in a model is such that errors in estimation increase with smaller sample sizes to a greater extent than with ordinary least squares procedures (Biddle and Marlin, 1987). Furthermore, the χ^2 statistic frequently used to assess goodness of fit of a model to a data set is affected by sample size. However, there is debate over what constitutes a large enough sample size. Tanaka (1987) suggests that a ratio of 10 subjects to one variable may be sufficient. This requirement was satisfied in the present study. Furthermore, to address the problems with χ^2 's dependence on sample size, Anderson (1987) and Biddle and Marlin's (1987) suggestions were followed here. That is, alternate goodness of fit indices were also calculated which are relatively insensitive to sample size, namely Joreskog and Sorbom's goodness of fit index (GFI), the adjusted goodness of fit index (AGFI) and the root mean square residual (RMSR). Using Lewis-Beck's (1980) criteria the assumption regarding multicollinearity among the independent variables was not violated in the present study.

Two separate analyses were computed. Age, education and negatively perceived life stress were controlled statistically by entering a partial correlation matrix into each of the LISREL

¹ Copies of the proof reading task and revised scales are available upon request from the first author.

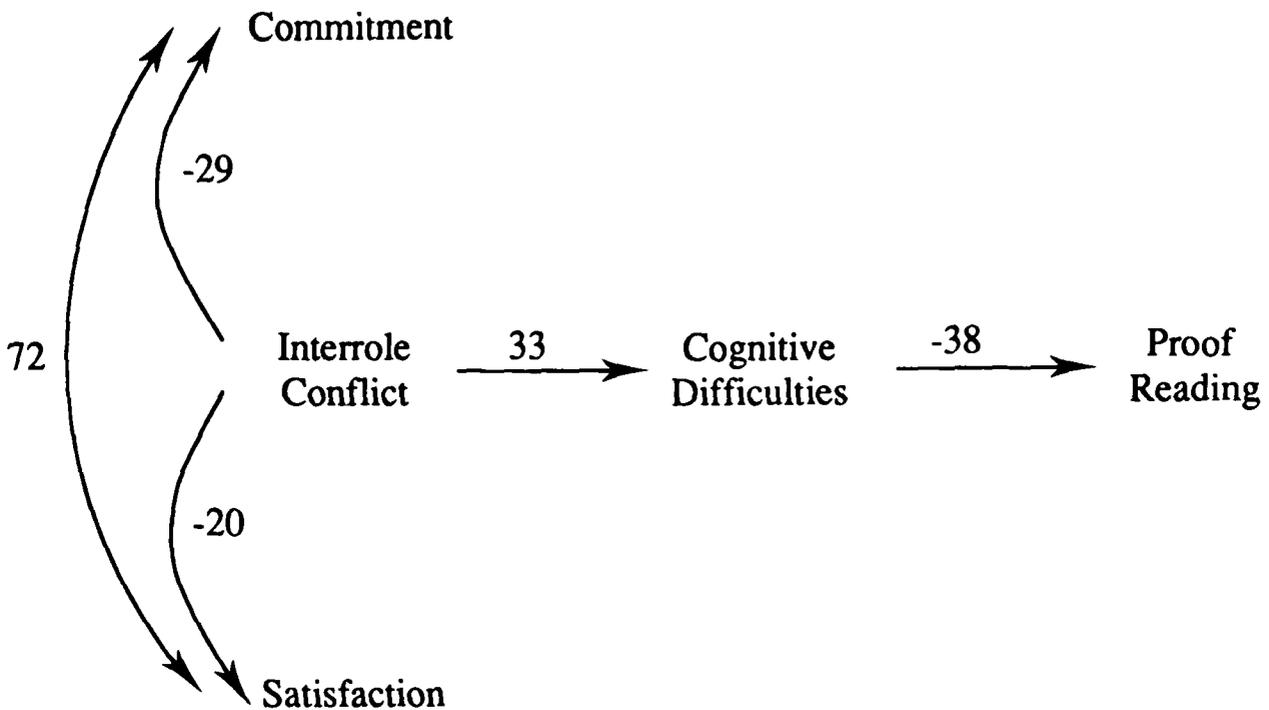


Figure 1. Path model of the significant relationship between maternal employment role experiences, cognitive difficulties and proof reading

analyses. The use of a correlation matrix (and therefore a standardised matrix) as opposed to a variance/covariance matrix is justified in this study because the data are cross-sectional and tested within a single population (Lavee, 1988). For the first analysis, consistent with the model outlined, the relationships between interrole conflict and cognitive difficulties, and cognitive difficulties and proof reading were freely estimated. The associations between interrole conflict and proof reading, and between each of commitment and satisfaction with cognitive difficulties and proof reading were fixed to represent null relationships. The data provided strong support for the proposed model. First, the only significant paths were those between interrole conflict and cognitive difficulties (0.33) and cognitive difficulties and proof reading (-0.38). Second, various goodness of fit tests indicated that the model provided an excellent fit to the data. The χ^2 was not significant ($\chi^2[5, N = 51] = 4.5; p > 0.05$), the χ^2/df ratio was less than 2 ($4.5/5 = 0.9$), both the GFI and the AGFI were just less than unity (0.97 and 0.88 respectively), and the RMSR was 0.05 (with values close to zero indicative of a good fit).

To confirm that commitment and satisfaction to the role of employed mother fulfilled no significant function in the model, a second LISREL analysis was computed in which all relationships between the three maternal employment role experiences, cognitive difficulties and proof reading were freely estimated. If either commitment or satisfaction fulfilled an important role in the model, then either of their path coefficients would be significant, and the goodness of fit of the model to the data would improve. Neither condition was met. The additional path coefficients were not significant (satisfaction to cognitive difficulties: 0.15; commitment to cognitive difficulties: -0.16), and the goodness of fit indices obtained for this second analysis closely paralleled those of the first analysis ($\chi^2(3, N = 51) = 3.65, p > 0.05$; χ^2/df ratio = 1.22; GFI = 0.97; AGFI = 0.93; RMSR = 0.05), suggesting that the inclusion of these paths added no explanatory value to the first model.

Discussion

Results of the LISREL analysis supported the hypothesis that interrole conflict, as a chronic stressor, exerts an indirect effect on a behavioral measure of concentration and attention, and that this effect is mediated by self-reported cognitive difficulties. Also, consistent with the original predictions, neither satisfaction nor commitment to the role of employed mother exerted either direct or indirect effects on proof reading. These results suggest that not only are satisfaction, commitment and interrole conflict discriminable constructs (Barling and MacEwen, 1988), they are differentially related to outcomes. Also, because both demographic correlates and negatively perceived life events were statistically controlled, confidence in the internal validity of the results is increased. The one month time lag between administration of the questionnaires and measurement of proof reading, as well as the use of a behavioral measure in addition to self reports, also strengthen the conclusions that can be drawn from the study.

The finding that interrole conflict predicts cognitive difficulties is supportive of Cohen's (1980) and Fryer and Warr's (1984) research. Women experiencing high interrole conflict may be cognitively overloaded due to the number of incompatible demands which are placed on them, and this may be manifested in cognitive difficulties such as decreased concentration and attention. In addition, these demands may be perceived as both unpredictable and uncontrollable. Of the three role experiences studied, interrole conflict was most closely associated with cognitive functioning because individuals experiencing high interrole conflict perceive that excessive demands are placed on their capacity to attend to several activities at once. Commitment and satisfaction have been associated with more global outcomes (e.g. Allen and Keaveny, 1979), but unlike interrole conflict, low satisfaction and commitment to the role of employed mother do not place demands on cognitive functioning.

Two threats to the external validity of the present study warrant mention. First, because researchers using LISREL are frequently exhorted to use large sample sizes (Tanaka, 1987), consequences ensuing from the small sample size in the present study should be noted. One concern with the use of small sample sizes is that the test of a proposed model may be too conservative to detect the presence of meaningful effects. The significant results achieved in the present study, then, are all the more robust given the small size of the sample. However, the small sample size limits the extent to which the present findings can be generalized to the population of employed mothers, and further tests of the model using larger samples are required. Also, the model should be tested using samples with a greater variety of occupations. Second, although a proof reading task was chosen as a task requiring skills relevant to work performance, proof reading may ultimately be a poor predictor of actual work performance because the abilities tested using the proof reading task constitute only one of the numerous variables which together predict work performance. Thus, the present findings regarding proof reading cannot be generalized directly to work performance in general, but indicate that one aspect of work performance may be affected by interrole conflict and cognitive difficulties. One further suggestion about the importance of cognitive difficulties for work performance was proposed by Murphy, Dubois and Hurrell (1986). They suggested that concentrational and attentional lapses due to work stress may increase the probability that an accident will occur. In addition, one possible threat to the internal validity of the present study is that the reliability of the scale measuring commitment to the role of employed mother was not high. The failure to find an effect for commitment should be replicated in future studies using a more reliable measure.

Several areas for future research are implied from the present results. First, maternal employment experiences and not employment status should be examined, and these employment role

experiences should be assessed independently from each other since they appear to exert different effects. Specifically, further research is needed to investigate how interrole conflict can be minimized, and to clarify whether satisfaction and commitment exert specific effects on other outcomes. The present study used a one month time lag between the administration of the questionnaire measures and the proof reading task. Further research should investigate different time lags, possibly examining daily effects of interrole conflict, to ensure that the present results are not an artifact of the chosen time lag (Gollob and Reichardt, 1987). It should also be noted that alternative models of the relationship between maternal employment role variables, cognitive difficulties and proof reading cannot be excluded on the basis of the present study. Although the model proposed in this study was supported, it must be left to further research to determine whether other models are equally valid. Also, future research should focus on the effects of fathers' interrole conflict because fathers may experience similar levels of interrole conflict as mothers (Barling, 1986), and may experience similar negative effects on their attention and concentration (Chapman, 1987). Furthermore, homemakers are a neglected yet potentially important group to study because current research suggests that it is not employment status that predicts outcomes, but how employment roles are experienced. For example, previous research has found that homemakers who are not committed to their role exert similar effects on children as employed mothers who would rather not be employed (Barling, Fullagar and Marchl-Dingle, 1988).

Finally, a potentially controversial implication of the present research requires mention. Because the present results suggest that high interrole conflict interferes with concentration and attention, some might be tempted to conclude that this is a basis for discriminating against mothers with small children who enter the workforce. On the contrary, we feel that such a finding should be used as evidence of the need to modify current structures which serve to maintain high interrole conflict. Maternal employment can exert considerable benefits for both the woman and her children when her experience of her role of employed mother is positive. Thus, as Burke (1987) has suggested, our goal should be to alter employment demands so that they mesh more easily with family responsibilities, to provide child care facilities satisfactory to mothers, to permit more flexible work schedules, and to encourage men to be more active in their families. Interrole conflict is a role experience which could be modified by restructuring the work environment or reallocating family responsibilities so that they are more equitable and so that incompatible family and work demands are minimized.

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