FINAL CLOSEOUT REPORT

PI: Leslie B. Hammer, Ph.D., Portland State University, Department of Psychology

Contact information:

Mailing Address: Portland State University
Department of Psychology
P.O. Box 751 (PSY)
Portland, OR 97207-0751

Phone: 503-725-3971
Email: hammerl@pdx.edu

Awarding Institution: Portland State University
Office of Research & Sponsored Projects
P.O. Box 751 (ORSP)
Portland, OR 97207-0751

Project Title: Development of a Behavioral Measure of Supervisor Support for Work & Family

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Co-Investigators:
Ellen Ernst Kossek, Ph.D., Michigan State University, Department of Labor and Industrial Relations
Kent Anger, Ph.D., Oregon Health Sciences University, Center for Research on Occupational & Environmental Toxicology / President, Northwest Education Training & Assessment (NwETA)
Ryan Olson, Ph.D., Oregon Health Sciences University, Center for Research on Occupational & Environmental Toxicology

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LIST OF TERMS AND ABBREVIATIONS

FSSB = Family-Supportive Supervisory Behavior

WFC = Work-Family Conflict

WFHN = Work, Family and Health Network

I. ABSTRACT

Objectives and Overview of the Project

The project addressed three major gaps in the Occupational Safety and Health research. First, this was an intervention study that developed, implemented, and evaluated a workplace behavioral intervention and its effects on worker, family, and organizational health. A quasi-experimental field study was conducted to assess the impact of a work-family supervisory training and self-monitoring intervention on work, health, and safety outcomes for employees. Significant work-family intervention effects emerged from employee reports of physical health and safety compliance, reports of family-supportive supervisory behaviors, job satisfaction, and turnover intentions. These effects were most pronounced among those employees with higher levels of work-family conflict compared to those employees with lower levels of work-family conflict.

Second, while there is a good deal of research examining general supervisor support and its impact on work-family stressors, little research addresses the *specific* family-supportive supervisory behaviors (FSSBs) that most impact workers' work-family conflict. Development of such a measure has the dual purpose of (1) assisting in the development of supervisory training as the behaviors necessary are explicated, and (2) assisting with theoretical models integrating work and family and occupational health. Previously, there was some ambiguity with regard to what supervisors actually needed to do in order to be supportive of their employees' work and family needs. This research clarifies this construct, which also increases the applicability of the findings to line managers.

Third, this is one of the first studies to explicitly link conflicts between work and family and worker safety outcomes, in addition to worker health and family-related outcomes. This connection between the organization of work (i.e., supervisory behaviors that are supportive of work and family), work and family conflict, and safety outcomes, makes a significant contribution to the development of theoretical models that integrate the work and family interface and occupational health.

Using a sample of grocery workers and their supervisors who are members of the United Food and Commercial Workers' International Union, we first developed and validated a measure of FSSBs. The study then employed a randomized quasi-experimental design to test the effects of a family supportive supervisory training and self-monitoring intervention with the goal of improving health, safety, work, and well-being outcomes for employees. The intervention was focused on increasing supervisors' use of FSSBs. Supervisors completed a computer-based training program which included frequent quizzes to assess knowledge gain, as well as a behavioral self-monitoring task to assess translation of learning into the workplace. Employees and supervisors completed a survey assessing a variety of work, family, and individual outcomes (e.g., work-family conflict, job satisfaction, safety behaviors, health assessment) prior to and after the intervention.

Key Findings

The measure of FSSB is 14 items and has four dimensions: (1) Emotional Support (e.g., talking with employees about their family), (2) Structural Support (e.g., working with employees on scheduling issues), (3) Role Modeling Behaviors (e.g., showing that it is permissible to attend a family-related event during regular work hours), and (4) Creative Work-Family Management (e.g., cross-training employees so that the needs of the organization can be met while also allowing more flexibility for employees).

Analyses of baseline data (pre-intervention) indicated that workers who were supervised by family-supportive supervisors were significantly more likely to experience lower levels of work-family conflict, higher job satisfaction, lower intentions to turnover, and higher reports of physical and mental health. With regard to the effects of the intervention, results indicated that workers in the intervention stores reported higher levels of physical health, compared to those workers in the control stores, after controlling for baseline physical health. This treatment effect was stronger for workers who reported higher levels of family-to-work conflict, compared to those workers lower on family-to-work conflict. This findings was also found using objective health data, namely, blood pressure levels of employees whose managers had had completed the training were lower than those of their counterparts. Finally, employees of trained supervisors also reported higher levels of job satisfaction, lower likelihood to seek another job, and higher compliance with safety practices in their organization.

Application of Findings in the Workplace

One of the many strengths of the study research design is it was a field study, demonstrating that the intervention is effective in an actual work environment. In addition, by explicating the behaviors necessary to be a family-supportive supervisor, the ease of translation of the results is enhanced. Supervisors know exactly what is required to support their employees' work-family needs.

In addition, the results indicate that the intervention is most beneficial to those employees who most need it. Specifically, those employees with higher levels of family-to-work conflict pre-intervention showed the most physical health gains when they had a supervisor who was trained to be most family-supportive.

These findings are especially critical in a time when formal provision of family-friendly supports is not common given that most organizations do not, or can not, invest in such programs. Rather, it is critical to facilitate and enhance the informal supports for work and family via supervisory support and organizational support for work and family. Thus, our findings provide evidence of a relatively inexpensive and effective way of increasing FSSB, leading to benefits for both employees and supervisors. Furthermore, understanding the link between reduced work-family conflict and safety compliance, suggests that companies should recognize work-family conflict as a safety hazard and identify ways of reducing such conflict and improving safety.

II. HIGHLIGHTS/SIGNIFICANT FINDINGS

Effective Work-Family Supervisor Intervention (Goals 1, 2, 3)

Because this grant was part of a collaborative U0 1 mechanism, specific goals were not clearly delinated, as the original proposal was specific to aims of the RFA. Instead, goals of the research and highlights of the findings are presented here (for a list of the Study Goals, see p. 19). Analyses conducted provide substantial support for the effectiveness of our intervention. Multiple regression analysis and logistic regression analysis were used to evaluate the effects of supervisory training on employee health and well-being outcomes. We found that the intervention effects were more significant/substantial for those employees with high versus low levels of family-to-work conflict. Specifically, those individuals who reported high levels of family-to-work conflict at baseline benefited more from their supervisors being trained than those who reported lower degrees of family-to-work conflict at baseline. In other words, this supervisor FSSB training (compared to control sites) was most effective for those individuals who were experiencing family-to-work conflict and could benefit from having supervisors who increased their family supportive behaviors. These significant training effects (training versus control site effects after training) were found for employee Perceptions of Family Supportive Supervisory Behaviors (FSSB), Physical Health (based on the SF-12), Safety Compliance, Job Satisfaction, and Intentions to Turnover. Overall, these findings tell us that our supervisory training intervention was effective at increasing employees' perceptions of FSSB, job satisfaction, employee health and safety outcomes, as well as decreasing intentions to leave the company; and that the supervisory training intervention was especially effective for those individuals who needed the training the most (i.e., those with high family-to-work conflict; Hammer, Kossek, Anger, Bodner, & Zimmerman (Revise and Resubmit).

In addition, the current research has found that higher ratings by workers of family supportive supervisor behaviors were related to lower systolic workday/work hour blood pressure. This study is the first to demonstrate a significant relationship between family supportive supervisor behaviors and an objective health outcome. A supervisor who is supportive of workers' family concerns can potentially affect workers' cardiovascular health.

Validity of the FSSB Measurement Instrument (Goal 4)

In the assessment of the FSSB factor structure, multilevel confirmatory factor analyses were conducted with Mplus 4.2. Analyses pertaining to evidence of construct, criterion-oriented, and incremental validity were also conducted using Mplus. The multilevel correlated four-factor model fit the data well, $X^2(176, N = 360) = 290.25$, $p < .001$, CFI = .97, RMSEA = .04, SMSR = .05. All factor loadings, factor covariances, and error variances were statistically significant. A multilevel single-factor model to the 14 items did not fit the data well, $X^2(182, N = 360) = 744.35$, $p < .001$, CFI = .84, RMSEA = .09, SMSR = .07, demonstrating that this was in fact, a 4-factor model. The reliability estimate for the total FSSB scores was .94, exceeding levels deemed acceptable for use in research. Reliability estimates were .90, .73, .86, and .86 for the

Emotional Support, Instrumental Support, Role Modeling Behaviors, and Creative Work-Family Management scales, respectively.

The FSSB had incremental validity predicting important work/family outcomes over and above two existing measures of supervisor support. Our key findings are 1) a sound psychometric structure and 2) strong evidence of construct and incremental validity (Hammer, Kossek, Yragui, Bodner, & Hanson, in press).

Meta-Analysis of Workplace Social Support and Work-Family Conflict (Goal 5)

We conducted a meta-analysis to clarify multi-level relationships between individual perceptions of different *types* (work specific, work-family specific) and *sources* (supervisor, co-worker, and organizational) of workplace social supports (WSS) and work-family conflict (Kossek, Pichler, Hammer & Bodner, 2007). The meta-analysis of over 60 studies showed that supervisor support measures operationalized with *work-family specific referents* were the most strongly related to lower work-to-family conflict, and that the relationship between supervisor support and work-family conflict was partially mediated by perceptions of organizational support for family (Kossek, Pichler, Bodner, & Hammer, revise and resubmit).

III. TRANSLATION OF FINDINGS

We currently have published 1 academic journal article, 1 book chapter, 3 forthcoming book chapters, and 2 academic revise and resubmit articles. One of the most important publications that have come out of our work was the article in the Harvard Business Review (Kossek & Hammer, 2008) that has lead to inquiries from managers across the globe related to our FSSB training. We are currently in the process of preparing a version of the training that will be more widely generalizable and more easily disseminated.

Our Family-Supportive Supervision training is comprised of four dimensions:

1) Emotional support – talking with employees about their non-work activities and demands
2) Structural support – working with employees to resolve scheduling issues
3) Modeling helpful behavior – showing employees that it is alright for them to attend to family issues during normal working hours
4) Creative work-family management – developing strategic and creative ways to solve work-family issues that take organizational needs into consideration.

Our results indicate that training supervisors to be more supportive of their employees' family needs, can have a host of benefits, including:

- Lower levels of conflict between family and work
- Greater job satisfaction
- Lower likelihood to look for another job
- Greater likelihood to participate and comply with the company's safety programs
- Lower worker blood pressure and higher levels of self-reported physical health

The intervention developed during this study is most likely to be useful to supervisors and managers directly, as well as organizational development specialists, human resource practitioners, and other work-family researchers. In a time when organizations are facing major cutbacks in staff, this intervention provides a low-cost and effective means of addressing the very serious work and family stressors faced by today's workforce.

IV. OUTCOMES/RELEVANCE/IMPACT

In this study, we developed an intervention for supervisors that ultimately had an impact on the health, safety and well-being of employees. First, we identified specific behaviors that are key to family-supportive supervision. We then used these family-supportive supervisory behaviors (FSSB) as the basis for developing a management training, which we then implemented and evaluated. In this section we will discuss how the findings of the study can lead to improvements in Occupational Safety and Health practice.

Development of FSSB Measure

The measurement instrument of FSSBs we developed and validated during the study can be used in a host of ways, both in research and in practice. With regard to research, the most obvious application is that work-family researchers now have an additional validated measurement tool at their disposal that is more specific, and thus potentially more useful, than measures of general workplace support. Next, by demonstrating a link between FSSBs and participation in workplace safety programs, we have contributed to further understanding of how work and family issues are related to Occupational Safety Outcomes.

While the FSSB measure was developed primarily as a research tool, it has many practical applications as well. As we have shown, it can be used as the basis for the development of an intervention for supervisors. It also clarifies exactly which behaviors supervisors need to exhibit to be family-supportive. The measure can also be a tool for human resource practitioners in performance appraisal.

Supervisor Intervention

Work-family conflict negatively impacts workers' health outcomes, especially by decreasing sleep quality and increasing feelings of depression. Job-related outcomes are also negatively impacted by work-family conflict; workers' quit their jobs more often and do not perform as well on-the-job when they experience work-family conflict. Employees in stores where the intervention was developed reported better physical and mental health outcomes, greater job satisfaction, greater likelihood to participate and comply with workplace safety programs, and even better objective health outcomes, namely, lower blood pressure.

The training is a relatively low-cost way to provide support for employees work and family needs, particularly at a time when organizations are looking to cut costs on every avenue. The intervention developed and evaluated in this study can be adopted for use in a host of work settings. While the sample used here was grocery workers, the constructs in FSSB are global and were developed to be as general as possible. It is especially necessary to examine the health outcomes of low-wage workers because they are a population that is underrepresented in the current occupational health literature and they are subject to numerous health and safety concerns in the workplace due to the nature of their jobs.

Most of the work/nonwork support received by workers is informal, involving supervisor-worker interactions that occur on a daily basis. Results show that workers perceive fewer family supportive supervisor behaviors and less social support when the workgroup climate emphasizes family sacrifice. Yet, when the workgroup climate emphasized workers sharing their concerns, workers perceived greater family supportive supervisor behaviors and more social support. Therefore, it is critical to determine ways that supervisors can lend more support to their workers in the work environment, given the proximity of supervisors and the influence of their support on workers.

V. SCIENTIFIC REPORT

Background

Extensive changes have occurred over the past 30-40 years in employee and family roles, as well as in the relationship between work and family domains. Evidence of these changes includes the increasing percentage of families supported by dual incomes, increases in workers with multiple family-care responsibilities, growing numbers of single parents in the workforce, and greater gender integration into organizations (Kossek & Lambert, 2005; Neal & Hammer, 2007). While these labor market shifts have been coupled with a corresponding trend toward greater organizational adoption of formal family-supportive policies (e.g., Glass & Fujimoto, 1995; Goodstein, 1994; Ingram & Simons, 1995; Kelly, 2006; Kelly & Dobbin, 1999; Milliken, Martins, & Morgan, 1998; Osterman, 1995), researchers suggest that the existence of such policies is a necessary, but insufficient condition to alleviate employees' rising work and family demands and needs for greater flexibility (Allen, 2001; Kossek & Distelberg, in press). Most workplaces that offer supports related to work hours, scheduling, and flexibility base these on the informal discretion of supervisors who directly influence employee's workload and work-related stressors (Beehr, Farmer, Glazer, Gudanowski, & Nair, 2003). Given the key role of supervisors in interpreting and enacting formal organizational policy and informal practice, the study of supervisor support for work and family is critical to understanding how to effectively implement work and family policies in employing organizations (Hopkins, 2005).

Drawing on the general social support literature (Cohen & Wills, 1985), work-family research has identified social support from supervisors as an important resource that can reduce the negative effects of work and family stressors (e.g., O'Driscoll, Poelmans, Spector, Kalliath, Allen, Cooper et al., 2003; Thomas & Ganster, 1995). Social support is an interpersonal transaction that may include emotional expression of concern, instrumental assistance, or information (House, 1981). Supervisor support, as a form of social support, is related to lower levels of employee work-family conflict (e.g., Frone, Yardley, & Markel, 1997; Frye & Breaugh, 2004; Lapierre & Allen, 2006; Thomas & Ganster, 1995; Thompson, Beauvais, & Lyness, 1999). Moreover, high levels of supervisor support can benefit employees as a resource and has been related to higher levels of work-family positive spillover (Thompson & Prottas, 2005). In addition, supervisor support has been shown to enhance employee job attitudes such as job satisfaction (Thomas & Ganster, 1995; Thompson & Prottas, 2005), and is negatively related to turnover intentions (Thompson et al., 1999, Thompson & Prottas, 2005).

Based on our review of the literature, we conclude that there is a lack of measures that operationalize behaviors supervisors should actually engage in to provide support, and there is a lack of measures of supervisor support that are specific to the family role. An exception to the former is a recent measure of supervisor supportive and unsupportive behaviors developed by Rooney and Gottlieb (2007), however, this measure is not specific to support for the family role. Thus, we would like to provide management with prescriptive information about what supervisors should actually do to be more supportive of workers with work-family demands.

Additionally, more research is needed to develop measures that enable researchers to assess supervisor support for family, distinctive from work-family culture and climate. Such work will enable scholars to better assess whether supervisor support is an antecedent to a supportive work-family culture or climate, a sub-facet of culture or climate, or an outcome of a supportive culture (Thompson, 2007).

Therefore, we suggest there are both research and practical needs to develop a measure that identifies the behaviors supervisors should engage in to help employees better manage work and family. Building on the work of several relevant conceptual studies, the goal of this study was to address these gaps and develop a valid empirically-based measure of Family Supportive Supervisor Behaviors (FSSB). Conceptually, FSSB is defined as *those behaviors exhibited by supervisors that are supportive of families* and consists of the following four dimensions: *emotional support, instrumental support, role modeling behaviors, and creative work-family management* (i.e., managerial-initiated actions to restructure work to facilitate employee effectiveness on and off the job) based on the work of Hammer, Kossek, Zimmerman, and Daniels (2007).

In addition, few studies have systematically tested the effects of workplace policies and practices on work-family conflict, individual and family health and well-being, or organizational outcomes. Furthermore, few studies have examined the same associations between work policies and health, and none, to our knowledge, has tested for a causal relation between the two. Rigorous evaluations of work-family programs and policies affecting work-family conflict that involve longitudinal data and appropriate comparison groups are virtually nonexistent (exceptions include Hammer et al., 2005; Thomas & Ganster, 1995). Our study rigorously evaluates a workplace intervention designed to reduce work-family conflict and improve health by increasing control over work time in the context of increasing supervisors' support for work-family issues. The intervention is innovative focusing on supervisory training of family-supportive behaviors, reinforced by self-monitoring, thereby reducing employees' work-family conflict and ultimately improving employee health and well-being.

Supervisor Support

Supervisor support is one type of social support and is also referred to as a form of informal organizational support (e.g., Hammer et al., 2007). As suggested by Hammer et al. (2007), there is a lack of conceptual clarity in the measurement of informal organizational support, as measures include overall perceived organizational support (POS; (Eisenberger, Stinglhamber, Vandenberghe, Sucharski, & Rhoades, 2002), organizational work-family culture, overall supervisor support, and work-family specific supervisory support. At times, these measures are coupled with, or include items that cut across these different concepts. For example, one measure of work-family organizational culture also includes some items related to supervisor support (cf. Thompson et al., 1999).

The family-supportive supervisor has been defined as one who empathizes with an employee's desire to seek balance between work and family responsibilities (Thomas & Ganster, 1995).

Furthermore, informal supervisor support for work and family may be more important to employees' overall well-being than the provision of formal workplace policies and supports for family such as alternative work schedule policies and dependent care supports (e.g., Allen, 2001; Behson, 2005; Kossek & Nichol, 1992). Moreover, research suggests that employees who have supportive supervisors experience less work-family conflict (Anderson, Coffey, & Byerly, 2002; Frone, Russell, & Cooper, 1997; Goff, Mount, & Jamison, 1990; Lapierre & Allen, 2006; Thompson & Prottas, 2005), have reduced work distress (Frone et al., 1997), less absenteeism (Goff, Mount, & Jamison, 1990), reduced intentions to quit (Thompson et al., 1999), and increased job satisfaction (Thompson & Prottas, 2005; Thomas & Ganster, 1995).

In reviewing existing measures of supervisor support it is important to clarify that while general measures of emotional supervisor support exist (e.g., Caplan, Cobb, French, Harrison, & Pinneau, 1975; House, 1981; Yoon & Lim, 1999), we are focusing here on work-family-specific measures. The managerial support dimension of the Thompson et al. (1999) measure of work-family culture has been used as a measure of supervisor support for family and is an example of how the operationalization of the two constructs (work-family culture and family supportive supervision) have been confounded with one another. All but one of these measures of supervisor support for family are uni-dimensional measures of emotional supervisor support. The Shinn et al. (1989) measure is an exception and appears to have items that mostly assess the instrumental dimension of supervisor support however, there is at least one emotional support item in the scale, as well. To our knowledge this is the only measure of family-supportive supervisory behaviors in the literature and was used in the Thomas and Ganster (1995) study, in Allen (2001), and a sub-set of the items was used in the Frye and Breaugh (2004) study. In addition, none of these measures appear to be systematically developed or validated using confirmatory factor analytic methods, including the Shinn et al. (1989) measure.

Thus, we argue that these prior measures of family-supportive supervision suffer from both criterion deficiency and criterion contamination. Specifically, prior measures of supervisor support do not capture all of the critical dimensions of family supportive supervision as we describe below. Thus, even if confirmatory factor analyses were conducted on prior measures, we argue that the measures are deficient as they do not contain all relevant dimensions of supervisor support for family. In addition, at least one of the measures of supervisor support for family is contaminated with measures of work-family culture (e.g., Thompson et al., 1999). We argue that there is a clear need for a measure that accurately depicts the full content domain of family-supportive supervisor behaviors, and that this measure would have both practical and theoretical value.

Several work-family researchers have recognized that family supportive supervision is a multidimensional construct (Hammer, Kossek, Zimmerman, & Daniels, 2007; Hopkins, 2005; Lapierre & Allen, 2006; Warren & Johnson, 1995; Winfield & Rushing, 2005). Furthermore, it has generally been recognized that there are three primary dimensions of supervisor support that map closely onto emotional, instrumental, and informational support from the general social support literature. While measures exist for general supervisor emotional support and at

least one measure exists to assess instrumental support, we know of no scales that include the dimensions of role modeling behaviors or creative work-family management.

Work-Family Interface

Work and family conflict is defined as a type of interrole conflict where work and family roles are incompatible (Greenhaus & Beutell, 1985). Meta-analyses show that work and family conflict is significantly correlated with higher work stress, family stress, turnover intentions, substance abuse, and lower family, marital, job, and life satisfaction; organizational commitment, and performance (Allen, Herst, Bruck, & Sutton, 2000; Kossek & Ozeki, 1998), and higher work and family conflict among spouses (Hammer, Allen, & Grigsby, 1997). Recent research has also linked family-to-work conflict to safety compliance and safety participation, demonstrating that higher levels of conflict are related to lower levels of safety (Cullen & Hammer, 2005). Despite increased employer interest in work and family, reviews suggest work and family policies have not been highly effective in reducing work and family conflicts and improving worker health and well-being (Kossek, 2005). Research suggests that even when available, family supportive policies such as dependent care assistance are underutilized (Kossek, 2005), have low baseline utilization rates, and use can be associated with higher, rather than lower, work and family conflict, specifically family-to-work conflict (Hammer, Neal, Newsom, Brockwood & Colton, 2005).

Role theory suggests that the occupation of two or more roles has the potential of leading to interrole conflict, where engaging in one role makes engaging in another role more difficult due to one's limited resources (Katz & Kahn, 1978). This scarcity hypothesis, which states that multiple roles inevitably create strain (Goode, 1960), has been the basic premise behind most of the work and family literature (e.g., Beutell & Greenhaus, 1982; Chapman et al., 1994; Goff, et al., 1990; Hammer et al., 1997; Frone et al., 1992; Loerch et al., 1989). More recently, however, work and family researchers have begun to examine the beneficial effects of holding both work and family roles (e.g., Baruch & Barnett, 1986; Doress-Worters, 1994; Kirchmeyer, 1992; Kirchmeyer, 1993; Marshall & Barnett, 1993; Pavalko & Smith, 1999; Pavalko & Woodbury, 2000). Expansion theory (Marks, 1977; Marks & MacDermid, 1996) and role accumulation theory (Sieber, 1974; Thoits, 1983) are consistent with the idea that occupying more roles, including family activities, may lead to increased energy, and that the benefits of multiple roles tend to outweigh any stress which additional roles may create. Sieber (1974) further claimed that multiple roles might compensate for role conflicts by providing numerous buffers and support against failures in other roles.

Positive work and family spillover refers to how the occupation of one role results in perceived gains in the other role (Stephens, Franks, & Atienza, 1997). It is associated with positive health, well-being and work outcomes (e.g., Kirchmeyer, 1992; Pavalko & Smith, 1999). Positive work-to-family spillover refers to the work role having a positive impact on the family role, while positive family-to-work spillover refers to the positive impact of the family role on the work role (Edwards & Rothbard, 2000; Grzywacz & Marks, 2000; Stephens et al., 1997). Both dimensions

of positive spillover have been shown to have independent relationships with antecedents and outcomes (Edwards & Rothbard, 2000; Grzywacz & Marks, 2000).

Another contribution of this proposed study is the examination of positive spillover, or the positive side of integrating work and family, as opposed to only focusing on work and family conflict. Work and family research has typically focused on work and family conflict and the difficulties associated with combining the two roles (e.g., Eby, Casper, Lockwood, Bordeaux, & Brinley, in press). There is a growing awareness, however, that work and family roles may have beneficial and reciprocal effects on one another and that focusing heavily on work and family conflict has left a gap in our understanding of the work and family interface (Parasuraman & Greenhaus, 2002; Rothbard, 2001; Voydanoff, 2002). These ideas about the benefits of combining multiple roles originated in the earlier work of Sieber (1974) and others (e.g., Marks, 1977; Thoits, 1983). More recently, constructs such as work and family positive spillover (Edwards & Rothbard, 2000), work and family facilitation (Grzywacz, 2002), and work and family enrichment (Greenhaus & Powell, in press) have been introduced to describe the theoretical relationships and associated mechanisms that enable work and family to benefit one another. To date, very little research has examined the outcomes of work and family positive spillover. The research that does exist has linked positive spillover to health and role satisfaction. Research by Hammer, Cullen, Neal, Sinclair, and Shafiro (2005) has demonstrated significant longitudinal crossover relationships between work and family positive spillover experienced by a spouse and an individual's experience of depressive symptoms one year later. We would argue that social support from one's supervisor is likely to improve positive spillover between work and family as it provides an additional resource to workers. Further, we would argue that these studies present persuasive evidence that such work and family positive spillover is related to both mental and physical health well-being.

Theoretical Model: Supervisor Support as a Critical Pathway to Well-Being

Figure 1 shows the theoretical model underlying our research. In our model we propose that behavioral supervisory support would lead to employee perceptions of emotional supervisory support. This in turn would lead to decreased work and family conflict (e.g., Carlson & Perrewe, 1999) and increased positive spillover. We further expect that this increased positive spillover and decreased work and family conflict will lead to a host of health-related, safety-related, family-related, and work-related outcomes as described below.

Our model integrates theory on supervisor support for family as a critical resource for managing work and family stress (cf Hobfoll, 1989) and a key component of a supportive work and family culture (Thompson et al., 1999). We argue that greater clarity is needed in the work and family and health literatures on what it means to provide supervisor support for family both attitudinally and behaviorally.

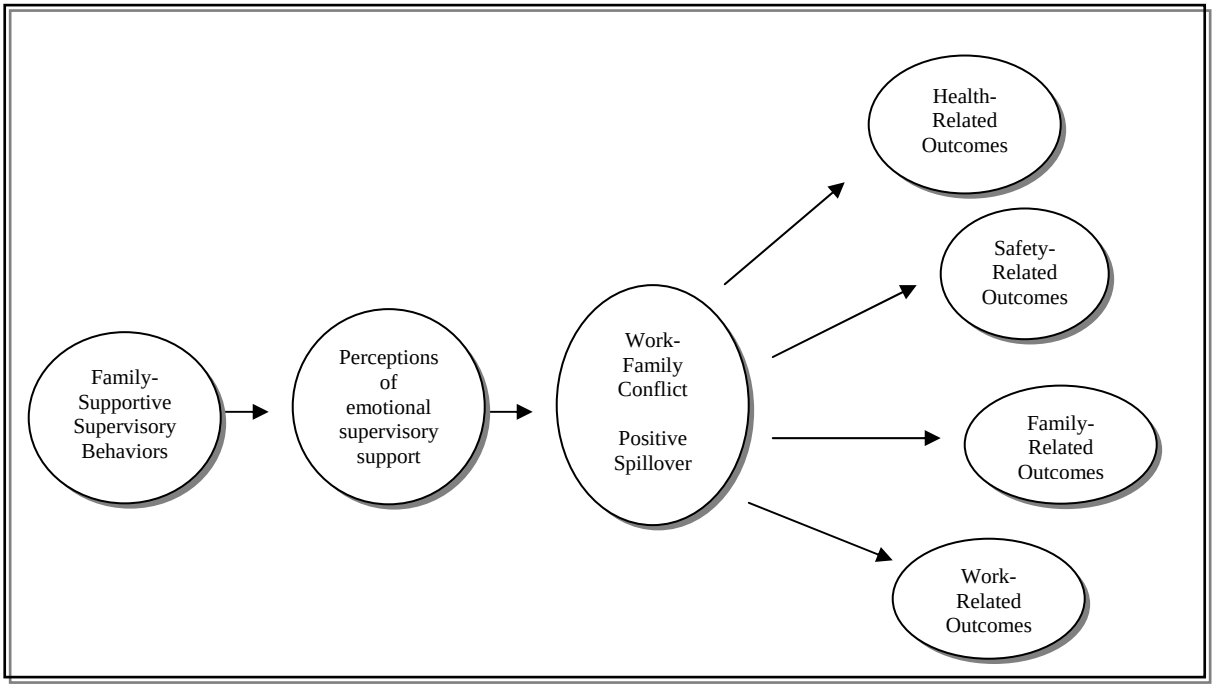

Figure 1:
Conceptual Model of Pathways Between Family Supportive Supervisory Behaviors, Perceptions of Supervisory Support, and Health, Safety, Family and Work Outcomes

Implications for Safety, Health, Work and Family Well-Being

The field of Occupational Health Psychology (OHP) offers a unique framework for viewing the relationships we are examining in this proposal. This field may also offer the Network a comprehensive way of integrating the field of work and family with the Occupational Health field. Thus, OHP offers us a lens through which we can view the stress and associated strains of work and family by extending and challenging the work and family field to examine occupational health outcomes such as injuries, illnesses, and well-being. We believe that with our combined expertise, we do just this.

Similar to studies of the effects of leadership behavior on safety of workers (e.g., Zohar, 2003), we are interested in examining managerial training of work and family supportive behaviors on safety and health. In addition, similar to models of job insecurity and safety motivation (e.g., Griffith & Neal, 2000; Probst & Brubaker, 2001), we expect that if we decrease stress of workers as result of increasing managers' support for work and family, not only will work and family conflict decrease, but we will also see increases in safety motivation and safety knowledge. The theoretical reasoning for this relationship is that workers who are experiencing high levels of work and family conflict are more stressed, and in turn are not able to concentrate on doing their jobs as effectively because of limited resources (e.g. Hobfoll, 1989). Thus, we would

expect that higher levels of work and family conflict are associated with lower levels of safety compliance motivation and safety knowledge. This in turn would be related to higher levels of accidents and injuries on-the-job. Thus, by decreasing work and family conflict through managerial behavioral training we expect that over time workers will report higher levels of safety motivation and knowledge.

As for the effects on health, as we have reviewed above, we expect that decreased work and family conflict and the potential associated increased work and family positive spillover will be associated with decreased depressive symptoms (e.g., Hammer et al., in press-b). In addition, little has been examined in relation to the effects of work and family conflict on physical health. We would expect that over time, the effects of work and family conflict to be consistent with other types of chronic stressors and result in such negative outcomes as cardio vascular disease, and most notably high blood pressure (e.g., Landsbergis, Schnall, Belkic, Baker, Schwartz, & Pickering, 2002). Additionally, more immediate health outcomes will be examined in our study by using self-report measures of physical and mental health.

Finally, work and family well-being will be operationalized in a number of ways such as: traditional measures of work outcomes of self-reported absenteeism, job involvement, organizational commitment and discretionary organizational citizenship behaviors. In addition, we will make attempts at collecting data from spouses of the unionized workers, as our work has shown that the stress and benefits of combining work and family do not only impact the individual, but also crossover and impact one's spouse (e.g., Hammer et al., 1997; Hammer, Bauer, & Grandey, 2003).

Indeed, recent work by (Hopkins, 1997) suggests that studies should focus on the personal aspects of the helping process between supervisors and workers that go beyond workers' job performance and productivity. Hopkins identifies supervisors' beliefs and attitudes, personal experiences, and social identification within the organization and the work group as key measures. In a later empirical study of nearly 600 workers, Hopkins (1997) found that supervisor intervention with workers with problems was more likely to be informal (talking with workers, listening, and being supportive) than formal (referring workers to helping resources within the company or community). She argues that supervisors need to be taught how to learn to be more responsive to workers' problems, to help develop peer assistance within work groups, and to establish linkages to employee assistance programs and community resources.

Thus, the purpose of the proposed study is to develop a new behavioral measure of supervisory support for work and family. We have published scales of general perceptions of supervisor support for family and conducted interviews and surveys with managers of employees with family responsibilities in previous studies (c.f., Kossek & Nichol, 1992; Kossek, Lautsch & Eaton, 2004; Lee and Kossek, 2004) and will build on analysis of this data as background for our scale development. Also, as part of the study we will develop a training program to train supervisors on the behaviors identified and conduct a pilot study to assess the effectiveness of the training intervention using a quasi-experimental design. We expect that workers whose supervisors are

trained on these supportive behaviors will have lower levels of work and family conflict leading to improved safety, health, and well-being.

Specific Aims/Study Goals

Due to the unique U01 mechanism of this grant and the participation in the broader Work, Family and Health Network (WFHN) led by the NIH, specific aims were not part of the original proposal and thus are not explicitly represented here. Rather, broader goals of the network and this specific grant are described.

The WFHN comprises six institutional sites funded by this U01 cooperative agreement between NICHD, NIA, OBSSR, and NIOSH. Three corporations and several small businesses are involved as community partners and six other firms contribute through their executives' involvement on the Employer Advisory Board.

Overall goals of the grant:

1. To partner with a large grocery chain in the Midwestern US, Heartland (a pseudonym), to identify the work-family stressors that employees are experiencing and how such stressors relate to important work outcomes such as productivity, safety, absenteeism, performance, health and well-being.

2. To develop a multidimensional measure of family supportive supervisory behaviors (FSSB)

3. To develop tailored supervisory training to help manage their own and their employees' work- family stressors

4. To implement the supervisory training and evaluate the effectiveness of training in reducing work-family stressors and improving work, health, and safety outcomes for workers

5. To conduct a meta analysis of the literature on work-family conflict and supervisor support

In the following sections, we will discuss the methodology and results for the study, particularly as they relate to the goals listed above. Specifically, we will first present the methods and results that relate to the development of the FSSB measure, followed by the intervention development and assessment, and finally, the meta-analysis. This will be followed by a discussion synthesizing the results from the various components.

Methods and Results:
Measurement Development (Goals 1 and 2)

The measurement development phase of the study encompassed three phases: (1) item development, (2) construct development and, (3) construct validation. Each of these is discussed in detail below.

Measurement Development, Phase I: Focus Group/Item Development

The purpose of Phase I was to identify and assess specific support behaviors that supervisors can provide for employees managing work and family. The items were developed deductively from theory as articulated in the above sections and inductively from qualitative interviews.

Sample and Procedure

The inductive process for Phase I of measurement development involved conducting focus groups with employees and supervisors of a grocery chain in the Northeastern United States to identify critical supervisory behaviors that were representative of being family-supportive. The group size ranged from 5 to 8 with a total of 28 participants. Four separate focus groups were held, one each with Store Managers (N = 7), Department Heads (N = 8), Full Time employees (N = 8), and Part Time employees (N = 5). In addition, four individual interviews were conducted with District Managers. The first and second authors of this paper conducted the interviews and framed the sessions as an opportunity for participants to provide their thoughts on how their company responds to workers' needs in managing work and family responsibilities. A sample question is, "What would you most like to see changed about how work and family is managed at your company?" Focus group sessions lasted one and a half hours and individual interviews with District Managers were conducted in one hour. The age range of participants who participated in focus groups and individual interviews was 17 to 73 years of age and a total of 24 men and 8 women participated.

Analyses and Results

To examine supportive and unsupportive supervisory behaviors, we conducted a content analysis of the data using an "open coding" approach (Strauss & Corbin, 1998) to identify, categorize and describe phenomena found in the focus group and individual interview transcripts. This involved coding for supervisors' behaviors from the perspective of each level of employee represented in the study. Definitions of supervisor support for work-family (Allen, 2001; Shinn, et al., 1989; Thompson et al., 1999) were presented to the coders. Four independent coders coded for behaviors related to supervisor supportiveness or un-supportiveness for work and family. Coders reviewed the analyses to determine the degree of convergence or divergence and realized a high degree of inter-rater reliability among coders of all themes (approximately 95% across raters). A reflective summary memo was then created for each group interviewed (Store Managers, Department Heads, Part-Time Employees, Full-Time

Employees, and Division Managers) and then further summarized into a final summary document. Coders extracted 130 quoted behaviors from the textual data to create a list identifying 66 behaviors as supportive and 64 as unsupportive. A quote identified as an example of a supportive supervisor behavior was noted by one grocery worker:

> "My mom was in the hospital for a couple of weeks and I said how about knocking off the nights for a while. So, he (manager) let me write the schedule and he didn't change it. Whatever I needed, he let me write it for what I needed."

An example of unsupportive supervisor behaviors noted by a manager was:

> "Taking care of your family is almost looked on as a weakness…"

In the next step, survey items were generated from the list of behaviors and grouped into the appropriate supervisor supportive subordinate construct (i.e., emotional, instrumental, role modeling, or creative work-family management). A total of 28 items were identified by the team to represent the four dimensions of FSSB identified through our inductive (qualitative data) and deductive (literature and theory review) processes. These items were assessed in Study II using a 5-point scale (disagree=1 to agree=5).

Measurement Development, Phase II: FSSB Subordinate Construct Development

Phase II was conducted to evaluate and refine the initial 28 items developed in Phase I to assess the FSSB subordinate constructs. Survey items were first reviewed by subject matter experts from the human resources department of a university in the Pacific Northwest and several of the items were re-worded for clarity based on their feedback.

Sample and Procedure

A web survey was distributed to all classified staff (*N* = 585) (i.e., administrative positions, facilities and planning, public safety, health services and research and accounting departments) at a university in the Pacific Northwest. Participants were invited to complete a survey of work and family attitudes. A total of 148 people responded to the survey for a response rate of 27%. While this response rate is less than what would have been desired, this is consistent with the mean response rate found in a meta-analysis of web-based survey response rates which was 34.6% with a standard deviation of 15.7 percent (Cook, Heath, & Thompson, 2000). For the analyses we selected a subset (*N* = 123) of the sample that had family responsibilities (e.g. lived with a partner, had children, or cared for an aging parent). Survey completion was voluntary and anonymous, and the study was described to participants as research designed to examine their views on work and family issues. Participants were offered the opportunity to enter a drawing for one $100 gift certificate to a local department store.

Analyses and Results

We followed a two-stage process in the psychometric evaluation of the 28-items. In the first step, we employed conventional item analysis techniques to identify poorly performing items (Allen & Yen, 2002; Waltz, Strickland & Lenz, 1991). In the second step, we performed exploratory factor analyses on the items in each subordinate dimension retained after the item analysis.

Multiple criteria were used in the item analysis to evaluate the psychometric properties of the 28 items. Frequencies, standard deviations, inter-item correlations, item-total correlations, alpha if item deleted, item discriminations and difficulties were computed. As described by Allen and Yen (2002), item difficulties for likert-type scales can be computed as the percentage of respondents endorsing the item (e.g. indicating that they agree or strongly agree). Item discriminations were computed by calculating the difference in item difficulty between participants scoring in the upper 33% on the dimension and those scoring in the lower 33.00% (Allen & Yen, 2002). Items were considered good if: a) less than 10.00% of respondents marked not applicable, b) items showed strong to moderate correlations with the other items within their subordinate dimension and lower correlations with the items in other subordinate dimensions; c) item total correlations with dimension were above .60; d) Cronbach's alpha did not decrease more than .03 points and remained above .70; e) item difficulties were between .30-.70; and f) item discriminations were above .30 (Allen & Yen 2002; Waltz, Strickland, & Lenz, 1991). The 28-item measure was refined based on the above analyses and resulted in a total of 18 items with the following subordinate dimensions: e*motional support* (5 items, alpha = .92), r*ole modeling behaviors* (3 items, alpha = .97), *instrumental support* (4 items, alpha = .88), and *creative work-family management* (6 items, alpha = .92).

Unfortunately, this sample was not large enough to conduct a confirmatory or exploratory factor analysis on all 18 items of the superordinate FSSB measure with confidence. With 18 items and four correlated subordinate constructs there are 18 factor loadings, 18 error variances, and 6 factor correlations for a total of 42 model parameters (we fixed the four factor variances to unity for model identification). Thus the ratio of participants to model parameters is 123/42 = 2.93. This ratio was too small for confirmatory analyses and we chose to conduct CFAs based on our larger sample in Study 3. Instead, we conducted a separate EFA on each dimension using principle axis factoring. For each EFA, we evaluated the item dimensionality using Scree plots, item quality using item communalities and factor loadings, and model adequacy using the percentage of total variance explained. The initial solutions for all four of the dimensions (emotional support, role modeling behaviors, instrumental support, and creative work-life management) produced Scree plots suggesting the extraction of one factor with an eigenvalue greater than 1. The items for all four subordinate dimensions had adequate communalities; greater than .62 for the factor of emotional support; .83 for role modeling behaviors; .50 for instrumental support; and .46 for work-family creative management with the factors explaining total variance of 71.09%, 91.39%, 65.89%, and 67.96% respectively. The factor loadings for each sub-dimension were also sufficiently large; greater than .79 for the factor of emotional support; .91 for role modeling behaviors; .70 for instrumental support; and .67 for work-family creative management. Cronbach's alpha was above .88 for all dimensions. This 18-item measure was used in the larger Phase III study described below.

Measurement Development, Phase III—FSSB Superordinate Construct Validation

The purposes of Phase III were threefold. First, we sought to evaluate the psychometric properties of the multidimensional, multilevel FSSB scale using a second-order factor analysis. Second, we sought to provide construct validity evidence for FSSB by relating the scores to scores from measures of similar constructs (convergent validity) and to scores on important outcome variables in the work-family literature (criterion-oriented validity). Third, given that there are existing measures of similar constructs, we sought to explore whether FSSB scale scores have additional predictive utility for these outcomes over and above these existing measures (incremental validity).

Sample and Procedure

Data were collected in 12 stores of a grocery store chain in the Midwestern United States as part of a larger study of work and family. Each store had at least one store manager and anywhere from 1-9 additional supervisors/department heads. The number of employees (hereafter called associates) per store varied, ranging from 30-90. A total of 360 associates and 79 supervisors agreed to participate in the study on company time and each received a $25 gift card from the researchers. Surveys were administered individually in a face-to-face interview and the researchers helped interpret the survey questions when needed. The associates and supervisors completed almost identical survey instruments. The larger interview consisted of 196 survey-type questions and lasted between 35-50 minutes on average. This process led to virtually no missing data. Data were typically collected in managers' offices or in break rooms of the stores to give each participant as much privacy as possible.

Of the total 360 associates who participated in the survey, 27% or 97 were men and 73% or 262 were women. Approximately 92% were White with a mean age of 38 years. In terms of relationship demographics, 55% reported living as married or married, 41% had children living at home, 16% were providing care for another adult, and 9% were providing care for a child and an adult.

Measures

Family supportive supervisor behaviors (FSSB). This 18-item multidimensional scale included the items identified as useful in Study II representing each of four dimensions (emotional support, instrumental support, role-modeling behaviors, and creative work-family management). Items were rated on a 1 to 5 "strongly disagree" to "strongly agree" scale (see Appendix A for final validated scale).

Supervisor support and supervisor support behaviors. The construct of general supervisor support was measured with a three-item scale (Yoon & Lim, 1999). A sample item is "My supervisor is willing to listen to my job-related problems." Reliability for this scale was estimated at .82. Supervisor support behaviors were assessed with a nine-item scale (Shinn,

Wong, Simko, & Ortiz-Torres, 1989). A sample item is "Switched schedules (hours, overtime hours, vacation) to accommodate my family responsibilities." Reliability for this scale was estimated at .73. Items were rated on a 1 to 5 "strongly disagree" to "strongly agree" scale.

Work-family conflict. The construct of work-family conflict was measured in two directions (work-to-family and family-to-work) with a total of 10 items (Netemeyer, Boles, & McMurrian, 1996). A sample item is "The demands of my work interfere with my home and family life." Reliability for work-to-family conflict was estimated at .87, and at .85 for family-to-work conflict. Items were rated on a 1 to 5 "strongly disagree" to "strongly agree" scale.

Work-family positive spillover. Affective work-family positive spillover was assessed in both directions (work-to-family and family-to-work) with eight items (Hanson, Hammer, & Colton, 2006). A sample item is "Being in a positive mood at work helps me to be in a positive mood at home." Reliability of the work-to-family positive spillover scale was .86 and for the family-to-work direction, .92. Items were rated on a 1 to 5 "strongly disagree" to "strongly agree" scale.

Job satisfaction and turnover intentions. Job satisfaction was measured with a five-item scale (Hackman & Oldham, 1975) . A sample item is "Generally speaking, I am very satisfied with this job." Reliability for this scale was estimated to be .80. Employee intentions to quit their job was measured with a two-item scale (Boroff & Lewin, 1997). A sample item is "I am seriously considering quitting this company for an alternate employer." Reliability for this scale was .87.

Analyses

Given the hierarchical data structure (i.e., associates nested within supervisors), all reported statistical analyses employed multilevel models unless otherwise noted. In the assessment of the FSSB factor structure, a multilevel confirmatory factor analysis (MLCFA) was conducted with Mplus 4.2 (Múthen & Múthen, 2006) using estimation methods that account for item nonresponse and nonnormality. Because our focus was only the latent structure of associate responses to FSSB items, a saturated latent covariance structure was specified at the supervisor level of the data structure. Given the complexity of MLCFA we first conducted several suggested preliminary analyses (Grilli & Rampichini, 2007; Heck & Thomas, 2000, Ch 6) to assess whether a multilevel approach was needed and to identify measurement structure problems. For brevity, we only report the important findings from these preliminary analyses. Reliability estimates for the FSSB scores were computed based on the within-supervisor covariance matrix provided by Mplus using the standard formula for computing Cronbach's coefficient alpha based on the number of items and the item variances and covariances (see e.g., McDonald, 1999, Eq. 6.28).

Analyses pertaining to evidence of construct, criterion-oriented, and incremental validity were also conducted using Mplus. Convergent validity evidence was based on within-supervisor correlations between scores on the FSSB and scores on the measures of general supervisor support and supervisor supportive behaviors. Criterion-oriented validity evidence was based on multilevel regression analyses predicting important work-family outcomes (i.e., work-family

conflict, positive spillover, job satisfaction, and turnover intentions) from FSSB scores. Incremental validity evidence was based on multilevel regression analyses similar to the preceding but also including as predictors the measures of general supervisor support and supervisor supportive behavior thus controlling for their effects on these outcomes.

Results

Confirmatory Factor Analyses

Preliminary analyses to the MLCFA were based on 1) exploratory and confirmatory factor analyses ignoring the data nesting structure to identify potential problems in the measurement structure and 2) univariate multilevel model analyses for the 18 FSSB items to assess whether the magnitude of associate response dependency on their supervisors necessitated a multilevel approach. The results of the preliminary factor analyses suggested that four items did not correlate well with the other items within their FSSB dimensions and the factors representing those dimensions. Inspection of these four item stems suggested a lack of conceptual clarity in these items. Therefore, the analyses that follow involve only the remaining 14 of the 18 FSSB items (see Appendix A). No other problems were detected. The results of the preliminary univarite multilevel analyses indicated that most of the remaining 14 items exhibited significant variance in item responses across supervisors with ICCs ranging from .01 to .13 (Mdn = .10). These results suggest that this dependency should not be ignored even though some items exhibited small ICCs.

The MLCFA specified a second-order factor model where the four first-order factors loaded onto a single second-order factor to test whether the associations among the four dimensions are explained by a single second-order factor. Items were specified to load only on to their respective FSSB dimension factor and all error variances were specified as uncorrelated. This second-order CFA model fit the data well, $\chi^2(178, N = 360) = 294.92$, $p < .001$, CFI = .97, RMSEA = .04, SMSR = .05. Appendix A provides the factor loadings and error variance (along with their standard errors) estimated from this model. All factor loadings for the first-order and second-order factors were statistically significant as were all of the error variances except for the Instrumental Support first-order factor which was positive but non-significant ($p = .71$). The standardized factor loadings for the second-order factor were strong ranging from .82 for the Emotional Support factor to .99 for the Instrumental Support factor. Thus, the second-order multilevel factor structure fit the data well which supports the use of a single total scale score to represent the four FSSB subordinate dimensions.

FSSB Reliability

The reliability estimate for the total FSSB scores was .94, exceeding levels deemed acceptable for use in research (cf. Nunnally & Bernstein, 1994). Reliability estimates were .90, .73, .86, and .86 for the Emotional Support, Instrumental Support, Role Modeling Behaviors, and Creative Work-Family Management scales, respectively.

FSSB Validity

Convergent validity. To provide evidence of convergent validity, scale scores for the overall FSSB measure were correlated with scores on Yoon and Lim's (1999) measure of general supervisor support and the Shinn et al., (1989) measure of supervisor support behaviors. FSSB scores correlated positively and significantly with these two measures (i.e., r = .74 and r = .68, respectively). The magnitudes of these correlations suggest a strong conceptual overlap in these construct sub-dimensions and therefore provide evidence of convergent validity.

Criterion-related validity. To provide evidence of criterion-related validity, FSSB scores were used as predictors of six important work-family and job outcomes (i.e., work-family conflict, family-work conflict, work-family positive spillover, family-work positive spillover, job satisfaction, and turnover intentions). In these multilevel regression models, the number of hours worked and the number of children living at home were included as control variables given their potential impact on these outcomes. Controlling for hours worked and the number of children living at home, FSSB was significantly and negatively related to work-family conflict [β = -.31, 95% CI(-.44, -.19)], turnover intentions [β = -.46, 95% CI(-.62, -.30)], and positively related to work-family positive spillover [β = .10, 95% CI(.01, .19)], family-work positive spillover [β = .19, 95% CI(.10, .28)] and job satisfaction [β = .42, 95% CI(.33, .51)], but FSSB was not significantly related to family-work conflict [β = -.01, 95% CI(-.10, .07)]. Thus, FSSB scores have significant criterion validity with respect to three of these four important outcomes.

Incremental validity. It is important to assess whether FSSB scores have significant incremental validity in the prediction of work-family and job outcomes over and above existing measures of supervisor support. Toward this aim, FSSB scores were used as predictors of work-family conflict, family-work conflict, job satisfaction, and turnover intentions using multilevel random intercepts-only regression models for the associate-level data nested within supervisors. In these multilevel regression models, scores from measures of general supervisor support (Yoon & Lim, 1999) and supervisor support behaviors (Shinn, et al., 1989) were used as control variables in addition to the number of hours worked and the number of children. Controlling for these variables, FSSB scores were significantly and negatively related to work-family conflict [β = -.37, 95% CI(-.60, -.15)] and turnover intentions [β = -.45, 95% CI(-.72, -.18)], significantly and positively related to job satisfaction [β = .44, 95% CI(.29, .59)], but were not significantly related to family-work conflict [β = -.01, 95% CI(-.10, .07)], work-family positive spillover [β = .10, 95% CI(.01, .19)], and family-work positive spillover [β = .19, 95% CI(.10, .28)]. Thus, FSSB scores have significant incremental validity in the prediction of work-family conflict, job satisfaction, and turnover intentions when controlling for scores on the two existing measures of supervisor support, hours worked and number of children living at home.

Methods and Results:
Supervisory Training Development and Evaluation (Goals 3 & 4)

The development, implementation and evaluation of a supervisory training focuses on Goals 3 and 4 of the study. The tailored supervisory training is designed to help supervisors manage their own and their employees' work- family stressors, which in turn, reduce work-family stressors and improve work, health, and safety outcomes for workers.

Design and Participants

Our intervention study used a pre-test/post-test control group design. The primary methods of evaluation were multiple choice knowledge tests, reaction questionnaires immediately following the training, self-monitoring of supervisor behaviors, and pre-intervention/post-intervention comparisons of employee reports of work, health, and safety outcomes. The study was conducted in 12 grocery stores in the Midwest U. S. described above. A total of 6 stores were randomly chosen as the intervention sites with 6 additional stores serving as control sites. Each of the 12 stores had at least one store manager and anywhere from 1-9 supervisors/department heads. The number of employees per store ranged from 30-90.

Participants were supervisors (N = 75 pre-intervention; N= 77 post-intervention with 39/38 in the control and experimental conditions at post-intervention, respectively) and employees (N = 360 pre-intervention; N = 239 post-intervention with 122/117 in the control and experimental conditions at post-intervention, respectively). Supervisors included store directors, assistant directors, customer service managers, assistant customer service managers, and the predominant group, department managers in bakery, dairy/frozen, delicatessen, meat, produce and general merchandise. A majority of the employees worked as cashiers. Many of the employees worked part time which is common in the grocery industry. At pre-test, 54% of employees reported working part-time and 46% reported working full-time. At post-test, 48% reported part-time and 52% reported full time work schedules. All participation was during paid company time and each participant received a $25 gift card for each survey (pre- or post-intervention) in which they participated. The training intervention was implemented as part of the company mandated supervisory training and the self-monitoring was optional for supervisors.

A total of 360 (61% response rate) employees and 75 (80% response rate) supervisors participated in the pre-intervention data collection, and 239 (67% response rate) employees and 77 (82% response rate) supervisors participated in the evaluation data collection. Of the total 360 employees who participated in the pre-intervention survey, 27% were men and 73% were women, 92% reported that they were White and the entire group had a mean age of 38 years. Fifty-five percent reported living as married or married, 41% had children living at home, 16% were providing care for another adult, and 9% were providing care for a child and an adult. There were no significant differences on key demographic variables between the control and

experimental conditions at pre-intervention except for age, where the experimental group was slightly older than the control group.

Of the 239 who participated in the post-training survey, 22% or 54 were men and 77% or 186 were women. Approximately 92% were White with a mean age of 40 years, 55% reported living as married or married, 41% had children living at home, 16% were providing care for another adult, and 9% were providing care for a child and an adult.

Procedures

Surveys were administered individually in face-to-face interviews. Each interview consisted of 196 survey questions and lasted between 35-50 minutes on average. This process led to virtually no missing data. Surveys were typically administered in managers' offices or in break rooms of the stores to give each participant as much privacy as possible. The surveys were administered both before the intervention and at post-intervention.

Measures

The measures listed in the Measurement Development Study portion above were all used in intervention evaluation, as well as a measure of physical health and safety.

Physical Health

Physical Health was measured with the SF-12 (v2) seven-item physical composite score (Ware, Kosinski, & Keller, 1996). A sample item is "During the past 4 weeks, How much of the time have you had any of the following problems with your work or other regular activities as a result of your physical health?" The reliability for the Physical Health Composite Score of the SF-12 is .89, as reported in the SF-12 manual and as demonstrated in a variety of national samples.

In addition to the self-report measure, blood pressure was also tracked in a sub-sample of participants (*N*=69). They wore a portable wrist blood pressure monitor, the Omron 637IT. The Omron 637IT, which uses a heart positioning sensor, passed the validity protocol according to the International Protocol criteria for both systolic and diastolic blood pressure in three studies of middle-aged adults (Topouchian et al., 2006; Altunken, Genc & Altunken, 2007; Altunken, Oztas & Altunken, 2006) and one study with obese adults (Altunken, Oztas & Altunken, 2006).

A technician took one baseline measure with the participant in a seated position in a quiet room at the work site to teach them the method for self measurement. The participant was given the portable wrist monitor, a pre-set timer, and a diary and was instructed to put on the wrist monitor and self-trigger the device when the timer sounded an alarm. The timer was set to sound an alarm every 60 minutes throughout one work day and one non-work day. The participant recorded the time, BP reading and position (standing, sitting, lying down) in the

diary after each BP measurement. Readings were averaged to obtain measures of workday and nonworkday blood pressure.

Safety Participation and Compliance

Safety Participation was measured with a four-item scale (Neal, Griffin, & Hart, 2000). A sample item is, "I promote the safety program within the organization." Reliability for this scale was .79. Safety Compliance was measured with a four-item scale (Neal, Griffin, & Hart, 2000). A sample item is, "I carry out my work in a safe manner." Reliability for this scale was .89.

Development of Work-Family Intervention

The intervention consisted of 3 components: Computer-based training, face-to-face training, and self-monitoring, all focused on improving family supportive supervisor behaviors.

Computer-based training

The computer-based training was implemented in cTRAIN software (NwETA; Lake Oswego, OR; http://www.nweta.com) developed for a broad range of non-educated trainees and educated learners (Anger et al., 2001; Eckerman et al., 2004; Anger et al., 2006). The software employs: 1) established behavioral training principles of self-pacing and interactivity (frequent quizzes, immediate feedback, high accuracy criterion); 2) Clear system training instructions, so students do not require coaching on how to use the program; 3) Icon-based navigation cues always on-screen, so there are no commands to remember; and, 4) Ready implementation of pictures and a movie on all screens.

The training content was tailored based on site visits, interviews, and focus groups with a previous grocery store, as well as based on the current work-family research literature. The training provided: 1) background information on the benefits of reducing work-family conflict for employees' families' health and well-being; 2) the organization's motivation for reducing work-family conflict including concerns about retention, absenteeism, and health costs; 3) standardized information on the company's current work-family policies and programs; 4) definitions and examples of the four FSSB dimensions (i.e., emotional support, instrumental support, role modeling behaviors, and creative work-family management strategies), as described earlier in the manuscript; 5) the existence of a perceptual gap between employees and supervisors regarding work-family support (employees evaluated the interest and support of their family needs by their supervisors as rather low in comparison to how the supervisors saw themselves) based on pre-test/needs analysis survey data; and 6) a description of the self-monitoring program in which they would be invited to participate during the face-to-face training. Supervisors were given a computer-based pre-test and post-test containing an identical set of 15 questions in order to assess learning and retention of the material. In addition, these 15 questions were embedded throughout the training in the form of quizzes.

Face-to-face training

The face-to-face training was conducted by one or more of the first three authors following an outline that addressed the following points: 1) Appreciation to the company for supporting the surveys and intervention; 2) voluntary nature of the request to change behavior over the next month and the self-monitoring procedures, with distribution of consent forms; 3) description of self-monitoring procedures and opening for questions about the procedures; 4) request for feedback on the computer-based training; 5) statement that the goal of the training is to change practices of managers, emphasizing emotional support, modeling healthy work-family behavior, schedule conflict resolution, knowledge of company policies and cross-training on work skills (i.e., FSSB); 6) role play by presenters of an employee overheard on the phone dealing with a need to come home to help a child, and a supervisor stepping in to help resolve the conflict; 7) role-play by presenters of filling out self-monitoring cards, and request for volunteers to fill in their estimate of how often they currently perform these behaviors and their goal for the following weeks and 8) distribution of certificates for completing the training.

Prior to receiving their certificate, participants completed training reaction questionnaires on the computer-based and face-to-face training that addressed the frequency of manager training, ratings and the usefulness of the training.

Self-monitoring

Participants were requested, in both the computer-based and face-to-face training, to change their behavior over the following 3-5 weeks by collecting self-monitoring data on themselves for 6 behaviors and to set a goal of increasing the frequency of those 6 behaviors: 1) Speak with store Associates; 2) ask something about an associate's family; 3) say something about their (the manager's) family; 4) give positive feedback about an associate's work performance; 5) suggest a constructive improvement in an associate's performance; 6) initiate a question about or offer a way to improve an associate's schedule.

The computer-based and face-to-face training requested that the managers carry a 3x5 inch "Supervisor Daily Data Card" and mark each time they carried out one of the 6 behaviors noted above, each of which was listed on the card. One card was provided for each day. In order to provide a baseline and a goal, the managers were asked, in the face-to-face training, to provide an estimate of how frequently they did perform each behavior each day, and to set a goal of how much they would increase it (as noted, managers at two small stores did not provide baseline estimates and goals). They were also asked to perform those behaviors at their usual rate for the first few days of training and then increase them to their goal over the next 2-3 weeks.

Results of Intervention Evaluation

Baseline Correlational Findings

Preliminary analyses of baseline data indicated that workers who were supervised by family-supportive managers were significantly more likely to experience: lower levels of work-family

conflict, higher job satisfaction, lower intentions to turnover, and higher reports of mental and physical health. We also found significantly higher workday/work hour systolic BP measurements than nonworkday work hour systolic BP, $t(55) = 2.60$, $p = .01$ among our respondents. Using hierarchical regression analysis, we also found that sleep *quality* was predicted by work-family conflict, after controlling for demographic characteristics, household income, hours of work/week, number of children at home, elderly parent care, and depressive symptoms.

Training Evaluation Findings

The training evaluation was based on Kirkpatrick's (1994) four training criteria (i.e., Reactions, Learning, Behaviors, Results). ***Reactions*** of supervisors (N=40) indicated a moderate to high degree of perceived usefulness of the training with a mean rating of 3.65 (SD =.67) on a 1-5 point response scale to the cTRAIN and a mean rating of 3.32 (SD =.58) to the face-to-face training. ***Learning*** was assessed via cTRAIN test performance results. Comparing pretest and posttest knowledge scores, a significant effect size was found (d_gain = 1.4, $p < .001$), indicating that the computer-based training taught the material effectively based on a multiple choice test. Although supervisor ***Behaviors*** were not observed directly in the workplace, the self-monitoring task produced two forms of behavioral data: (a) supervisor participation levels, and (b) supervisors' self-reported levels of family-supportive behaviors. Twenty-eight of the forty managers volunteered to participate in the behavioral self-monitoring. Of the 3 most-often self-monitored behaviors reported, 25% of participants exceeded their goal of asking about their employee's family, 22% exceeded their goal of speaking to their associates, and 14% exceeded their goal of talking about their own family with an employee. In response to an open-ended survey question that asked about family supportive supervisory behavior change, 22% of trained supervisors reported they changed their behavior toward their workers to help them achieve better work and non-work balance as a result of the training they received. ***Results*** were assessed via worker health outcomes following training. Workers in the intervention stores reported higher levels of physical health based on the SF-12, compared to those workers in the control stores, after controlling for baseline physical health. This treatment effect was stronger for those workers who reported higher levels of family-to-work conflict, compared to those workers lower on family-to-work conflict. These findings suggest that the family-supportive supervisor training was effective in improving physical health of workers and that the training was especially helpful for those workers who had higher levels of family-to-work conflict. R-square for the whole model was .33 and the incremental R-square = .02 for the interactions between work-family conflict and physical health ($F=2.98$; df= 2, 219, $p = .05$). The beta for the interaction between family-to-work conflict and physical health = .56, p=.018. (see Figures 2 and 3 below).

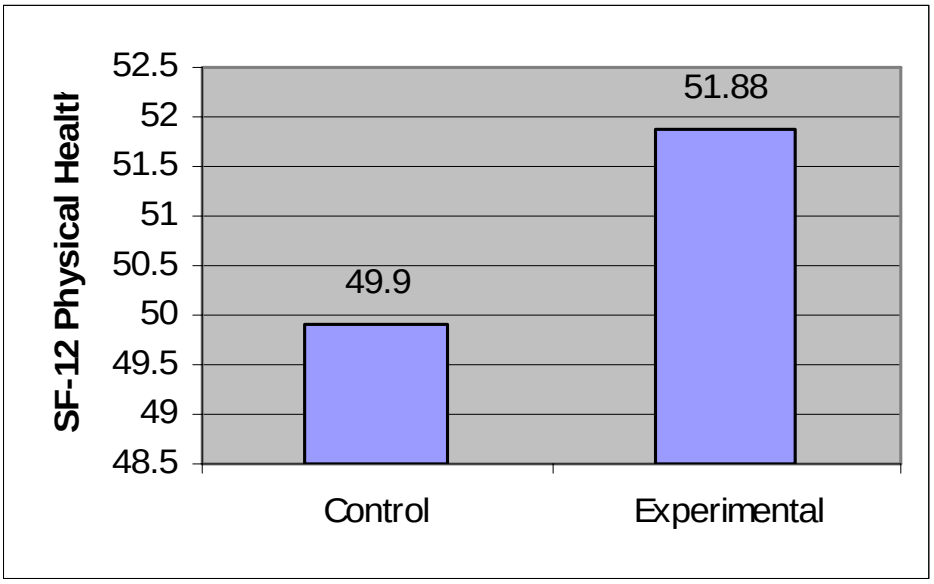

Figure 2. Post-intervention differences on self-reported health of employees.

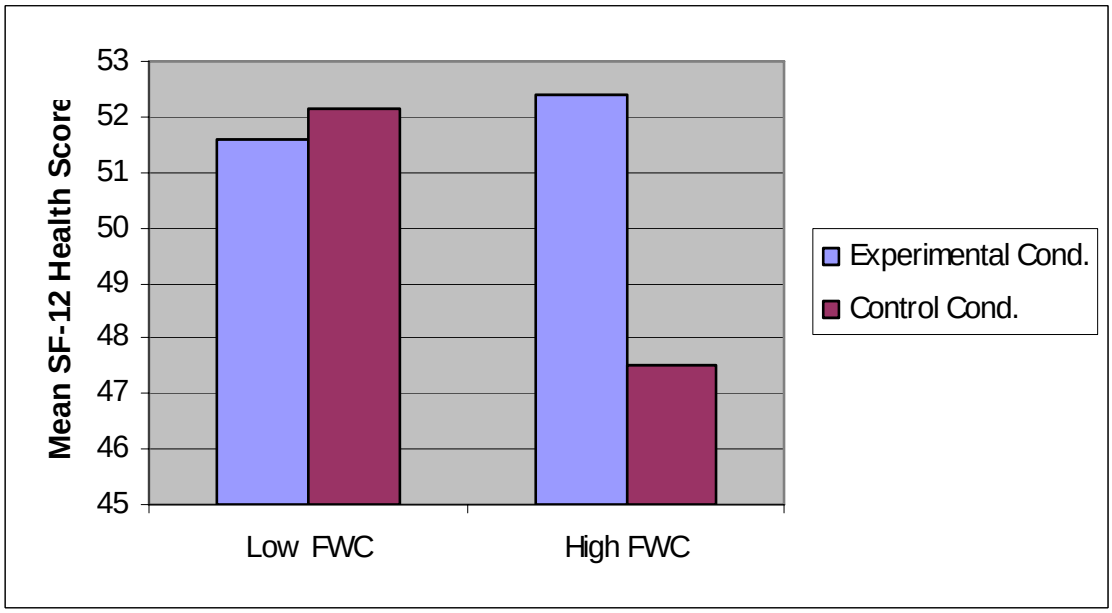

Figure 3. Interactive effects of intervention and family-to-work conflict on self-reported health of employees.

Methods and Results:
Meta-Analysis of Work-Family Conflict and Supervisor Support (Goal 5)

In fulfillment of Goal 5, we conducted a meta-analysis to clarify multi-level relationships between individual perceptions of different *types* (work specific, work-family specific) and *sources* (supervisor, co-worker, and organizational) of workplace social supports (WSS) and work-family conflict.

Method

Inclusion Criteria

In choosing studies for this meta-analysis, we used three inclusion criteria. First, we focused on studies that involved perceptions of support in the workplace. Therefore, we excluded studies involving perceptions of support in other contexts (e.g., the family unit alone). Second, we focused on studies that involved work-family conflict and family-work conflict. Third, we included studies that measured perceptions of workplace support and at least one measure of the following: work-to-family conflict, family-to-work conflict, and overall work-family conflict, and also reported sufficient information from which to compute an effect size.

Literature Search

We obtained both published and unpublished studies through three methods. First, we conducted computerized searches of the PsycINFO, Business Source Elite, Academic Search Elite, Sociological Abstracts, the Academy of Management archive databases through January 2007 using the following keywords: "supervisor support," "organizational support," "coworker support," "social support," "work and life," and "work-family conflict." Second, we conducted a computerized search of the Society for Industrial-Organizational Psychology's online database for empirical conference papers and the Dissertation Abstracts International database for unpublished doctoral dissertations through January 2007 using the same key words. Finally, we manually searched the following journals: *Journal of Applied Psychology*, *Personnel Psychology*, *Journal of Management*, and the *Academy of Management Journal.* This search process yielded a total of 60 unique studies that met the inclusion criteria, which are noted in the reference section with an asterisk. In addition, a list of all the studies with the relevant measures are available from the authors upon request, but are not included here due to space limitations.

Study Coding

Two trained graduate students independently coded each of the included studies. Given our interest in how general and work-family specific workplace social supports are related to work-family conflict, these individuals independently coded whether support measures were general or specific to the work-family context based on scale descriptions or sample items provided either in the included studies or in separate published validation studies. Furthermore, these

graduate students coded for the nature (i.e. positive or negative) and directionality (i.e. work-to-family, family-to-work or bidirectional) of work-family variables based on similar criteria and individual and organizational moderator variables (discussed below). Data extracted regarding effect size and moderator variable values were examined for consistency, and agreement was 99.3%. Disagreements were resolved after discussion.

Individual moderator variables. The first type of moderator variable described eight characteristics of the individuals within the studies. These variables included the proportion of participants who were 1) Caucasian, 2) female, 3) married or living with a partner, 4) the proportion of participants who had caregiving responsibilities, 5) mean number of participants in a professional occupation, 6) mean number of participants with managerial responsibilities, 7) number of children and 8) mean number of hours the participants worked.

Organizational moderator variables. The second type of moderator variable examined four characteristics of the organizations studied: nationality (U.S. based or not); number of organizations (single or multiple); policy use (coded as low or high); and policy availability (coded as low or high). Coding for work family policy use and availability were done as follows. First, all work-family policies measured in a given study were recorded, both in terms of their availability and use. Then raters coded if the availability and use were high or low by comparing these variables in each study to the population of studies in the database. As an example, O'Driscoll and colleagues (2003) measured the extent to which employees had access to ten family-supportive policies such as flextime and compressed work schedules, and calculated a scale mean of 2.86. Compare this to a mean score of 8 based on a scale that measured the availability of 17 similarly common family-supportive policies (Gooler, 1996). Given that employees had more access to supportive policies, in both absolute and relative terms when considering scale maximum, the former was coded "high" and the latter "low" for availability.

Meta-Analytic Procedures

Effect size metric and modeling procedures. The effect size metric chosen was the correlation coefficient. Our meta-analytic procedures followed conventional model meta-analytic techniques for tests of effect size centrality, homogeneity, and moderation (Hedges & Olkin, 1985). Initially for all analyses, a fixed effects model was employed. However, a random effects model (or mixed effects model for moderation analyses) was employed if significant effect size heterogeneity was detected using the Q-test (cf. Lipsey & Wilson, 2001, pp. 115-116). Tests of significance for effect size centrality were conducted using Z-tests (cf. Lipsey & Wilson, 2001, p. 115). Tests of significance for effect size moderation were conducted using meta-analytic models analogous to the ANOVA and regression for categorical and continuous moderator variables, respectively (cf. Lipsey & Wilson, 2001, 135-138).

Correlations were first transformed into the Fisher correlation metric for analysis. These were then back-transformed into the correlation metric in the presentation of results. For estimation and testing, we weighted each effect size by the inverse of its sampling variance giving greater weight to studies with greater estimation precision. We did not apply any

other effect size corrections because applying such corrections can lead to inaccurate conclusions about the population mean effect size and the variability in effect sizes (DeShon, 2002).

Based on our hypotheses above, we tested two meta-analytic path models (Viswesvaran & Ones, 1995) to determine if perceived organizational support and family-supportive organizational perceptions mediated the relationships between supervisor support and supervisor support for family, respectively, and work-family conflict. Consistent with existing research (e.g., Carr, Schmidt, Ford, & DeShon, 2003), we used mean meta-analytic correlations as input along with smallest sample size on which these mean correlations were based. Using AMOS 5.0, we evaluated model fit using a variety of fit statistics including chi-square, CFI and RMSEA.CFI values greater than .97 and RMSEA values less than .05 were used to indicate good fit (Kline, 2005).

Nonindependent effect sizes. Since work-family and social support measures can have multiple dimensions, several studies contributed multiple relevant, but non-independent effect sizes. For instance, work-family conflict is often measured as time-, strain- and behavior-based (Greenhaus & Beutell, 1985), and social support can be measured as emotional, informational and instrumental (House, 1981).

Similar to previous studies of support in the workplace (e.g. Rhoades & Eisenberger, 2002), whenever a study provided multiple effect sizes due to measuring work-family spillover or perceptions of support at work using multiple unidimensional subscales, these effect sizes were transformed into a correlation of composite variables (see Hunter & Schmidt, 1990) and were treated as a single effect size (Lipsey & Wilson, 2001; Rosenthal and Rubin, 1986). Transforming multiple effect sizes into a correlation of composite variables is appropriate here as our investigation focuses on how different sources of support in the workplace (i.e. organization, supervisor, and coworker) and specific types of support (i.e. general or work-family) are related to work-family conflict rather than on how specific dimensions of support are related to specific dimensions of work-family conflict and spillover.

Additionally, effect size dependency problems were encountered in the testing of Hypotheses 1 to 3 that focused on the comparison of associations between sources and domain types of work place support and types of work-family conflict. For example in the comparison of the association between supervisor support and work- family conflict with the association between supervisor support for family and work -family conflict, a study may provide effect size estimates for both associations. Including both effect sizes would violate the tests independence assumption. Therefore, in such cases we randomly chose one of the two effect sizes for inclusion in the test, in order to provide rigorous conservative analysis.

Results

Sources and Specificity of Workplace Social Supports and Work-Family Conflict

We predicted that workplace social support would be more strongly related to work-to-family conflict than family-to-work conflict or bidirectional conflict since the source of support is emanating from the work domain. This hypothesis was generally supported. Descriptively, all of the sources of support were more strongly related to work-to-family than family-to-work conflict. Inferentially, organizational support, organizational support for family and supervisor support for family were all significantly more strongly related to work-to-family conflict than family-to-work conflict. These results tend to suggest that greater social support from the work domain is associated with reducing conflict stemming from the work domain that spills over into the family domain. Because of these results, the rest of our results focus on significant relationships between workplace social support and work-to-family conflict below, unless we found significant family to work conflict findings.

We predicted that organization level support would be more strongly related than supervisor support to work-to-family conflict. Results indicate that only general perceived organizational support was more strongly related to lower work-to-family conflict than general supervisor support. Work-family specific organizational support, however, was not significantly more strongly related to lower work-to-family conflict than work-family specific supervisor support. As such, this hypothesis received mixed support.

We predicted that while organizational support would be more strongly related to work-to-family conflict, where supervisor support was concerned, work-family specific support would matter most at the supervisor level. Results support this hypothesis in that work-family specific supervisor support was more strongly related to work to family conflict than was general perceptions of supervisor support.

In sum, these results indicate that a) across all sources (organizational, supervisor, co-worker) workplace social support is more likely to impact work-to-family than family-to-work conflict' b)only general perceptions of organizational support are significantly more likely to reduce work-to-family conflict than general supervisor support. This relationship where organizational level support is more robust than the supervisor level does not hold for work-family specific domain types of support; When support is work-family specific, workplace support has basically the same strength in reducing work family conflict, and c) at the supervisor level of analysis, work-family specific supervisor support is the significantly more likely to reduce work-to-family conflict than general supervisor support.

Individual-Level Moderators

We proposed that workplace social support would be more helpful, i.e. more strongly related to work-family conflict, for individuals who are considered non-ideal workers and often face some structural inequality in work-family relationships. Across all tests, this hypothesis was usually supported. Organizational support and co-worker support have a stronger negative association with work-to-family and bidirectional work-family conflict, respectively, for older workers. Coworker support is also more negatively associated with bidirectional work-family conflict for workers who are female. Supervisor work-family specific support was more

negatively associated with bidirectional conflict for workers with children. The remaining analyses indicated that other individual-level moderators related to an ideal worker status were generally not significantly related to the strength of relationships between workplace social support and work-family conflict.

Organizational support and coworker support were more negatively associated with lower work-to-family and bidirectional conflict, respectively, for professional workers. Results for managers were more mixed, while work and work-family specific organizational support was associated with stronger work-to-family conflict reduction for managers; general perceptions of organizational support was positively associated with work-family conflict for managers.

Organizational-Level Moderators

We proposed that workplace social support would matter more for samples where workers a) had lower availability of formal work-family policies or b) had low rates of policy utilization. Results of these analyses reported in Table 4 indicate organizational work-family specific support is more strongly related to both work to family and family-to-work conflict when availability is low. Regarding the moderating effects of policy use, organizational work-family specific support and supervisor work-family specific support were more strongly related to family-to-work conflict reduction when policy use was low. Supervisor work-family specific support was also more strongly related to work to family conflict when use was low.

In sum, while the results focused on individual level moderators, generally indicated that workplace social support is more strongly related to work-to-family conflict than family-to-work conflict, when analyses are done at the organizational contextual level examining the moderating effects of the extent to which formal policies are available or used , our results indicate that greater workplace social support is associated with both lesser work-to-family and family-to-work conflict when policy availability and use are low. Such results highlight the increasing reciprocal nature of family to work and work to family conflict when access and use of actual tangible work-family supports are considered.

We predicted that workplace social support would differ according to whether the sample was strictly U.S.-based, or non-U.S. since most of the later samples in our study were from collectivist cultures. While coworker support was associated with higher family-to-work conflict reduction in non-U.S. cultures than U.S. cultures, supervisor support was associated with lower bidirectional work-family conflict in U.S. cultures compared to non U.S. organizational studies.

We also predicted that workplace social support would be more strongly related to work-family conflict in single-organization versus multiple-organization studies since the latter introduces added heterogeneity. Results showed only one significant association moderated by the number of organizations studied: the relationship between coworker support and family-to-work conflict was stronger when workers were sampled from one versus multiple firms.

Workplace social support sequencing: Tests of mediation between organizational and supervisor levels of support

We predicted that perceived organization support would mediate the relationship between supervisor support and work-family conflict. A meta-analytic path model (Viswesvaran & Ones, 1995) was used to evaluate this hypothesis where general perceived supervisor support was modeled to effect general perceived organizational support and where perceived organizational support at work was modeled to effect work-family conflict. Supervisor support at work was modeled not to have a direct relationship to work-family conflict. As input into the path analysis the mean meta-analytic correlations were used for the correlation between work-family conflict and perceived organizational support and between work-family conflict and perceived supervisor support. The correlation between perceived organizational support and perceived supervisor support (i.e., r = .51, K = 12, N = 5383) was based on the results of a recent meta-analysis (Rhoades & Eisenberger, 2002). The sample size for this analysis was based on the minimum cumulative sample size for the three mean meta-analytic correlations, a conservative approach used in other meta-analyses (e.g., Carr et al., 2003).

Results indicate that this hypothesis was supported, $\chi^2(1, N = 2889) = 0.65$, $p = .42$, GFI = .99, CFI = 1.00, RMSEA = .00. Perceived organizational support at work appears to mediate the relationships between general supervisor support at work and work to family conflict. Indeed, in a similar model where perceived supervisor support was permitted to have a direct effect on work-family conflict, the path coefficient was small and non-significant, path coefficient = -.02, $p = .41$.

Extending this model to apply to work-family specific support, we predicted that perceived organizational work-family support would mediate the relationship between supervisor work-family specific support and work-family conflict. We first computed the mean correlation between organizational work-family specific support and supervisor work-family support: the mean correlation was .42 (K = 7, N = 2981). We then used this correlation and the mean correlations between these variables and WFC as input for the path model. Results indicate that a fully-mediated model did not fit the data well, $\chi^2(1, N = 2981) = 97.79$, $p < .001$, GFI = .98, CFI = .90, RMSEA = .18.

We tested a partially-mediated model, permitting a direct effect from supervisor work-family support to work-to-family conflict. Of interest is whether the magnitude of the direct effect of supervisor work-family support on work-to-family conflict is reduced when we control for organizational work-family support. The path coefficient between supervisor work-family specific support was statistically significant, as were all other paths. However, the magnitude of this path coefficient (i.e., -.19) is noticeably smaller than the correlation between supervisor work-family specific support and work-to-family conflict (i.e., r = -.29). Consistent with Baron and Kenny's (1986) steps for mediation analysis, it appears that the effect of supervisor support and work-to-family conflict is partially explained by organizational work-family specific support.

Discussion and Conclusions

The research project achieved several purposes. First, it identified the work-family stressors of employees at a large grocery store chain and how such stressors related to important work outcomes, such as productivity, safety, absenteeism, and performance. We were also able to link these stressors to individual outcomes of health and well-being. Second, we addressed a gap in the available measures of supervisory support by developing a multidimensional measure of family-supportive supervisory behaviors (FSSB). Third, we developed a supervisory training to help manage their own and their employees' work-family stressors. We then implemented and evaluated the intervention with regard to work, health and safety outcomes for workers. Finally, we conducted a meta-analysis of the literature on work-family conflict and supervisor support, deepening our understanding of how supervisor support and related variables affect work-family conflict.

Development of FSSB Measure

During this study we systematically identified, operationalized, and analyzed one of the central constructs (i.e., FSSB) of the Network's theoretical model that links the work environment to work-family conflict and health. FSSB is defined as *those behaviors exhibited by supervisors that are supportive of families* and conceptualized as consisting of four dimensions: *emotional support, instrumental support, role modeling behaviors, and creative work-family management (* Hammer, Kossek, Zimmerman, & Daniels, 2007; see Appendix for a publication written during Phase 1). *Emotional support* generally is focused on perceptions that an individual is being cared for, that their feelings are being considered, and that they feel comfortable communicating with the source of support when needed. *Instrumental support* is related to supervisor support for work and family in the form of scheduling and flexibility and use of policies and practices, assisting with tasks, and making changes in the time, place, and way that work is done to be accommodating to employees' work-family responsibilities. *Role modeling behaviors* refer to demonstrating how to balance work and family through modeling behaviors on the job. Finally, *creative work-family management* is defined as managing how the work is structured to meet the needs of the organization and employees. Our measure consists of 14 items and has an overall reliability estimate of .94. Results show that FSSB is significantly related to work-family conflict, work-family positive spillover, job satisfaction, and turnover intentions. Moreover, FSSB scores have significant incremental criterion validity in the prediction of work-family conflict, job satisfaction, and turnover intentions over and above the variance explained by the two existing measures of general and emotional supervisor support. Finally, hierarchical regressions demonstrated that FSSB contributed significantly to workday work hour systolic BP above and beyond BMI, age, gender, and hours worked per week.

Our FSSB measure adds to research and practice in a number of ways. First, we demonstrate that FSSB is a distinct construct from general supervisor support. One can be supportive of individuals doing their job and not necessarily supportive of family. Second, our study fills an important practice gap by beginning to clarify what it means to be family supportive and reducing ambiguity on how to start to implement family support. Third, our measure attempts

to specifically focus on supervisor support independent of organizational level work-family climate and culture. Some prior measures have confounded these two concepts (cf. Thompson et al., 1999. Our measure will help studies to better assess support for family at the direct supervisor level, and be able to differentiate this support from more general organizational level work-family culture. Researchers will now be better able to understand whether supervisor support for family is an antecedent, outcome, or sub-component of work-family culture. Fourth, our measure can be used in managerial practices and the development of interventions for organizational change. Change efforts can be designed that build on increasing supervisors' understanding of how family support relates to general support.

Development, Implementation and Evaluation of Supervisor Intervention

We conducted one of the few existing quasi-experimental work-family intervention studies to date (Kelly et al., 2008), developing, implementing and evaluating the effects of a work-family supervisory training and self-monitoring intervention on work, health, and safety outcomes for employees. Following Kirkpatrick's (1959) four levels of training criteria, we demonstrated training effectiveness, with effects being most pronounced among those employees with higher levels of work-family conflict compared to lower levels of work-family conflict. This research suggests that training supervisors on FSSB is most beneficial to workers with high levels of work-family conflict, and that the benefits can be seen both for individual level health, as well as for organizational level outcomes such as job satisfaction and turnover intentions of workers and safety compliance.

Relatively little research knowledge on the design of human resource interventions and work-family policies to improve organizations has been translated into actual organizational practice (Rynes, Colbert, & Brown, 2001). Further, relatively little work-family research has been integrated with the knowledge on the design and implementation of longitudinal scientific-based interventions (e.g., Kelly et al., 2008; LaMontagne,et al., 2007; Sharf et al., 2008). This study makes several contributions to the literature related to these gaps.

First, taking into consideration the prevailing gap between research and practice, this field study demonstrated that training supervisors to be more family-supportive can improve reported health and productivity reports of their employees. We have added to knowledge of evidence-based management practice regarding work-family support (cf Rousseau, 2006). It is critical for work-family research evidence on the most effective practices to be translated into practice (Glasgow & Emmons, 2007).

Next, given that the effects of the intervention were most pronounced among those employees with higher levels of work-family conflict compared to lower levels of work-family conflict, we show the importance of workplaces implementing targeted interventions that address workers who need work-family support most. This study shows the importance of focusing analyses and change efforts on the target workforce segments most in need of employer support, many of whom are low-wage, hourly workers.

Third, we demonstrated the critical importance of supervisors in the work-family system. While it is a truism to say that supervisors matter for work–family policy effectiveness, ironically, very little work family research actually includes data from supervisors directly and then links those data to the reported health and productivity reports of employees. More work- family research needs to include actual data from supervisors and then match those data to the employees' work-life experiences.

Fourth, this study makes methodological contributions. Though much of the work family research states the importance of analyzing non-same source longitudinal data with a control group and a within-subjects design, few researchers actually use such rigorous approaches. Our study not only improved human resources translational research, it showed how to design studies that use better methodology to address work family issues.

Finally, we believe that our intervention is an example of primary prevention (i.e., targets changing the psychosocial workplace stressor before it creates stress), as it focuses on changing organizational structures and systems (i.e., the supervisory structure), as opposed to changing the individual employee. This intervention is targeted at the supervisor who, in this case, is seen as the source of stress (and/or the mediator of company policies or procedures that are also a source of stress). By training supervisors to be more sensitive and understanding about work-family demands of employees, and perhaps helping the employee grapple with stressful company procedures such as scheduling systems, we expected that the training could equip supervisors with the tools/behaviors to avoid or prevent stressful situations before they occur.

These findings are especially critical in a time when formal provision of family-friendly supports is not common given that most organizations do not, or can not, invest in such programs. Rather, more recent research suggests that it is critical to facilitate and enhance the informal supports for work and family via supervisory support and organizational support for work and family (e.g., Allen, 2001; Hammer & Zimmerman, forthcoming). Thus, our findings provide evidence of a relatively inexpensive and effective way of increasing FSSB, leading to benefits for both employees and supervisors.

Meta-Analysis

We conducted a meta-analysis to clarify multi-level relationships between individual perceptions of different *types* (work specific, work-family specific) and *sources* (supervisor, co-worker, and organizational) of workplace social supports (WSS) and work-family conflict (Kossek, Pichler, Hammer & Bodner, 2007). The meta-analysis of over 60 studies showed that supervisor support measures operationalized with *work-family specific referents* were the most strongly related to lower work-to-family conflict, and that the relationship between supervisor support and work-family conflict was partially mediated by perceptions of organizational support for family.

Overall, this meta-analysis showed that the sources and work-family specificity of workplace social support matters in reducing work-family conflict. We found that the strength of this

relationship is sometimes stronger for specific types of workers (women, those with children, older, professionals, managers) and in specific types of organizations (those that have lower use or availability of formal work-family policies, single employer sample, U.S.-based). Results usually showed that workplace social support was associated with lower work-to-family conflict, as compared to family-to-work conflict. If researchers and organizations are interested in reducing work-to-family conflict through increasing the effectiveness of workplace social support, this study suggests there are a variety of sources and levels in which to study processes as well as effectively intervene (organizational, supervisor, co-worker). We also found some important organizational and supervisor level mediation results suggesting different support processes operate for general workplace social support as compared to work-family specific support, which researchers have often overlooked.

Summary

We accomplished all of the objectives originally set out for this project and in doing so, have made great progress in the work-family field with regard to family-supportive supervisory behaviors. We have developed a measure of FSSBs that proves useful in not only assessing the construct, but also in providing guidance for training and development. Now supervisors and organizations have a tool demonstrating exactly what behaviors matter most to their workers in reducing work-family conflict. We used the FSSB construct to develop, implement and evaluate an intervention, which is shown to be effective in reducing work-family conflict, especially in those workers with the highest amount of conflict. This intervention benefited both the organization (e.g., increasing job satisfaction and safety compliance and reducing turnover intentions), and individual health and well-being. In sum, this study has the potential to advance the work-family field by addressing many of the limitations noted among existing work-family intervention research, and by ultimately improving the quality of work life in the future.

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Dissertations/Theses

Daniels, RJ: [Proposed 2009] Crossover of job demands and control on physical and mental health between spouses, Ph.D. Dissertation, Portland State University.

Zimmerman, KL: [Proposed 2009] Operationalizing the Antecedents of Work-Family Positive Spillover: A Longitudinal Study, Ph.D. Dissertation, Portland State University.

Submitted for Publication

Hammer LB ,Kossek EE, Anger WK, Bodner T, Zimmerman KL: [Revise and resubmit]Evaluation of a work-family intervention. Journal of Applied Psychology.

Kossek EE, Pichler S, Bodner T, Hammer LB: [Revise and resubmit] When Does Workplace Social Support Matter Most and For Whom? A Meta-Analysis of Linkages to Work-Family Conflict with Future Directions for Multi-Level Research. Personnel Psychology.

Organizational Feedback Report

Kossek EE, Hammer LB: [2008]. Spartan Grocery Stores Feedback Report. Unpublished technical report. Michigan State University and Portland State University.

VIII. INCLUSION OF GENDER AND MINORITY STUDY SUBJECTS

Study Title: Development of a Behavioral Measure of Supervisory Support
Total Enrollment: 592 **Protocol Number:** HSRRC Proposal #06211, 05181
Grant Number: U01 OH008788

PART A. TOTAL ENROLLMENT REPORT **Number of Subjects Enrolled to Date (Cumulative) by Ethnicity and Race**				
Ethnic Category	**Sex/Gender**			
	Females	**Males**	**Unknown or Not Reported**	**Total**
Hispanic or Latino	12	5	0	17**
Not Hispanic or Latino	318	216	0	534
Unknown (individuals not reporting ethnicity)	29	12	0	41
Ethnic Category: Total of All Subjects*	359	233	0	592*
Racial Categories				
American Indian/Alaska Native	2	5	0	7
Asian	2	0	0	2
Native Hawaiian or Other Pacific Islander	2	0	0	2
Black or African American	11	5	0	16
White	331	217	0	530
More Than One Race	2	1	0	3
Unknown or Not Reported	9	5	0	13
Racial Categories: Total of All Subjects*	359	233	0	592*
PART B. HISPANIC ENROLLMENT REPORT: Number of Hispanics or Latinos Enrolled to Date (Cumulative)				
Racial Categories	**Females**	**Males**	**Unknown or Not Reported**	**Total**
American Indian or Alaska Native				
Asian				
Native Hawaiian or Other Pacific Islander				
Black or African American				
White	5	2	0	7
More Than One Race				
Unknown or Not Reported	7	3		10
Racial Categories: Total of Hispanics or Latinos**				17**

* These totals must agree.
** These totals must agree.

VIII. INCLUSION OF CHILDREN

We interviewed 25 children of associates by telephone. The children were between the ages of 10 and 18 years. The interviews were approximately 15-20 minutes long. We recruited the sample through associates who were part of the larger study and who identified that they had a child in the appropriate age range. If the associate gave written consent, we obtained verbal consent from the child. Children were compensated with a $10 gift card after completing the interview.

The intent of including associates' children was to ascertain the potential affects of work-family conflict and associates' work stressors on other family members. Using Family Systems Theory as a guiding model, we posited that work-to-family conflict in the associate, in particular, would have a negative impact on the child's well-being. We asked questions about general school performance, family relationship satisfaction, parental supervision (e.g., did the child feel the parent generally knew of their whereabouts when not at home?), peer relationships, and general well-being.

The children were from ages 10 – 18 with a mean age of 13.5. Just about half were male (52%) and identified predominantly as White (92%). Unfortunately, because we were only able to recruit 25 children, there was not an adequate number to run robust statistical analyses. As we are still analyzing data, we hope to use these at a future date.

IX. MATERIALS AVAILABLE FOR OTHER INVESTIGATORS

Measure of Family-Supportive Supervisory Behaviors

Factor loadings and error variances for a multilevel second-order confirmatory factor analysis model for the FSSB

Factor	Item/Factor	Loading (SE)	Error Variance (SE)
Emotional Support	1. My supervisor is willing to listen to my problems in juggling work and nonwork life.	1.00	.30 (.04)
	2. My supervisor takes the time to learn about my personal needs.	1.02 (.06)	.39 (.05)
	3. My supervisor makes me feel comfortable talking to him/her about my conflicts between work and nonwork.	1.16 (.06)	.25 (.04)
	4. My supervisor and I can talk effectively to solve conflicts between work and non-work issues.	1.14 (.06)	.18 (.03)
Instrumental Support	5. I can depend on my supervisor to help me with scheduling conflicts if I need it.	1.00	.53 (.05)
	6. I can rely on my supervisor to make sure my work responsibilities are handled when I have unanticipated nonwork demands.	.88 (.11)	.55 (.05)
	7. My supervisor works effectively with workers to creatively solve conflicts between work and nonwork.	1.30 (.14)	.22 (.04)
Role Model	8. My supervisor is a good role model for work and nonwork balance.	1.00	.27 (.04)
	9. My supervisor demonstrates effective behaviors in how to juggle work and nonwork balance.	.93 (.04)	.22 (.03)
	10. My supervisor demonstrates how a person can jointly be successful on and off the job.	.77 (.06)	.29 (.04)
Creative Work-Family Management	11. My supervisor thinks about how the work in my department can be organized to jointly benefit associates and the company.	1.00	.30 (.03)
	12. My supervisor asks for suggestions to make it easier for employees to balance work and nonwork demands.	1.04 (.07)	.50 (.05)
	13. My supervisor is creative in re-allocating job duties to help my department work better as a team	1.16 (.07)	.41 (.05)
	14. My supervisor is able to manage the department as a whole team to enable everyone's needs to be met.	1.11 (.07)	.34 (.04)

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