

Technical Report 1019

Effects of Leader Support in the Work Unit on the Relationship Between Work Spillover and Family Adaptation

Gary L. Bowen

University of North Carolina at Chapel Hill

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on the Relationship Between Work
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FOREWORD

This research is a continuation of the Army Family Research Program (AFRP) 5-year integrated research program, which began in November of 1986 in response to research mandates found in the **CSA White Paper, 1983: The Army Family** and the subsequent annual **Army Family Action Plans**. This report examines the direct and the buffering effect of leader support in the work unit on the relationship between work spillover and family adaptation. The analyses use data from a probability sample of 3,190 married soldiers in the U.S. Army who participated in the 1989 Army and Family Survey, and the results are partitioned by the gender of the respondent. Only modest support is found for the buffering effect hypothesis. Leader support buffers the negative effect of energy interference on the internal adaptation of female soldiers. In support of the direct effect hypothesis, the findings indicate that leader support in the work unit decreases perceptions of work spillover (a "preventive" effect) and enhances perceptions of external adaptation (a "therapeutic" effect). In general, the nature and size of estimated effects are similar for males and females.

These findings will be helpful to Army family program managers as they move to realign the service delivery system to increase its responsiveness to soldiers and their families. They are particularly supportive of efforts by the U.S. Army Community Service Program to implement a new unit-based program model in which staff members from the local Army Community Service are assigned to units to assist commanders in creating a more supportive unit culture for soldiers and their families.

This research is being conducted under a Letter of Agreement between the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) and the U.S. Army Community and Family Support Center (CFSC) titled "Sponsorship of ARI Army Family Research," dated 18 December 1986, which made CFSC the sponsor of the research. The work was done by the Organization and Personnel Resources Research Unit of the Manpower and Personnel Research Division of ARI.

EDGAR M. JOHNSON
Director

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EFFECTS OF LEADER SUPPORT IN THE WORK UNIT ON THE RELATIONSHIP BETWEEN WORK SPILLOVER AND FAMILY ADAPTATION

EXECUTIVE SUMMARY

Requirement:

This research examines the potential role that perceived leader support in the work unit has on the relationship between work spillover and the family adaptation of married soldiers in the U.S. Army.

Procedure:

The data were collected from a probability sample of 11,035 soldiers in 1989. The analysis was conducted on 3,190 soldiers who were married to either a civilian or military spouse. Based on prior research, measures of internal and external family adaptation were specified as dependent variables in the analysis. In addition, two types of work spillover were distinguished and operationalized (energy and time interference), and a composite measure of leader support was specified that reflected the extent to which Army leaders in the work unit and at the current location showed an interest in the welfare of the soldier's family and supported the soldier in responding to family matters through sensitivity to family demands and responsibilities. Hierarchical multiple regression was used to examine the direct versus the buffering effect of leader support in the work unit on the relationship between work spillover and family adaptation. The results were partitioned by the gender of the respondent.

Findings:

Only modest support is found for the buffering effect hypothesis. Leader support buffers the negative effect of energy interference on the internal adaptation of female soldiers. In support of the direct effect hypothesis, the findings indicate that leader support in the work unit decreases perceptions of work spillover (a "preventive" effect) and enhances perceptions of external adaptation (a "therapeutic" effect). In general, the nature and size of estimated effects are similar for males and females, challenging the suggestion from prior research that work to family effects are stronger for males than females.

Utilization of Findings:

These findings were briefed to the U.S. Army Community and Family Support Center on February 25, 1993. They led directly to an experimental program for improving Army Community Service (ACS). Specifically, the program focused on improving the interface between Army units and ACS. Further, work has been undertaken to expand these findings and to provide further assistance to the new ACS program.

EFFECTS OF LEADER SUPPORT IN THE WORK UNIT ON THE RELATIONSHIP BETWEEN WORK SPILLOVER AND FAMILY ADAPTATION

CONTENTS

	Page
INTRODUCTION	1
LITERATURE REVIEW	1
Work Spillover	1
Leader Support	2
Gender Effects	3
THE CONCEPT OF FAMILY ADAPTATION	4
DIRECT VERSUS BUFFERING EFFECTS OF LEADER SUPPORT	5
METHOD	7
Source of Data	7
Sample Design	8
Sample Profile	8
Data Collection	11
Measures	11
DATA ANALYSIS	15
RESULTS	18
Leader Support and Work Spillover	18
Leader Support and Family Adaptation	19
Interaction Effects	22
DISCUSSION	23
IMPLICATIONS FOR PRACTICE	25
REFERENCES	27
APPENDIX A. DESCRIPTION OF INTERNAL AND EXTERNAL ADAPTATION INDICATORS	A-1

CONTENTS (Continued)

Page

LIST OF TABLES

Table	1.	General Characteristics of Sample	9
	2.	Military Characteristics of Sample	10
	3.	Descriptive Statistics for Measures in the Analysis	12
	4.	Correlation Matrix for Male Soldiers and Female Soldiers	17
	5.	Hierarchical Multiple Regression of Energy Interference and Time Interference on Leader Support and Demographics for Male and Female Soldiers	18
	6.	Hierarchical Multiple Regression of Internal and External Family Adaptation on Demographics, Work Spillover, and Leader Support for Male and Female Soldiers	19
	7.	Direct Versus Interactive Models of Internal and External Family Adaptation for Male and Female Soldiers	22

LIST OF FIGURES

Figure	1.	Potential effects of leader support on work spillover and family adaptation	5
	2.	Leader support and the internal and external family adaptation of male soldiers	21
	3.	Leader support and the internal and external family adaptation of female soldiers	21

Effects of Leader Support in the Work Unit on the Relationship Between Work Spillover and Family Adaptation

Introduction

Organizational researchers have given considerable attention to examining the direct versus the buffering effects of social support in the relationship between work stress and the health-related outcomes of employees (House, 1981; Kobasa & Puccetti, 1983; LaRocco, House, & French, 1980; LaRocco & Jones, 1978). Many of these studies have been framed by a person-environment fit perspective that considers the reciprocal interaction between the employee and larger social context. From this perspective, work stress is hypothesized to result from a lack of fit between either the employee's needs and the resources and opportunities in the environment to meet these needs, or between the demands from the environment and the abilities and competencies of the employee to respond to these demands (Caplan, 1987; French, Caplan, & Harrison, 1982; Harrison, 1978).

The present investigation extends previous analysis of the relationship between work stress, social support, and health to examine the potential role that perceived leader support in the work unit has on the relationship between work spillover and the family adaptation of married soldiers in the U.S. Army. Following the work of Small and Riley (1990) and Voydanoff (1988), two types of negative spillover from work to family are examined for their consequences on the family adaptation of soldiers. Both are special cases of interrole conflict, in which the demands from one role preclude or hinder the performance of a second (Greenhaus & Beutell, 1985; Voydanoff, 1988). The first type of work spillover is energy interference, in which the demands from the job leave workers so physically or psychologically fatigued that they have little energy left at the end of the work day to engage with their family in social and recreational activities. The second type of work spillover is time interference, in which the responsibilities from the work role create problems in meeting role obligations and commitments in the family.

Literature Review

Work Spillover

Writings and studies on the work and family interface generally conclude that the spillover of stressors in the workplace to the family has detrimental implications for the family adaptation of married employees as well as their spouses (cf. Bowen, 1991; Burke & Greenglass, 1987; Crouter, Perry-Jenkins, Huston, & Crawford, 1989; Greenhaus & Kopelman, 1981; Kanter, 1977; Piotrkowski, 1979; Pittman, 1994). Yet, it is not unusual in empirical studies for indicators of work spillover to produce small effects or to explain a relatively modest (even if significant) proportion of variance in dependent outcomes, such as family adaptation or closely related concepts (cf. Bolger, DeLongis, Kessler, & Wethington, 1989; Greenberger, Goldberg, Hamill, O'Neil, & Payne, 1989; Repetti, 1989; Small & Riley, 1990). In addition, it is frequently observed that the nature of the work and family interface or its consequences may vary by structural characteristics in both the family and the work setting (cf. Bowen, 1988; Evans & Bartolome,

1986; Greenhaus & Kopelman, 1981; Near, Rice, & Hunt, 1980; Voydanoff, 1988). In combination, these findings suggest a significant level of individual variation in response to events in the work environment.

These findings have led to calls for more sophisticated frameworks and analysis strategies to explicate the complexities of the work and family interface, including the specification of variables that may condition the direction and strength of this interface (Bolger, DeLongis, Kessler, & Wethington, 1989; Crouter, 1984; Evans & Bartolome, 1986; Near, Rice, & Hunt, 1980). Although it is possible to identify many such conditioning variables, including descriptive attributes of the individual and the family system itself, the role of informal social supports in the workplace as contextual variables in the work and family equation has received relatively little attention. This is surprising in the context of the increasing attention in family studies of the consequences of work spillover on the family lives of employees (cf. Bowen, Orthner, & Zimmerman, 1993; Small & Riley, 1990), the explicit specification of resource variables in middle-range theories of family stress and coping (cf. Bowen, 1990; Lazarus & Folkman, 1984; McCubbin & McCubbin, 1987), the extensive study of social support as a main and moderating variable in the organizational research literature (cf. House, 1981; LaRocco, House, & French, 1980), and attention to the role of spouse support as a moderator of work stressors on marital behavior and family outcomes (cf. Burke & Weir, 1982; Repetti, 1987).

Leader Support

Several potential variables that capture the quality of informal social support in the workplace could be conceptualized to influence the relationship between work spillover and family adaptation. The present investigation examines both the direct and buffering role of leader support, a variable that has received a great deal of attention in studies examining the relationship between work supports, occupational stress, and health (Kobasa & Puccetti, 1983). In general, support by senior leaders in the organization and supervisors in the work unit has been associated with both reduced levels of occupational stress and beneficial health outcomes for employees (Billings & Moos, 1982; LaRocco, House, & French, 1980; Kobasa & Puccetti, 1983; Repetti, 1987). Yet, the direct versus the buffering effects of leader support has generated considerable debate by social scientists in studies of the relationship between occupational stress and health.

A comparison of the empirical evidence about the nature and role of leader support as a contextual variable in the study of individual and family adaptation has been hampered by the lack of consistency across research efforts in defining, operationalizing, and measuring its underlying dimensions. Although a number of different types of social support have been conceptualized in the literature (Cobb, 1976; Henderson & Argyle, 1985; Lin, 1986; Pilisuk & Parks, 1983), the measure of leader support in the present study is generally limited to emotional supportiveness, a type of support that LaRocco and colleagues (1980) consider most influential to health-related outcomes. It is defined as the extent to which Army leaders in the work unit and at the current location show an interest in the welfare of the soldier's family and support the soldier in responding to family matters through sensitivity to family demands and responsibilities.

This support variable has special meaning in a military setting. Given the occupational centrality of the military organization, the frequent isolation of families from kinship networks, and conterminous nature of workplace and residence, the work unit becomes a focal point for the identity as well as the social and community integration of service members and their families

(Bowen & Orthner, 1989; Martin & Orthner, 1989; Orthner, Bowen, & Beare, 1990). Military protocol and culture assign commanders and supervisors responsibility not only for their subordinates, but also for the families of their subordinates. This responsibility is entirely consistent with the view of the military as a total institution (Goffman, 1961), as well as Bowen and Orthner's (1989) discussion of military families as a special case of organization families, in which the family and organization become wedded through a lifestyle that absorbs the worker and the family of the worker through a unique combination of demands and supports.

Given their institutional responsibility for service members and their families, it is not surprising that installation and unit leaders are frequently mentioned by service members and their spouses as an important source of social support, creating supportive relationships between the families of service members in the work units and encouraging the development of effective social support services for families (Blankinship, 1990; Styles, Janofsky, Blankinship, & Bishop, 1990). On the other hand, as in most organizations, not all leaders are equally sensitive to support needs of service members and their families, hampering both the development of a supportive family culture in the work unit and an effective chain of support for the families of service members (Martin & Orthner, 1989; Teitelbaum, 1990). Unfortunately, relatively little is known about how variation in the level of leader support influences either the level of negative work spillover experienced by soldiers, the level of family adaptation of soldiers, or the relationship between work spillover and family adaptation.

If leader support can be shown to either reduce negative work spillover, to increase family adaptation, or to buffer the impact of negative work spillover on family adaptation, the family adaptation of soldiers may be increased through interventions that increase the level of informal support in workplace. Such interventions may include the better selection and training of leaders. As discussed by Greenberger et al. (1989), as compared to development and implementation of formal workplace supports, interventions that enhance the quality of informal support in the workplace may be a highly cost-effective alternative for promoting the ability of families to adapt to the demands of military life.

Gender Effects

The relationship between leader support, work spillover, and family adaptation is examined in the context of the soldiers' gender. As recently discussed by Thompson and Walker (1989), although gender describes the attributes of an individual, it is also connected to the broader social structure or macrosystem in which individuals and families enact work and family roles. As a collective attribute that is defined through "networks of social relations" and "prevailing social values and norms" (Blau, 1960, p. 178), it is likely that it informs and shapes the nature of the work and family interface through its influence on individual orientations and behavior. This may be especially the case in the U.S. military where women occupy a minority status and where military leadership has been slow to assimilate women into full occupational participation (Shields, 1988; Stanley & Segal, 1988).

Although no explicit hypotheses are offered to frame its use in the analysis, recent reviews and research on the work and family interface supports the use of gender as a partitioning variable in the analysis (Baruch, Biener, & Barnett, 1987; Crouter, 1984; Greenberger, Goldberg, Hamill, O'Neil, & Payne, 1989; Voydanoff, 1988). In general, consistent with Pleck's (1977) notion that facets of work may have a more defining effect on the family outcomes of men than of women,

research by Greenberger et al. (1989) is suggestive that quality of informal supports in the workplace, such as leader support for families, may contribute more to the family adaptation of men than of women. Yet, the use of gender as a partitioning variable in recent research on the work and family interface has resulted in equivocal support for Pleck's (1977) suggestion of an asymmetrical path of influence between work and family for men and women (Bolger, DeLongis, Kessler, & Wethington, 1989).

The Concept of Family Adaptation

Despite its increasing use as a criterion measure in studies of family stress, coping and social support, the concept of family adaptation is comparatively new and still in development (Lavee & McCubbin, 1985). As a concept, family adaptation can be nominally defined from a process as well as from an outcome perspective (Bowen, Orthner, Zimmerman, & Bell, in press). As a process, family adaptation refers to the efforts by families to effect needed changes in themselves and their environments so as to meet their needs and to confront life demands. As an outcome, family adaptation refers to the results of these efforts.

Family adaptation is operationally defined in the present investigation from an outcome perspective. Consistent with work of McCubbin and associates (McCubbin & Patterson, 1983; McCubbin & McCubbin, 1987; 1989), French and associates (French, Caplan, & Harrison, 1982; Caplan, 1983), and Bowen and associates (Bowen, 1990; Bowen, Orthner, & Zimmerman, 1993; Bowen, Orthner, Zimmerman & Bell, in press; Bowen & Pittman, 1993), family adaptation reflects the outcome of the interplay or level of fit between families and their environmental systems. It is defined as "the outcome of the efforts by Army members and their families to manage the demands of Army life and to work together as a team in meeting Army expectations and achieving individual and collective goals" (Bowen, Orthner, Zimmerman, & Bell, in press, p. 9). Thus, family adaptation assumes special meaning and significance in the military environment: the ability of the family to meet external demands and to achieve internal goals.

From this definition of family adaptation, families are hypothesized to adapt at two levels, which are seen as reciprocal with changes in adaptation at one level having consequences for change at the other. First, family members are adapting in their relationship to one another and to demands generated within the family system itself, which captures the functioning and interdependency of family members as a unit (internal adaptation). Second, they are adapting in their relationship to the external Army system and its requisite demands, which focuses on the level of mutuality or fit between the family unit and its environment (external adaptation). The distinction between these two types of family adaptation is informed by Christensen's (1964) paradigm of marital harmony and dissonance, which is based on the level of value consensus that marital partners experience with respect to one another in marriage and the level of value consensus that they experience with systems external to the marriage. It is also consistent with the definition of adaptation by Lavee and McCubbin (1985) as "a fit at two levels—between family members and the family unit and between the family unit and the community" (p. 1). Adaptation of the family system at both levels may be evaluated on a continuum of maladaptation to bonadaptation.

Bowen and his associates (Bowen, Orthner, Zimmerman, & Bell, in press; Bowen & Pittman, 1993; Pittman & Kerpelman, 1993; Rosenfeld, Bowen, & Richman, in press) have found empirical support for this distinction between internal and external family adaptation. First, factor

analyses of hypothesized indicators of internal and external adaptation across several datasets have consistently supported this two-dimensional view of family adaptation. These findings have been confirmed for military members and their spouses in both civilian wife and dual military marriages. Although changes in either the internal or external adaptation have been positively related to changes in the level of adaptation on the second dimension, only modest correlations have been found between the dimensions of internal and external adaptation for either military members or their spouses.

Second, Bowen, Orthner, Zimmerman, and Bell (in press) provide predictive validity of the distinction between internal and external family adaptation. Although no explicit hypotheses framed the regression analysis by Bowen et al. (in press), dimensions of internal and external adaptation both exerted strong and independent effects on selected measures of work and personal adjustment for soldier husbands and their civilian wives. Yet, generally consistent with past research on the relationship between marital quality and psychological well-being (cf. Williams, 1988), the work and family adjustments of soldier husbands were influenced more by their level of external adaptation than by their level of internal adaptation, while the adjustments of wives were influenced more by internal adaptation than external adaptation.

Direct Versus Buffering Effects of Leader Support

The spillover of work stressors into the family is generally assumed to have negative consequences for the family adaptation of married men and women (Bolger, DeLongis, Kessler, & Wethington, 1989; Burke, 1982; Small & Riley, 1990). Paralleling the discussion by House (1981) and LaRocco, House, and French (1980) of the potential effects of social support on work stress and health, leader support for the family life of soldiers in work unit may counteract or condition this effect in three ways (see Figure 1).

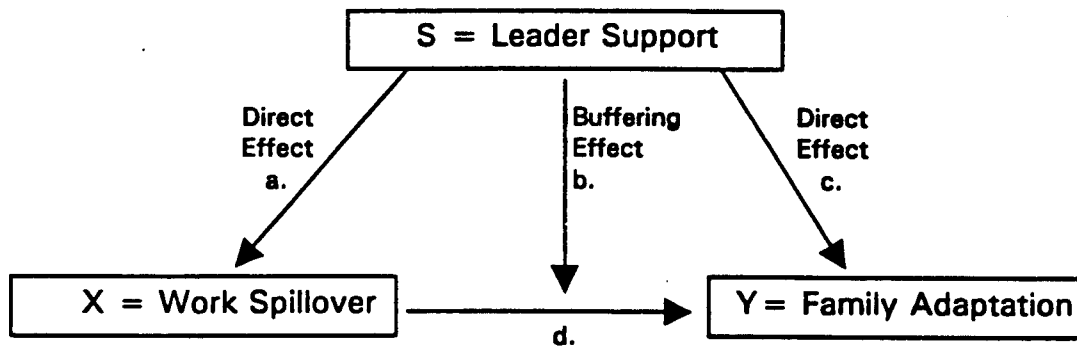


Figure 1. Potential effects of leader support on work spillover and family adaptation. Adapted from House (1981).

First, as seen by arrow a, leader support may have a direct effect on work spillover, which is referred to by Burke and Weir (1982) as a "preventive" effect. Because support implies a sensitivity and respect for the needs and demands of the worker in both work and nonwork roles, it is hypothesized that perceived leader support for families reduces the level of work spillover. Although the examination of this relationship has received limited attention in the empirical literature, various sources of social support have been shown to reduce strains that result from

workplace demands (cf. Bowen, 1989a; Lavee, McCubbin, & Patterson, 1985; McCubbin & Lavee, 1986; O'Neil & Greenberger, 1994).

To the extent that leader support reduces work spillover (arrow a) and work spillover negatively effects the level of family adaptation (arrow d), leader support for families may be hypothesized to improve family adaptation through reducing the level of work spillover, an indirect effect. A study of sailors aboard four deployed U.S. Navy ships by Jones and Butler (1980) provides support for the indirect path of influence. Using both correlational and hierarchical regression techniques, the investigators found that work-family incompatibility (e.g., "How often does your job interfere with your family life") yielded a significant increment in explained variance beyond sets of job-related characteristics, job-related conflict measures, and social support measures in both general satisfaction with the Navy and retention intention, proxy indicators of external family adaptation (p. 370). Furthermore, leader support was related to significantly decreased perceptions of work-family incompatibility.

Additional support for this indirect path of influence is found in recent study by Pittman (1994) that included a sample of 407 male U.S. Army members and their wives. Using structural modeling, Pittman found that the satisfaction of soldiers and their spouses with the soldiers' time investments in work (e.g., regular work hours, temporary duty assignments), a proxy measure of work spillover, exerted both a direct effect on their level of Army/family fit, a proxy indicator of external adaptation, as well as an indirect effect, which was mediated by their perceptions toward the supportiveness of the husband's work environment. Treatment by supervisors was among the indicators that Pittman used to operationalize the quality of the work environment.

Leader support for families may also have a direct effect on family adaptation (arrow c), which Burke and Weir (1982) refer to as a "therapeutic" effect. By providing soldiers with a supportive milieu in which families are an important part of the unit support equation, leader support may promote the adaptation of families to military life and equalize or counterbalance the negative effects of work spillover. Such an effect is particularly likely in the military given the high levels of readiness needed to meet various training and deployment contingencies that may make work spillover an inevitable aspect of military life.

Empirical support does exist for such a direct effect hypothesis (Bowen, 1989b; Bowen & Neenan, 1989; Martin & Orthner, 1989; Pittman & Kerpelman, 1993; Teitelbaum, 1990). For example, using the 1985 DoD Worldwide Survey of Officer and Enlisted Personnel, Bowen (1989b) found a statistically significant relationship for selected subgroups of Army personnel between the level of satisfaction with the environment for families, a proxy indicator of leader support, and their satisfaction with the military as a way of life, a proxy indicator of external adaptation. More recently, in support of earlier findings by Teitelbaum (1990), Pittman and Kerpelman (1993), in a sophisticated analysis based on the responses of 1,064 wives of soldiers who participated in the 1989 Survey of Army Families II, concluded that the spouses' perception of the unit culture for families had a strong influence on their level of external adaptation to the Army. On the other hand, research by Bowen, Orthner, and Zimmerman (1993) found that unit supervisor family support had no statistically significant effect on the family adaptation of single parents in the U.S. Army beyond the effects of work stressors and one additional resource variable in the model: Army policy support.

Third, leader support may have a buffering or conditioning effect in the relationship between work spillover and family adaptation (arrow b). Although the potential role of support as a buffering or moderating effect in the relationship between stressors and outcomes has stimulated a number of studies on the consequences of occupational stress for health, few studies have examined the potential conditioning role of support on the relationship between work spillover and family adaptation. Yet, these related studies do provide a context for hypothesizing that leader support may modify the relationship between work spillover and family adaptation, such that the slope of the regression line will be steeper for soldiers with low support than for those with high support.

These three hypotheses are not necessarily competitive. It is possible to find that leader support has both a direct and an indirect effect on family adaptation. Yet, if the interactive hypothesis explains a meaningful level of variance beyond the additive or main effects, the interpretation of main effects must be made in the context of the interaction of leader support and the level of work spillover.

The present analysis is limited in at least three main respects. First, only linear effects are examined, a decision that is consistent with prior research. Second, although it may be possible to build a nonrecursive model and examine the reciprocal effects among variables in the model, the causal ordering as depicted in Figure 1 builds upon the foundation of many existing studies of the role of social supports in the workplace. Third, although a number of demographic attributes of soldiers and their work and family units are entered into the analysis as control variables, the analysis is partitioned by only one variable: the gender of the soldier. The meaningfulness of the direct and interactive effects may be significantly influenced by the population group under study.

Method

Source of Data

The data for this analysis were based on a stratified probability sample of 20,033 active duty officers and enlisted personnel serving in the U.S. Army worldwide who were selected to participate in the 1989 Army Soldier and Family Survey. Soldiers were eligible to participate if they were assigned to an eligible unit at the time of sample selection (February 1989 to March 1989) and remained assigned to the same unit at the point of data collection (February 1989 to December 1989). Included were soldiers in the pay grades E2 (Private) to O6 (Colonel) who were not absent without leave, hospitalized, incarcerated, or detached from their units during data collection.

Because of delays between sample selection and data collection that resulted from Army-imposed situations, such as the Panama conflict and the requirement that installations be notified of soldiers selected for the survey 60 days prior to data collection, approximately 28% of the original sample was excluded because of reassignment or separation. Of the 14,371 soldiers who remained eligible to participate, 11,035 returned usable questionnaires, a 77% effective response rate.

Married soldiers who completed a survey were asked to provide the names and mailing addresses of their spouses. Approximately 85% of these soldiers provided the requested information. The population of these spouses were mailed a survey, which they were asked to

complete and return by mail. Spouse data collection extended from May 1989 through May 1990, and a four-wave follow-up procedure was used to help promote a high response rate by spouses. Of the 5,846 spouses who were delivered a survey to complete and who remained eligible for survey participation, 3,345 of them returned a completed questionnaire, a 57% effective response rate.

The present analysis was restricted to those married soldiers whose spouses returned a completed questionnaire. Because of the small number of warrant officers and their spouses in both the Army and the resulting sample and because of the highly specialized assignments of these soldiers, these soldiers were excluded from the present analysis. The resulting sample included a total of 3,190 soldiers who were married to either civilian spouses or spouses who were also serving in the military. More than 9 out of 10 of these soldiers were males ($n = 2,949$); females constituted only 7.6% of the total sample ($n = 241$).

Sample Design

The sample was chosen using a multi-stage cluster strategy. The first stage consisted of a probability sampling of installations across geographic regions. The second stage consisted of units within chosen installations. The third stage consisted of soldiers within selected units. Soldiers were stratified by pay grade, gender, and marital status, with an oversampling of officers, married personnel, and females to meet the precision requirements of sample estimates for these subpopulations.

Because of the oversampling of officers and females, variations in the response rates of selected subgroups, and the inclusion of married soldiers only whose spouses also returned completed questionnaires, the characteristics of the sample are not necessarily representative of the population of married soldiers serving on active duty in the U.S. Army at the time of sample selection. For example, officers represent approximately 48% of the present sample. The actual proportion of officers in the Army at the time of sample selection was approximately 13%. Although control variables are used in the analysis to partially account for such sample aberrations that are hypothesized as associated with variation in dependent variables, the reader should exercise caution in attempting to extrapolate study findings to the population of married soldiers in the U.S. Army.

Sample Profile

The general characteristics and military profile of the sample respondents can be found in Table 1 and 2, respectively. As seen in Table 1, the mean age of respondents was 31.8 years, and the modal respondent was a nonHispanic white (75.5%). Some level of post-secondary education or higher was the rule rather than the exception (66.6%), and approximately 7 out of 10 respondents reported children in the home (70.5%).

Table 1

General Characteristics of Sample

Characteristic	Combined Sample (<i>n</i> = 3190)	Male Soldiers (<i>n</i> = 2949)	Female Soldiers (<i>n</i> = 241)
Mean age $t(301) = 2.63^* \text{ a}$	31.8	31.9	30.7
Racial/ethnic group (%)			
White NonHispanic	75.5	76.0	68.9
Black NonHispanic	14.1	13.6	20.7
Other	10.4	10.4	10.4
$\chi^2(2) = 9.54^*$			
Education (%)			
Less than high school	6.3	6.8	0.4
High school diploma	27.1	27.4	22.8
Some post-secondary	16.6	15.8	26.6
Bachelor's degree or beyond	50.0	50.0	50.2
$\chi^2(3) = 31.6^*$			
Family Life Stage			
No children	29.5	28.1	47.2
Youngest Child, < 3 years	29.8	30.4	22.6
Youngest Child, 3-5 years	14.8	14.8	14.0
Youngest Child, 6+ years	25.9	26.7	16.2
$\chi^2(3) = 40.75^*$			

^a Unequal variances estimate.* $p < .01$.

When male and female soldiers were compared across their general profile characteristics using either a t-test or a chi-square statistic, each comparison produced a statistically significant between-group difference or association ($p < .01$). Compared to their male counterparts, female soldiers were slightly younger, and a higher proportion reported their racial/ethnic group identification as Black nonHispanic, had received at least a high school education and some post-secondary education, and had no children in the home.

As shown in Table 2, respondents had served an average of 9.2 years in the military and nearly two years in their current unit ($M = 20.4$ months). Nearly one-half of the sample was in the officer ranks (47.8%), and more than 9 out of 10 respondents (90.9%) were married to a spouse not currently serving in the U.S. military. More than one-third of respondents were assigned

overseas (35.7%), and the modal respondent served in a noncombat unit (38.7%). Compared to male soldiers, female soldiers had served fewer years in service, and a higher proportion was in the middle enlisted (SGT to SSG) and junior officer (2LT to CPT) pay grades, married to a fellow service member, and served in a noncombat unit. Each of these comparisons was statistically significant when examined with either the t-test or chi-square statistic ($p < .01$).

Table 2

Military Characteristics of Sample

Characteristic	Combined Sample ($n = 3190$)	Male Soldiers ($n = 2949$)	Female Soldiers ($n = 241$)
Mean years in service $t(309) = 4.5^* a$	9.2	9.3	7.7
Mean months current unit $t(269) = -1.81^a$	20.4	20.2	22.0
Pay grade/rank (%)			
E2 to E4 (PVT to CPL)	25.9	26.1	22.8
E5 to E6 (SGT to SSG)	19.2	18.6	27.0
E7 to E9 (SFC to SGM)	7.1	7.3	5.0
O1 to O3 (2LT to CPT)	23.6	23.1	29.9
O4 to O6 (MAJ to COL)	24.2	25.0	15.4
$\chi^2(3) = 23.6^*$			
Dual Military Marriage (%)			
No	90.9	95.0	40.6
Yes	9.1	5.0	59.4
$\chi^2(1) = 772.3^*$			
Location (%)			
Continental U.S.	64.3	64.7	58.9
Europe	25.5	25.1	30.3
Other overseas	10.2	10.1	10.8
$\chi^2(2) = 3.59$			
Unit type (%)			
Combat arms	34.3	36.5	7.5
Combat support	11.4	11.7	8.3
Combat support service	15.6	14.5	28.6
Noncombat	38.7	37.3	55.6
$\chi^2(3) = 104.35^*$			

^a Unequal variances estimate.

* $p < .01$.

Data Collection

Data collection teams visited each installation to administer a self-report questionnaire to the sample soldiers. In most cases group administration procedures were used to collect data. For those soldiers who could not attend a group session, the survey team made alternative arrangements to have the questionnaire delivered to them. In these cases, special information was provided to respondents that explained the purpose of the survey and instructed them on how to complete the questionnaire. In addition, a confidential package was included for returning the questionnaire to the survey team. Soldiers took 76 minutes on average to complete the questionnaire.

Measures

Five measures were used to examine the effect of leader support for families on the relationship between work spillover and family adaptation: family adaptation (2 measures), work spillover (2 measures), and leader support (1 measure). The validity and reliability of these summary measures as well as their component indicators and subscales had been determined in earlier phases of the project (cf. Bowen, Orthner, Zimmerman, & Bell, in press; Bowen, Orthner, & Zimmerman, 1993; Research Triangle Institute, 1990).

All measures were coded such that the higher the value, the more positive the interpretation (e.g, high to low for work spillover measures and low to high for leader support). In each case, related subscales and items were summed to create meaningful composite scores. Table 3 provides the means and standard deviations for all composite measures in the analysis for the total sample, including their respective alpha coefficients. These alpha coefficients suggest that the composite scales have acceptable internal consistency (ranging from .76 to .84). The relationship between the reliability of measures and statistical power is such that less reliable measures yield more conservative estimates of the relationship between variables in the analysis.

A series of t-tests were run to examine for differences between male and female soldiers across each variable in the analysis, including control variables. To reduce the probability of Type 1 error, a .01 level of statistical significance was used to evaluate the results from this analysis, which are reported below.

Table 3

Descriptive Statistics for Measures in the Analysis

Variables	Mean	SD	Items/Scales	Alpha
Pay grade ^a	0.74	0.43	1	N/A
Children ^b	0.71	0.46	1	N/A
Race/ethnic ^c	0.25	0.43	1	N/A
Unit type ^d	0.66	0.48	1	N/A
Dual military ^e	0.09	0.24	1	N/A
Energy interference ^f	14.02	4.15	4	.76
Time interference ^g	13.84	3.92	4	.84
Leader support ^h	11.88	2.44	3	.76
Internal adaptation ⁱ	0.00	0.68	6	.78
External adaptation ^j	0.00	0.81	4	.82

Note. N/A = Not Applicable.

^a 0 = Private to Corporal, 1 = Other;

^b 0 = No, 1 = Yes;

^c 0 = White, 1 = Other

^d 0 = Combat arms, 1 = Other

^e 0 = Civilian spouse, 1 = Military spouse

^f 4.0 = High to 23.0 = low interference;

^g 4.0 = High to 20.0 = low interference;

^h 3.3 = Low to 16.7 = high leader support;

ⁱ Low to high adaptation (standard score);

^j Low to high adaptation (standard score).

Family adaptation. Consistent with the operational definition of family adaptation, both internal and external measures of family adaptation were specified as dependent variables in the present analysis. Six parallel measures were hypothesized as indicators of internal adaptation: (a) coping with family demands (1 item), (b) marital happiness (1 item), (c) marital separation risk (4-item summary scale), (d) family manageability (3-item summary scale), (e) spouse communication (1 item), and (f) marital disagreements (4-item summary scale). Four parallel measures were hypothesized as indicators of external adaptation: (a) Army-family fit (3-item summary scale), (b) spouse Army support (1 item), (c) spouse career support (1 item), and (d) satisfaction with the Army as a way of life (1 item). Based on previous research by Bowen, Orthner, Zimmerman, and Bell (in press), these ten proposed indicators of family adaptation were viewed as puzzle pieces hypothesized to define a two-factor tapestry of family adaptation. The validity and reliability of these hypothesized indicators of family adaptation had been established in earlier research (see

Bowen, Orthner, Zimmerman, & Bell, in press). Each indicator is presented in the appendix as it appeared on the AFRP survey.

The 6 indicators of internal adaptation and 4 indicators of external adaptation were subjected to a factor analysis, using principal components extraction and varimax rotation. A two-factor solution was produced that was consistent with the two a priori hypothesized dimensions. Each of the indicators loaded on its hypothesized dimension at .55 or higher and no indicator loaded on the second factor above .33. Based on these results, the indicators of each respective dimension were converted to standardized scores and summed to create a measure of internal adaptation and a measure of external adaptation. The summary measures demonstrated a moderate to a high level of internal consistency, with alpha equal to .78 for internal adaptation and alpha equal to .82 for external adaptation.

The relationship between the internal and external dimensions of family adaptation for soldier males and soldier females was explored via correlational analysis. Although statistically significant ($p < .01$), the correlation between the dimensions of internal and external adaptation was modest for both soldier males ($r = .40$) and soldier females ($r = .45$), suggesting a moderate linear relationship between these two dimensions. The combined results of these analyses support the decision to use these two dimensions of adaptation as separate criterion variables in the analysis. The results from the t-test analysis revealed no significant differences between male and female soldiers in their level of either internal or external adaptation ($p > .01$).

Work spillover. Two measures of work spillover were defined as variables in the analysis, each a summary scale: energy interference and time interference. Paralleling Small and Riley's (1990) strategy in developing items to assess the cause-effect relationship between work and family life, a major advantage of these summary scales is their direct causal assessment of the consequences of work demands and responsibilities on family life. The question stem and items on each scale were designed to directly capture the extent to which work negatively spills over to affect family life.

Energy interference consisted of 4 items that assessed the extent to which soldiers came home at the end of their duty day so physically fatigued and emotionally drained that they were difficult to be around and had little energy left for family activities (e.g., "in such a bad mood that I am difficult to be around"). Three of the items were evaluated on a 6-point scale from 1 = "almost every day" to 6 = "almost never." The remaining item was rated on a 5-point scale from 1 = "strongly agree" to 5 = "strongly disagree" ("At home, I am so tired or pre-occupied about work that I don't have much time or energy left for my family").

Time interference was measured by 4 items that indicated the extent to which work responsibilities interfered with their ability to perform instrumental and expressive roles in the family (e.g., "problems getting housework done," "problems taking care of family needs," "lack of free time to spend with the family," and "being unable to attend events with family members"). Each item was recoded to range from 1 "very often or always" to 5 "very seldom or never."

The relative independence of these two measures of work spillover is suggested by the results of a correlational analysis for male and female soldiers. Although statistically significant at the .01 level of probability, the correlation between energy and time interference was moderate for both male soldiers ($r = .53$) and female soldiers ($r = .47$). As concluded by Small and Riley (1990), given the conceptual link between these two types of spillover, some level of covariation

would be expected. The results of the *t*-test analysis suggested significant between group differences in the levels of both energy interference and time interference reported by male and female soldiers. Compared to their male counterparts, female soldiers reported a greater level of both types of spillover from work to family life.

Leader support. Three separate subscales were summed to create a composite measure of leader support: (a) unit supervisor family support (4 items), (b) unit leadership family support (3 items), and (c) leader support for families (3 items). The alpha reliabilities for these subscales ranged from .75 to .80.

Unit supervisor family support assessed the extent to which soldiers evaluated their work supervisor as interested in the welfare of their families and responsive to the family needs and situations that sometimes confront soldiers in their work unit (e.g., "Your supervisor allows soldiers time off for urgent family matters"). Each item was evaluated on a 5-point scale from 1 = "very seldom or never" to 5 = "very often or always."

The second subscale, unit leadership family support, focused on the extent to which leaders in the soldiers' unit or place of duty knew about family programs, encouraged unit-wide family activities, and would be concerned about the welfare of the soldiers' family if war broke out. Each item was assessed on a recoded 5-point response scale from 1 = "not at all" to 5 = "very great extent."

Leader support for families, the third subscale, included three items that assessed the general supportiveness of three categories of leaders at the soldiers' current location: (a) officers in high post/installation positions, (b) officers at my place of duty, and (c) noncommissioned officers (NCOs) at my place of duty. The supportiveness of each category of leadership was rated on a recoded 5-point response scale from 1 = "very unsupportive" to 5 = "very supportive."

The three subscales were subjected to a factor analysis, using principal components extraction and varimax rotation. A single factor was identified with each subscale loading at .82 or higher. Based on these results, the three subscales were summed to create a composite measure of unit leader support. No statistically significant differences were found in the level of unit leader support reported by male and female soldiers ($p > .01$).

Control variables. In addition to these composite measures, five single-item control variables were included in the analysis in an attempt to better isolate the relationship between leadership support, work spillover, and family adaptation: military pay grade (0 = private to corporal, 1 = other), presence of children (0 = no, 1 = yes), racial/ethnic group identification (0 = white nonHispanic, 1 = other), unit type (0 = combat arms, 1 = other), and dual military status (0 = civilian spouse, 1 = other). Coded as dummy variables in the analysis, each of these variables had been demonstrated in prior research to be associated with variation in family adaptation or a closely related concept (Bowen, 1989a, 1989b; McCubbin & Lavee, 1986; Pittman & Orthner, 1988).

A *t*-test analysis revealed significant differences between male and female soldiers on three of the five of these demographic controls. Compared to their male counterparts, female soldiers were more likely to have no children in the home, to serve in a noncombat arms unit, and to be married to a fellow service member. No statistically significant differences were found between

male and female soldiers in either their status as a junior enlisted member (Private to Corporal) or their identification as a member of a racial/ethnic group minority group.

Data Analysis

Following a general strategy for comparing direct and interactive effects that is presented in studies of the relationship between work stress, social support, and health (cf. House, 1981; LaRocco, House, & French, 1980), a series of hierarchical multiple regression equations were specified to comparatively examine the three hypothesized effects of leadership support on work spillover and family adaptation. Separate analysis is conducted for male and female soldiers. In the first step of each analysis, the five control variables were entered as a block into the regression equation to isolate their influence as background variables. A .05 level of probability was used to determine statistical significance of incremental changes of variance between steps in the analyses, the overall significance of the model at each step, and contribution of each variable in the model.

F-tests were conducted to evaluate the increment in explained variance at each step in the analysis, using a formula suggested by Cohen and Cohen (1975, p. 136). Although a .05 level of probability was used to determine statistical significance of this incremental change in variance, an important distinction is made between "statistical significance" and "meaningful significance" in evaluating increments in explained variance between steps in the analysis. This is especially the case for male soldiers given the large size of the sample and the small number of terms added in the equation at each step in the analysis, resulting in even small increments in explained variance (R^2 change = .002) yielding statistically significant effects. Yet, there are no general guidelines for interpretation of what constitutes meaningful increases in incremental variance between steps. On the basis of recent work by Rosenthal (1991) on the interpretation of effect sizes, a minimum R^2 increase of 1 percent was considered meaningful for purposes of interpretation in the present analysis.

Leader support and work spillover. As depicted in Figure 1, the first hypothesis suggests that leader support has a direct effect on reducing the level of work spillover (arrow a in Figure 1). The two types of work spillover, energy interference and time interference, were examined separately. A two-step prediction equation was specified to examine this hypothesis:

$$\text{Step 1: } X = a + b_1C_1 + b_2C_2 + b_3C_3 + b_4C_4 + b_5C_5$$

$$\text{Step 2: } X = a + b_1C_1 + b_2C_2 + b_3C_3 + b_4C_4 + b_5C_5 + b_7S.$$

where X = energy interference or time interference, C₁ to C₅ = control variables, and S = leader support. The first step of each analysis examined the combined influence of the control variables; the second step examined the unique effect of leader support on each measure of work spillover. Increments in the level of R^2 were examined in the second step of each analysis, providing for a comparison of the relative contribution of leader support beyond the influence of the control variables in the model.

Leader support and family adaptation. The second hypothesis suggests that leader support affects family adaptation directly (arrow c in Figure 1). In other words, leader support contributes a meaningful increment in the level of variance explained by the model net of other additive effects in the model: demographic control variables and the two indicators of work

spillover. A three step prediction equation was specified to examine this hypothesis, with separate examinations of internal and external dimensions of family adaptation:

$$\text{Step 1: } Y = a + b_1C_1 + b_2C_2 + b_3C_3 + b_4C_4 + b_5C_5$$

$$\text{Step 2: } Y = a + b_1C_1 + b_2C_2 + b_3C_3 + b_4C_4 + b_5C_5 + b_7EI + b_8TI$$

$$\text{Step 3: } Y = a + b_1C_1 + b_2C_2 + b_3C_3 + b_4C_4 + b_5C_5 + b_7EI + b_8TI + b_9S$$

where in addition to the terms defined above Y = either internal or external family adaptation, EI = energy interference, and TI = time interference.

When the results of step 1 and step 2 of this analysis are evaluated in the context of the prior analysis that assesses the relationship between unit leader support and work spillover, it is possible to examine the potential effect of leader support as an indirect predictor of family adaptation. An indirect effect of leader support on family adaptation is suggested when leader support meaningfully increases the amount of explained variance in either energy interference or time energy net of demographic controls and, in turn, when the respective measure of work spillover meaningfully increases the proportion of explained variance in family adaptation net of demographic controls, the second indicator of work spillover, and leader support.

Leader support as moderating the relationship between work spillover and family adaptation. Leader support may also buffer or moderate the effect of work spillover on family adaptation: an interactive hypothesis in which it is predicted that the negative effect of work spillover on family adaptation decreases as leader support increases (cf. House, 1981; LaRocco, House, & French, 1980). To test this hypothesis, two product interaction terms were created and entered jointly as step 4 in the prediction equation above to predict both internal and external family adaptation: (a) SEI = (leader support x energy interference) and (b) STI = (leader support x time interference).

Thus, the two product interaction terms are examined for the level of incremental variance they explain beyond the full additive model (step 3 above):

$$\text{Step 4: } Y = a + b_1C_1 \dots + b_5C_5 + b_7EI + b_8TI + b_9S + b_{10}SEI + b_{11}STI.$$

Since the steps in this regression sequence assign all overlapping explained variance that is shared by component variables (the respective measure of work spillover and the measure of leader support) and the interaction terms to the component variables, as well as consider each interaction term net of the other, this is a conservative estimate of the interactive hypothesis (LaRocco, House, & French, 1980).

The possibility of high collinearity between independent and control variables in the analysis was addressed for both male and female soldiers as a precursor to the regression analysis. High multicollinearity in models can bias parameter estimates and lead to unreliable inferences. First, the bivariate correlation matrix between independent and control variables in the analysis was examined. As seen in Table 4, correlations between variables were low to moderate in magnitude. Next, as discussed by Belsley, Kuh, and Welsch (1980), the variances of each of the regression coefficients were decomposed into a sum of components that are attributable to each of the eigenvalues. The results from this analysis revealed little dependency between independent and control variables in the analysis. Last, each independent and control variable was regressed on all others in the analysis. Considered by Lewis-Beck (1980) to be the preferred method for

assessing multicollinearity, the results of this analysis further supported the lack of dependency between independent and control variables.

Table 4

Correlation Matrix for Male Soldiers and Female Soldiers^a

Variables	1	2	3	4	5	6	7	8	9	10
1. Pay grade ^b		0.16*	-0.10*	0.16*	0.02	0.13*	0.13*	0.29*	0.08*	0.33*
2. Children ^c	0.08		0.00	0.09*	-0.14*	0.02	0.04	0.03	-0.09*	0.08*
3. Race/ethnic ^d	-0.15	0.07		-0.06*	0.03	0.09*	0.07*	-0.04	-0.00	0.06*
4. Unit type ^e	0.11	-0.00	-0.08		0.04	0.10*	0.15*	0.04	0.00	0.04
5. Dual military ^f	0.05	-0.04	0.03	-0.04		0.02	-0.03	-0.02	0.00	0.05
6. Energy interference ^g	0.13	0.03	0.11	0.07	-0.06		0.53*	0.36*	0.39*	0.38*
7. Time interference ^h	-0.04	-0.02	0.28*	0.00	-0.09	0.47*		0.33*	0.29*	0.33*
8. Leader support ⁱ	0.20*	0.04	-0.11	-0.02	-0.11	0.30*	0.34*		0.22*	0.43*
9. Internal adaptation ^j	0.02	-0.22*	-0.12	0.06	-0.02	0.30*	0.23*	0.12		0.40*
10. External adaptation ^k	0.22*	0.02	-0.00	0.06	0.11	0.34*	0.30*	0.33*	0.45*	

^aMale soldiers are above the diagonal; female soldiers are below the diagonal.

^b 0 = Private to Corporal, 1 = Other;

^c 0 = No, 1 = Yes;

^d 0 = White, 1 = Other;

^e 0 = Combat arms, 1 = Other;

^f 0 = Civilian spouse, 1 = Military spouse;

^g High to low interference;

^h High to low interference;

ⁱ Low to high leader support;

^j Low to high adaptation;

^k Low to high adaptation.

* $p < .01$, two-tailed.

Results

Leader Support and Work Spillover

Support was found for the "preventive" effect hypothesis (see Table 5). Leader support explained a statistically significant ($p < .05$) and meaningful level of variance (R^2 change $> .01$) beyond the effect of demographic variables in the level of energy interference and time interference reported by male and female soldiers. The change in the proportion of explained variance between step 1 in the model (demographics only) and step 2 (the entry of leader support) ranged from .078 in the explanation of energy interference for females to .151 in the explanation of time interference for females. As hypothesized, the results suggested that as leadership support increases, the level of work spillover decreases.

Table 5

Hierarchical Multiple Regression of Energy Interference and Time Interference on Leader Support and Demographics for Male and Female Soldiers

Variables	Energy Interference				Time Interference			
	Males		Females		Males		Females	
	B	Beta	B	Beta	B	Beta	B	Beta
Demographics								
Pay grade	0.210	0.022	1.335	0.139	0.058	0.006	-0.203	-0.021
Children	-0.037	-0.004	0.703	0.087	0.130	0.014	-0.282	-0.035
Race/ethnic	1.330	0.133**	1.270	0.145*	0.806	0.085**	2.783	0.319**
Unit type	0.700	0.082**	1.572	0.095	1.232	0.152**	-0.285	-0.017
Dual military	0.305	0.016	0.223	0.027	-0.660	-0.036	-0.248	-0.030
R ² at Step 1	.038**		.065*		.043**		.091**	
Support								
Leader support	0.605	0.359**	0.431	0.287**	0.535	0.333**	0.596	0.400**
Constant	5.985		4.611		6.450		5.863	
R ² at Step 2	.155		.143		.144		.242	
F	73.573**		5.081**		67.309**		9.734**	
df	6, 2400		6, 183		6, 2400		6, 183	
R ² change	.117**		.078**		.101**		.151**	

* $p < .05$. ** $p < .01$

In each of the four regression analyses, the full model was statistically significant, explaining between 14 and 24 percent of the variance in the dependent outcomes for male and female soldiers. Beyond the statistically significant effect of leader support in each model, a significant effect was found for at least one of the five demographic control variables. The racial/ethnic group identification of the soldier produced a significant effect in each model. As

compared to soldiers whose racial/ethnic group was coded as nonwhite, whites reported greater work spillover. In addition, male soldiers in combat arms units reported higher work spillover than male soldiers in other types of work units.

Leader Support and Family Adaptation

Only partial support for was found for the "therapeutic" effect hypothesis (see Table 6). Leader support did not explain a meaningful proportion of variance in either the internal adaptation of male soldiers (R^2 change = .004) or female soldiers (R^2 change = .000) beyond the set of demographic control variables entered in step 1 and work spillover variables entered in step 2. However, leader support did explain a significant and meaningful amount of incremental variance in the external adaptation of male soldiers (R^2 change = .055) and female soldiers (R^2 change = .038) in step 3. As hypothesized, the higher the leader support, the higher the level of external family adaptation.

Table 6

Hierarchical Multiple Regression of Internal and External Family Adaptation on Demographics, Work Spillover, and Leader Support for Male and Female Soldiers

Variables	Internal Adaptation				External Adaptation			
	Males		Females		Males		Females	
	B	Beta	B	Beta	B	Beta	B	Beta
Demographics								
Pay grade	0.022	0.014	-0.155	-0.080	0.404	0.213**	0.112	0.061
Children	-0.142	-0.093**	-0.395	-0.244**	0.106	0.057**	-0.040	-0.025
Race/ethnic	-0.059	-0.036	-0.363	-0.205**	0.106	0.053**	-0.128	-0.075
Unit type	-0.064	-0.045*	0.071	0.021	-0.072	-0.043*	0.278	0.087
Dual military	-0.007	-0.002	0.015	0.009	0.147	0.039*	0.217	0.137*
R ² at Step 1	0.014**		0.070*		0.118**		0.048	
Work Spillover								
Energy interference	0.054	0.327**	0.059	0.295**	0.038	0.192**	0.043	0.220**
Time interference	0.015	0.088**	0.028	0.137	0.022	0.108**	0.028	0.143
R ² at Step 2	0.173**		0.203**		0.247**		0.198**	
R ² Change (Step 2 - Step 1)	0.159**		0.133**		0.129**		0.150**	
Support								
Leader support	0.019	0.070**	0.000	0.000	0.090	0.267**	0.065	0.222**
Constant	-1.062		-0.792		-2.299		-1.969	
R ² at Step 3	0.177		0.203		0.302		0.236	
F	64.500**		5.773**		129.562**		6.991**	
df	8, 2398		8, 181		8, 2398		8, 181	
R ² Change (Step 3 - Step 2)	0.004**		0.000		0.055**		0.038**	

* $p < .05$. ** $p < .01$

Each of the full models was statistically significant, explaining between 18 and 30 percent of variance in the dependent outcomes. Several of the demographic control variables produced significant weights in the analyses. While the presence of children in the home lowered the internal adaptation of both male soldiers ($B = -.093$) and female soldiers ($B = -.244$), their presence increased the external adaptation of male soldiers ($B = .057$). The racial/ethnic group identification of soldiers also had a significant effect in two of the four regressions. While white females reported higher internal adaptation than other females ($B = -.205$), white males reported lower external adaptation than other males ($B = .053$). In addition, while the type of unit in which the soldier was assigned had a determining influence on the internal and external adaptation of male soldiers ($B = -.045$ and $B = -.043$), it did not produce a significant effect for female soldiers. In both cases, males soldiers who were assigned to combat arms units had higher levels of adaptation than soldiers in other types of units. Last, status as a dual career couple influenced the external adaptation of both male soldiers ($B = .039$) and female soldiers ($B = .137$), with soldiers in dual career marriages reporting higher levels of external adaptation than those married to civilian spouses.

In all but two cases, the work spillover variables produced statistically significant effects in the full models. Both energy interference and time interference were significant predictors of the internal adaptation ($B = .327$ and $B = .088$, respectively) and the external adaptation ($B = .192$ and $B = .108$, respectively) of male soldiers. For female soldiers, only energy interference produced a significant weight in predicting their internal and external adaptation ($B = .295$ and $B = .220$, respectively). In all cases in which significant effects were found, work spillover lowered the adaptation of soldiers.

When the partial contribution of each work spillover variable to family adaptation is examined (Table 6) in the context of the regression models that regressed each measure of work spillover on leader support (Table 5), it is possible to evaluate the potential indirect effect that leader support exerts on the family adaptation of soldiers through work spillover. This is akin to a path analysis. The results suggest an indirect path of influence in 6 of the 8 comparisons (see Figure 2 and Figure 3). Leader support has an indirect effect on the level of internal and external adaptation of male soldiers through its direct influence on both energy interference and time interference. For female soldiers, leader support has an indirect effect on internal and external family adaptation through energy interference but not through time interference.

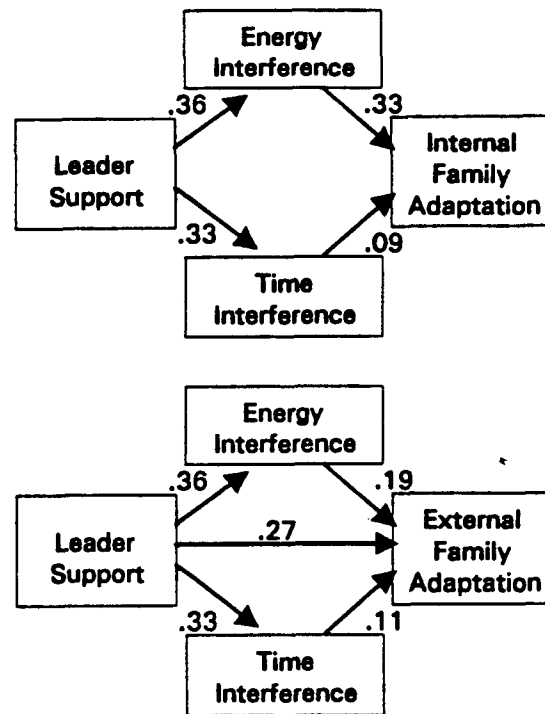


Figure 2. Leader support and the internal and external family adaptation of male soldiers

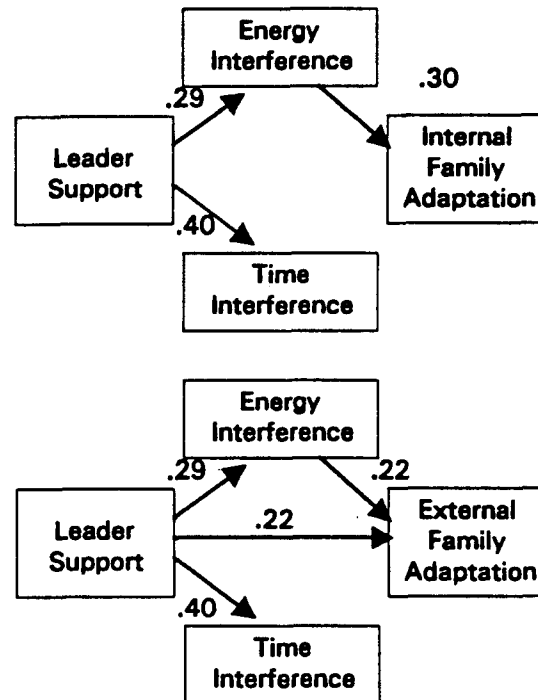


Figure 3. Leader support and the internal and external family adaptation of female soldiers.

Interaction Effects

As shown in Table 7, leader support was found to meaningfully moderate or buffer the negative effects of work spillover on family adaptation in one of the four analyses, providing only partial support for an interaction hypothesis. The interaction terms together explained a small but statistically significant and meaningful amount of incremental variance (R^2 change > .01) in the internal adaptation of female soldiers (R^2 change = .029, $F(2, 178) = 3.36$, $p < .05$). Yet, only the interaction between energy interference and leader support produced a statistically significant weight ($B = -1.204$, $p < .05$). This finding suggests that the additive effect of energy interference on the internal adaptation of female soldiers as discussed above is conditioned by their perceptions of leader support. In support of the buffering hypothesis, as perceptions of leader support increased, the negative effect of work spillover on the internal adaptation of female soldiers decreased.

Table 7

Direct Versus Interactive Models of Internal and External Family Adaptation for Male and Female Soldiers

Model	Internal Adaptation		External Adaptation	
	Males	Females	Males	Females
Direct^a				
R^2	0.177**	0.203**	0.302**	0.236**
Direct + Interactive 1^b				
Energy x Support				
B	-0.002	0.015	-0.001	0.002
Beta	-0.233	1.204*	-0.102	0.144
Time x Support				
B	0.001	-0.008	-0.003	-0.004
Beta	0.151	-0.632	-0.203	-0.357
R^2	0.178	0.232	0.304	0.239
F	51.883**	5.411**	104.470**	5.620**
df	10, 2396	10, 179	10, 2396	10, 179
R^2 change	.001	.029*	.002*	.003

^aDemographics (5) + Work Spillover (2)+ Leader Support (1)

^bDemographics (5) + Work Spillover (2) + Leader Support (1) + (Energy x Support) + (Time x Support)

* $p < .05$, ** $p < .01$

Discussion

In discussing the examination of second-order effects in dyadic studies, Cronbach (1958) made the following statement more than three decades ago: "Parsimony is not the only criterion of explanation, but we should not set forth a complicated explanation unless we gain something thereby" (p. 356). Investigation of the moderating or buffering role of leader support on the relationship between work spillover and family adaptation in the present analysis is the "complicated explanation." In contrast to selected literature that has investigated the moderating role of social support in the relationship between work stress and the health-related outcomes of employees, the results from the present investigation found only limited support for a moderating or buffering hypothesis. Leader support buffered the negative effect of energy interference on the internal adaptation of female soldiers.

Yet, in support of prior research, the results did suggest that leader support had a direct effect on both measures of work spillover (a "preventive" effect) as well as direct effect on the level of external adaptation (a "therapeutic" effect). In all cases, the effects were statistically and meaningfully significant for both male soldiers and female soldiers, and in the expected direction: The higher the leader support, the less the interference, and the greater the external adaptation. In addition, leader support had an indirect effect on the external adaptation of male soldiers through both energy and time interference and an indirect effect on the external adaptation of female soldiers through energy interference.

The level of leader support did not contribute a meaningful increment in explained variance in the internal adaptation of male and female soldiers net of demographic and spillover variables in the respective models. Yet, similar to the indirect effects of leader support on the external adaptation of male and female soldiers, a similar indirect effect was found for internal adaptation. Leader support had an indirect effect on the internal adaptation of male soldiers through both energy and time interference and an indirect effect on the internal adaptation of female soldiers through energy interference.

In general, although time interference did not produce a significant direct effect on either the internal or external adaptation of female soldiers, leader support exerted a similar path of influence on the family adaptation of male and female soldiers. In addition, the size of effects were similar in magnitude across gender groups. When combined with the bivariate findings that suggest that female soldiers experience greater energy and time interference than their male counterparts, these findings bring into question Pleck's (1977) suggestion that work to family effects are stronger for males than females. Yet, because of the cross-sectional nature of the data, the path of these effects should be interpreted as suggestive, not causal. Longitudinal research is needed to establish the causal priority of these effects.

The results from the present research are consistent with prior analysis of the relationship between job stress and health-related outcomes that suggest the preventive and therapeutic role that social support plays in lives of adult men and women. They underscore the importance of contextual variables in understanding variation in the family adaptation of service members, variables that have been notably absent in studies of interpersonal relationships (Bowen, 1991). Such a perspective may be especially important in studies of family adaptation in the military given the highly permeable boundary between work and family life.

An important contribution of the present research is its explicit conceptualization and measurement of two types of family adaptation: internal and external. Internal adaptation considers the outcomes of the efforts of family members to adapt to one another and to the needs and demands generated within the family system itself; external adaptation considers the outcomes of the efforts of the family system itself to adapt to the Army system and its requisite demands (Bowen, Orthner, Zimmerman, & Bell, in press). This conceptualization and measurement is consistent with both a person-environment fit perspective and conceptual developments in family stress theory (Lavee & McCubbin, 1985; Lazarus & Folkman, 1984; McCubbin & McCubbin, 1987, 1989; McCubbin & Patterson, 1983).

The present research has only considered the implications of one source of social support. Further research should extend the present findings by including other sources of social support, including models that comparatively analyze different sources of support. For example, the research literature suggests that spouses are a critical social support system for married men and women (cf. Bowen, 1991), and it would be interesting to comparatively analyze the contributions of both supervisor support and spouse support on the family adaptation of men and women. Although the measurement of leader support in the present analysis focused largely on emotional supportiveness, further research should also study the implications of different types of social support (e.g., instrumental versus expressive) on the work and family interface and the consequences of this interface.

Also needed is research that identifies the mechanisms through which various sources and types of social support influence the relationship between work spillover and family adaptation. For example, the level of supervisor support has been correlated with both hardiness (Kobasa & Puccetti, 1983) and psychological well-being (Greenberger et al., 1989; Repetti, 1987), and the development of explanatory theory depends on understanding the potential role of such mediating variables in the work and family equation. In addition, it is recommended that future research distinguish between work spillover, in which work stressors carry over to affect the family life of the employee, and work "crossover," in which the work stressors of the employee extend to influence the family life of the employee's spouse (Bolger & Kelleher, 1993).

Although the present analysis was partitioned by gender, it is important to consider the nature of the present findings in the context of other structural effects, including the interaction of these effects, such as by the stage of the family life cycle and unit type. For instance, although male soldiers in combat arms units reported a higher level of energy interference and time interference than their male counterparts in other types of units, they reported a higher level of internal and external adaptation. While more demanding, it may be that soldiers in these units have stronger primary group affiliations than soldiers in other types of units, a potential outcome of supportive unit leadership (Martin & Orthner, 1989). Such partitioning of structural effects will depend on sample designs that ensure a sufficient number of respondents to meet specifications for analysis.

Last, the present analysis was limited to an examination of linear effects. Nonlinear effects, especially asymptotic floor and ceiling effects between variables merit further exploration. For example, it may be that leader support has a threshold effect, such that increases beyond a certain point have few implications for either work spillover or family adaptation. The present research provides an important source of hypotheses to guide continued efforts to understand such complexities in the work and family relationship.

Implications for Practice

Given the established influence of family adaptation on the work and personal adjustments of soldiers, the contributions of leader support in enhancing their family adaptation have important implications for practice. The findings suggest that these outcomes may be positively influenced by interventions that are designed to improve the quality of leader support for soldiers in the unit. Martin and Orthner (1989), in a recent chapter that stressed the importance of rebuilding military communities to create psychological rather than service-focused connections between military members and their families, reached a similar conclusion:

This research underscores the conclusion that a primary source of family identification and commitment to military service (especially for combat arms soldiers and their families) comes from experiences rooted in the primary workplace: the unit. Experiences and relationships with small-unit leaders, unit "buddies," and unit families have a strong effect on the soldier's and family's sense of belonging. . . . Although community facilities and service programs provide potentially important sources of basic satisfaction, they do not motivate or build organizational commitment. Commitment is rooted in one's sense of belonging to the group, in this case the military unit. (p. 171)

Martin and Orthner (1989) make an important distinction between a service-focused and a unit-focused sense of community, concluding that commitment results from primary group affiliations in the unit rather than from the delivery of services in the human service delivery system. Yet, in some ways, this distinction establishes a moat between informal sources of support and formal sources of support. What is needed is a draw bridge that connects these two significant sources of support. While military culture assigns unit leaders ultimate responsibility for the well-being of soldiers and their families under their command, unit leaders may not all share the same level of expertise in building what Martin and Orthner refer to as a psychological sense of community, a point that is recognized by Martin and Orthner. In addition, the family situations of some soldiers become so problematic that they may need special assistance from human service professionals. More importantly, unit commanders may not be prepared to deliver preventive services to soldiers and their families, and soldiers may have little confidence in either their unit leaders or the human service delivery system as sources of help in times of personal or family difficulty.

The physical structure of military installations poses one barrier to the integration of informal and formal sources of support: work units are typically physically separated from formal support services. Unit leaders and human service providers may have little direct association or communication with one another (Nogami, Bowen, & Merrin, 1986). Over time, this physical separation has contributed to the development of a psychological barrier between unit leaders and human service professionals, eroding the confidence of leaders in post agencies and programs and the amount of outreach by human service professionals (Nogami, Bowen, & Merrin, 1986). To overcome this barrier, the U.S. Army Community Service Program has been experimenting with a new unit-based consultation model in which staff members from the local Army Community Service are assigned to work units after completing a training program on the prospective unit's history, mission, and leadership. The role of the staff member is to assist the commander in creating a more supportive culture for soldiers and their families. The aim is to increase the level of family adaptation.

This new model of service delivery has important implications for improving the quality of leadership support in the work unit. Not only will unit leaders have an identified point of contact for responding to the direct service needs of soldiers and families, but also the assigned staff member may serve as a consultant to unit leaders in creating a more supportive unit milieu through a combination of formal and informal supports that are developed and delivered directly in the work unit, including training, education, prevention, and information and referral services. The present research provides an empirical foundation for the potential benefits that may accrue to families from this innovative organizational model.

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Appendix A

Description of Internal and External Adaptation Indicators

Internal Adaptation

Coping with Family Demands:

At the present time, how successful are you at dealing with your family responsibilities?

Response Range: 1 (Not at all successful) to 7 (Extremely successful)

Marital Happiness:

On a scale from 1 to 7, where 1 means very unhappy and 7 means very happy, how would you describe your marriage overall?

Response Range: 1 to 7

Marital Separation Risk:

The questions below are about your thoughts and activities concerning your marriage in the last twelve months.

In the last twelve months, did you. . .

Yes No

- a. think your marriage might be in trouble?*
- b. seriously think about getting a divorce or separation?*
- c. seriously discuss the issue of a divorce or separation?*
- d. actually file for divorce or separation?*

Response Range: 1 (Yes) to 2 (No)

Source: Adapted from Booth, Johnson, & Edwards (1983)

Family Manageability

The items below relate to your family, meaning you, your spouse and/or children.

- a. When we have to get things done that depend on cooperation of all members of the family, I feel: 1 (There is almost no chance that things will get done) to 7 (Things will always get done).*
- b. When my family faces a tough problem, I feel that: 1 (There is no hope of solving the problem) to 7 (We will solve the whole problem).*
- c. When my family is going through a rough period, we tend to: 1 (Feel sure that things will get better) to 7 (Become discouraged and doubt if things will ever get better). (R)*

Response Range: 1-7

Source: Antonovsky & Sourani (1988).

Spouse Communication

My spouse is someone I can really talk with about things that are important to me.

Recoded Range: 1 (Strongly disagree) to 5 (Strongly agree).

Marital Disagreements

Most couples have disagreements from time to time. How often do you and your spouse have disagreements about. . .

- a. spending money?*
- b. giving enough affection to each other?*
- c. time spent together?*
- e. division of household chores?*

Range 1 (Every Day) to 6 (Never).

External Adaptation

Army Family Fit

- a. My spouse and I consider ourselves to be a team working for Army goals.*
- b. My spouse understands the demands of my Army job.*
- c. My spouse does a great deal to further my career.*

Recoded Response Range: 1 (Strongly disagree) to 5 (Strongly agree)

Spouse Army Support

How supportive is your spouse of your being in the Army now?

Recoded Response scale: 1 (Very unsupportive) to 5 (Very supportive).

Spouse Career Support

How supportive is your spouse of your making a career of the Army?

Recoded Response scale: 1 (Very unsupportive) to 5 (Very supportive).

Satisfaction with Army as a Way of Life

Overall, how satisfied are you with the Army as a way of life?

Recoded Response Scale: 1 (Very dissatisfied) to 5 (Very satisfied)

Note: These survey items are included on the 1989 Army Soldier and Family Survey, which was developed for the Army Research Institute by a consortium of three civilian contractors: Research Triangle Institute, Caliber Associates, and Human Resources Research Organization. The research was sponsored by the Army Community and Family Support Center under Contract No. MDA903-87-C-0540.