



Published in final edited form as:

J Appl Psychol. 2011 January ; 96(1): 134–150. doi:10.1037/a0020927.

Clarifying Work-Family Intervention Processes: The Roles of Work-Family Conflict and Family Supportive Supervisor

Behaviors

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Please cite as: Hammer, L. B., Kossek, E. E., Bodner, T., Anger, K. & Zimmerman, K. 2011. Clarifying work-family intervention processes: The roles of work-family conflict and family supportive supervisor behaviors, *Journal of Applied Psychology*. 96 (1), 134-150.

Abstract

Drawing on a conceptual model integrating research on training, work-family interventions, and social support, we conducted a quasi-experimental field study to assess the impact of a supervisory training and self-monitoring intervention designed to increase supervisors' use of family supportive supervisor behaviors. Pre- and post-intervention surveys were completed, nine months apart, by 239 employees at six intervention (N = 117) and six control (N = 122) grocery store sites. Thirty-nine supervisors in the six intervention sites received the training consisting of one hour of self-paced computer-based training, one hour of face-to-face group training, followed by instructions for behavioral self-monitoring (recording the frequency of supportive behaviors) to support on-the-job transfer. Results demonstrated a disordinal interaction for the effect of training and family-to-work conflict on employee job satisfaction, turnover intentions and physical health. In particular, for these outcomes, positive training effects were observed for employees with high family-to-work conflict, while negative training effects were observed for employees with low family-to-work conflict. These moderation effects were mediated by the interactive effect of training and family-to-work conflict on employee perceptions of family-supportive supervisor behaviors. Implications of our findings for future work-family intervention development and evaluation are discussed.

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Oregon Health & Science University (OHSU) and Dr. Anger have a significant financial interest in Northwest Education Training and Assessment, LLC, a company that may have a commercial interest in the results of this research and technology. This potential individual and institutional conflict of interest has been reviewed and managed by OHSU.

Keywords

work-family intervention; family-friendly practices; supervisory training; supervisor support; quasi-experiment

Although the importance of increasing employers' work-family support has been widely advocated, there are two primary gaps in the literature indicating a need for more rigorous longitudinal and quasi-experimental research that is based on theory and designed to examine the processes and mechanisms by which this support operates. First, the work-family field is in need of studies that integrate research on family-specific supervisor support and work-family conflict with actual workplace human resource initiatives such as training designed to increase this support. Although there is a growing literature on the importance of perceived organizational and supervisor support for family in relation to key work-family outcomes (cf. Allen, 2001), more research is needed to examine the processes by which employee perceptions of family-specific supervisor support link to human resource change initiatives. Specifically, supervisory training to increase support for family is currently among the most frequently advocated interventions by work-life experts (cf. Hopkins, 2005). Further, while hundreds of studies have examined perceived organizational support for the family, the antecedents of work-family conflict, and how work-family conflict relates to key outcomes such as job satisfaction (cf. Eby, Casper, Lockwood, Bordeaux, & Brinley, 2005; Kossek & Ozeki, 1998; 1999), this literature is not well connected to the research on work-family interventions.

A second gap that has been identified in recent reviews pertains to the need for improvement in not only the quality of intervention research, but points out the lack of workplace intervention research in general (Macik-Frey, Quick, & Nelson, 2007; Scharf, Chapman, Collins, Limanowski, Heaney, & Goldenhar, 2008), and specifically within the work-family field (Casper, Eby, Bordeaux, Lockwood, & Lambert, 2007; Kelly, Kossek, Hammer, Durham, Bray, Chermack, Murphy, & Kaskubar, 2008). Critics of prior intervention research have argued that much of this work has limited effectiveness due to the use of tertiary prevention models rather than primary or secondary prevention models (Quick & Tetrick, 2003), and because this research frequently takes an individual rather than a workplace change perspective (LaMontagne, Keegle, Luo, Ostry, & Landsbergis, 2007; Scharf et al., 2008). In addition, relatively little research on the design of human resource interventions and work-family policies have been translated into actual organizational practice (Rynes, Colbert, & Brown, 2002). Very little work-family research has been implemented using quasi-experimental designs to assess interventions (e.g., Kelly et al., 2008; LaMontagne, et al., 2007; Scharf et al., 2008). Finally, workplace interventions to reduce job stress and work-family stress have been criticized as poorly designed and implemented, suggesting more research is needed to clarify the conditions under which these interventions are likely to be most successful (LaMontagne et al., 2007). For example, certain interventions may be particularly effective for specific subgroups within the organization and must in turn be designed to target those "in need" of the intervention, rather than the entire organization.

Study Goals, Model Overview, and Theoretical Rationale

In order to address these gaps in work-family intervention research, the current study evaluated the conditions and processes under which a work-family intervention, specifically designed to increase employee perceptions of family-specific support, led to job satisfaction, decreased intentions to turnover, and improved physical health. Integrating theory from research on training, work-family interventions, social support, and perceived organizational

support, we developed and tested the model shown in Figure 1. This model highlights the moderating effects of work-family conflict and the processes by which a family supportive supervisory intervention impacts job and health outcomes. Using a longitudinal quasi-experimental design, we tested the model by assessing the impact of a training and self-monitoring intervention designed to increase supervisors' use of family-supportive supervisory behaviors (FSSB) (Hammer, Kossek, Zimmerman, & Daniels, 2007) to improve health and job outcomes.

Overall the model has three tenets. First is the premise that the effectiveness of a family-supportive training intervention will vary depending on the degree of employee need for support. Specifically, employee need for support is operationalized as those with high levels of work-to-family conflict and family-to-work conflict, compared to those with low levels of such conflict. Thus, relationships between the intervention and positive health and work outcomes are expected to be moderated by work-family conflict. Here we argue that those employees with higher levels of both work-to-family conflict and family-to-work conflict have a greater psychological need for support.

Second, we assume that increasing perceptions of work-family specific supervisor support is necessary to improve work, family, and health outcomes. While general supervisor support has been shown to enhance employee job attitudes such as job satisfaction (Thomas & Ganster, 1995; Thompson & Prottas, 2005) and to be negatively related to turnover intentions (Thompson et al., 1999, Thompson & Prottas, 2005), recent research has also demonstrated that employee perceptions of family supportive supervisor behaviors are positively related to these outcomes over and above the effects of general supervisor support (Hammer, Kossek, Yragui, Bodner, & Hanson, 2009). Thus, we focused our intervention to support work-family needs in order to produce stronger effects than would result from more general supervisor support. Similar to the findings of Karasek (1979) on the moderating effects of supervisor support on high-strain jobs, we expected that employee reports of physical health will improve when supervisors are trained to be more supportive of family needs.

Third, we suggest that an employee's perception of work-family supervisor support is the mechanism, or mediating process, through which our work-family intervention relates to job and health outcomes. We expect that employees who perceive greater work-family support from supervisors will have additional resources and be likely to have more control over management of work and family demands which should lead to positive job and health outcomes. Below we provide background drawn from the training and self-monitoring literatures on the rationale for the design of the specific intervention we developed to test our model. This is followed by the theoretical rationale for the model hypotheses and constructs.

FSSB Training and Self Monitoring: An Effective Work-Family Intervention

While some research exists on the availability and use of work-family supportive policies and practices, there is a lack of evaluation of the effects of those policies and practices on individual and organizational outcomes (e.g., Kelly et al., 2008). 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). New research has been conducted to clarify the FSSB construct, and this research forms the basis for the development of our training and self monitoring intervention (Hammer et al., 2009).

Family-supportive supervisor behaviors, or FSSB, is conceptualized as behaviors exhibited by supervisors that are supportive of families and consists of the dimensions of *emotional support* (supervisors providing support by listening and showing care for employees' work-

family demands), *instrumental support* (supervisors responding to an employee's work and family needs in the form of day-to-day management transactions), *role modeling behaviors* (supervisors demonstrating how to synthesize work and family through modeling behaviors on the job), and *creative work-family management* (supervisor-initiated actions to restructure work to facilitate employee effectiveness on and off the job; Hammer et al., 2009; Hammer et al., 2007). Thus, our supervisor training focused on teaching behaviors to supervisors who would implement this FSSB construct in their workplace.

Supervisors and companies often face barriers and challenges in fully implementing family supportive workplace policies and practices (Ryan & Kossek, 2008). One reason for this is that supervisor support for family has only recently become a popular issue in the workplace and it is a relatively new expectation that managers demonstrate family support on the job (Lirio, Lee, Williams, Haugen, & Kossek, 2008). Consequently, we anticipate that supervisors may not necessarily exhibit high levels of FSSB without being trained. Trained supervisors would better understand the rationale for FSSB, and be socialized to see FSSB behaviors as important to exhibit. Trained supervisors would also have a greater understanding of how to actually engage in these behaviors and would view the training as a signal that the organization values support of employees' work-family needs. Taken together, we believe that supervisors who are trained to exhibit FSSB will be more likely to have employees who perceive them as being more supportive of work-family needs.

Although training supervisors is a good first step toward increasing supervisor support for work-family demands, when implemented, many organizations conduct training as an isolated change strategy. In line with the training research, we argue that it is critical for training to include a design that fosters motivation to transfer the training content to the job (e.g., Burke & Day, 1986; Ford et al. 1997). Burke, Sarpy, Smith-Crowe, Chan, Islam, and Salvador (2006) conducted a meta-analysis of 95 quasi-experimental workplace safety and health intervention studies and found limited evidence of effective training when there was little engagement of participants. They calculated effect sizes for those methods they categorized as highly engaging (interactive face-to-face training), moderately engaging (interactive training such as computer-based with feedback), and least engaging (printed materials) and found that only highly engaging training designed to motivate training transfer was associated with large effect sizes (d above 0.8) per Cohen (1988). Thus, it is important to strengthen the effects of training programs by increasing the engagement of participants.

Training effectiveness may be more engaging if the training includes a component that motivates individuals to transfer newly learned skills to the actual work environment. One approach for supporting transfer of training is to ask individuals to set goals, monitor their behavior over time, and discuss results. Such behavioral self-monitoring processes are widely applied in clinical settings to motivate behavior change (Elliot, Miltenberger, Kaster-Bundgaard, & Lumley, 1996; Korotitsch & Nelson-Gray, 1999) and are increasingly used in workplace settings to support the transfer of training (Olson & Winchester, 2008). Behavioral self-monitoring is a technique in which individuals repeatedly observe, evaluate, and record aspects of their own behavior (e.g., Hickman & Geller, 2003a; 2003b; Krause, 1997; Olson & Austin, 2001; McCann & Sulzer-Azaroff, 1996). Olson and Winchester (2008) conducted a meta-analysis on 24 studies of behavioral self-monitoring in different workplaces. They calculated a mean effect size of $d = 2.2$ for studies of self-monitoring, demonstrating the importance of designing attitudinal and behavioral change training that motivates transfer of training to the workplace. In the present study we implemented a work-family training intervention that informed supervisors about the importance of increasing work-family specific supportive behaviors and asked supervisors to set goals to self-monitor the frequency of these FSSB for several weeks after the training.

Work-Family Conflict: A Moderator of the Effectiveness of a Work-Family Intervention

Many studies of work-family policies and initiatives are based on correlational designs, but few evaluations of work-family interventions have been based on quasi-experimental designs. In one of the few published quasi-experimental work-family interventions, Kossek and Nichol (1992) demonstrated that the positive effects of using an on-site child care center were assessed most effectively when the intervention effects were focused on those in need of the intervention, such as employees with young children who needed organizational support for family responsibilities, compared to those who needed but were not receiving support. Similarly, we believe that the FSSB training and self-monitoring intervention will vary in effectiveness depending on individual level work-family conflict (work-to-family and family-to-work). Given the well-documented finding that individuals with high work-family conflict are more likely to have higher intentions to turnover, lower reports of health (Allen, Herst, Bruck, & Sutton, 2000; Greenhaus, Parasuraman, & Collins, 2001), and lower job satisfaction (Allen et al., 2000; Eby et al., 2005; Kossek & Ozeki, 1998), we expected that training supervisors to be more supportive of family needs would be more effective for employees who experience high work-family conflict (both work-to-family conflict and family-to-work conflict) compared to those with low work-family conflict.

In addition, some theorists would argue that a supervisor support intervention would generally have a stronger effect on reducing work-to-family conflict compared to family-to-work conflict because the source of the support is the supervisor (i.e., work-related; Frone et al., 1992). However, given that our intervention is specific to family supportive supervision, we believe that there is just as much of an argument that it would be effective in reducing family-to-work conflict, since having a supportive supervisor could make it easier for employees to restructure work to handle family demands. This is also consistent with findings of the reciprocal, bidirectional effects, and moderate to high correlation found between work-to-family conflict and family-to-work conflict (e.g., Frone et al., 1992). Thus, we are not hypothesizing differential effects for work-to-family conflict as a moderator versus family-to-work conflict as a moderator. Rather, we expected that both directions of work-family conflict would *moderate* the effects of the training on work and health outcomes. This led to our first hypothesis:

H1: Employee work-family conflict will moderate the effects of the family-supportive supervisory training intervention on employee job satisfaction, turnover intentions, and physical health. In particular, employees with higher levels of work-family conflict (i.e., work-to-family; family-to-work conflict) in stores where managers receive training will report higher levels of physical health and job satisfaction and lower levels of turnover intentions compared to employees with higher levels of work-family conflict in stores where managers did not receive the training. These differences between the treatment and control conditions will be smaller for employees with lower levels of work-family conflict.

Employee Perceptions of FSSB: A Mediator of the Moderating effects of Work-Family Conflict and Work-Family Intervention Effectiveness

Poor psychosocial work environments, including a combination of high demands, low control, and low support, are related to poor health (e.g., Belkic, Landsbergis, Schnall, & Baker, 2004; De Lange, Taris, Kompier, Houtman, & Bongers, 2003; Landsbergis, 1988). Drawing on the demand-control-support and the conservation of resources (COR; Hobfoll, 1989) models, increasing supervisor support for family is theorized to give employees greater perceptions of social support in the workplace as well as greater control over how to perform work and family responsibilities as a result of the increased supportive resources provided by the supervisor. Extending our rationale to the general social support literature (Cohen & Willis, 1985), employee perception of FSSB is expected to reduce the negative

effects of stress, more generally by providing a resource to employees through family-specific supervisory support (e.g., Demerouti, Bakker, Nachreiner & Schaufeli, 2001; Hobfoll, 1989). Thus, we predicted that employee's perceptions of FSSB may act as a mediating mechanism to the effects of the intervention on work and health outcomes, and that these effects are moderated by work-family conflict (i.e., work-to-family conflict; family-to-work conflict). Overall, we predicted that training supervisors on how to increase family-supportive behaviors would create increased perceptions of FSSB for those employees who are high on work-family conflict compared to those who are low on work-family conflict, which would in turn positively impact the employee outcomes of job satisfaction, turnover intentions and physical health. Thus, we hypothesized the following:

H2: The interactive effect of supervisory training and employee work-family conflict (i.e., work-to-family conflict and family-to-work conflict) on FSSB will mediate the moderating effects of work-family conflict on training outcomes.

Method

Design

The study was conducted in 12 grocery stores in a Midwest U. S. grocery chain. A total of six stores were randomly chosen as the intervention sites with six other stores serving as control sites. Each of the 12 stores had at least one store manager and anywhere from one to nine supervisors or department heads. The number of employees per store ranged from 30–90. Our intervention study used a pre-test/post-test control-group design.

Participants

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 total of 39 supervisors received the training in the six intervention stores. The training intervention was implemented as part of company-mandated supervisory training but the self-monitoring was optional for supervisors.

A total of 117 employees who participated in the study were in the intervention stores and 122 employees were in the control stores. A majority of the employees worked as cashiers. Many of the employees worked part time, which is common in the grocery industry; 48% reported part-time and 52% reported full-time work schedules. All participation occurred during paid company time, and each employee and supervisor received a \$25 gift card for each survey (pre- or post-intervention) in which they participated.

Sample characteristics are listed in Table 1. However, our study and analyses are focused only on those employees who participated at both pre-intervention and post-intervention (viz., 239). A total of 360 (61% response rate) employees participated in the pre-intervention data collection, and 239 (67% response rate) employees participated in the evaluation data collection post-intervention. 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 both a child and an adult. There were no significant differences on key demographic variables between the control and experimental groups at pre-intervention except for age. The experimental group was two years older than the control group.

Of the 239 who participated in the post-training survey, 22% were men and 77% 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.

Development of a Supervisor Work-Family Intervention

The intervention consisted of three components: computer-based training, face-to-face training, and behavioral self-monitoring, all focused on improving family supportive supervisor behaviors. The training was designed to enhance supervisors' skills and motivation to increase their interpersonal contact with employees and support of employees' needs in managing the work-family interface. As part of the intervention supervisors were also asked to participate in a behavioral self-monitoring activity for two weeks following the training to increase the transfer of the training to on-the-job behaviors.

Computer-based supervisor 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 (e.g., Anger, Rohlman, Kirkpatrick, Reed, Lundeen, & Eckerman, 2001; Anger, Stupfel, Ammerman, Tamulinas, Bodner, & Rohlman, 2006; Eckerman, Abrahamson, Ammerman, Fercho, Rohlman, & Anger, 2004). The software employs: (a) established behavioral training principles of spacing and interactivity (frequent quizzes, immediate feedback, high accuracy criterion); (b) clear system training instructions, so students do not require coaching on how to use the program; (c) icon-based navigation cues always on-screen, so there are no commands to remember; and, (d) ready implementation of pictures and/or a movie on all screens.

The computer-based training content was developed based on a review of the work-family literature, as well as site visits, interviews, and focus groups in several grocery chains, in order to enhance generalizability of content. The supervisor training provided: (a) background information on the benefits of reducing work-family conflict for employees' and their families' health and well-being; (b) the organization's motivation for reducing work-family conflict, including concerns about retention, absenteeism, and health costs; (c) information on the company's current work-family policies and programs; (d) definitions and examples of the four FSSB dimensions (viz., emotional support, instrumental support, role modeling behaviors, and creative work-family management strategies) described above; (e) data on the existence of a consistent perceptual gap between employees and supervisors regarding work-family support (i.e., employees evaluated the interest and support of their family needs by their supervisors as low, whereas supervisors viewed their interest and support as higher) based on pre-test/needs analysis survey data; and (f) a description of the self-monitoring program in which they would be invited to participate during the subsequent 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 requiring a correct answer to progress. An example of a multiple choice item on the knowledge test that revealed a large amount of learning between the pre- and post-test is: "Which of the following is true about work schedules and work hours among U.S. employees? 1. 30% of working women work evenings and weekends [correct answer]; 2. Most employees work nontraditional shifts; 3. Working nontraditional shifts is related to better health; 4. Most working fathers work part time."

Face-to-face training—The one-hour face-to-face training was conducted by one or more of the first three authors following an outline that addressed the following points: (a) expression of appreciation to the company for supporting the surveys and intervention; (b)

voluntary nature of the request to change behavior over the next month and the self-monitoring procedures, with distribution of consent forms; (c) description of self-monitoring procedures and opening an opportunity for questions about the procedures; (d) request for written reaction feedback on the face-to-face training; (e) statement that the goal of the training is to change practices of supervisors, emphasizing emotional support, modeling healthy work-family behavior, schedule conflict resolution, knowledge of company policies and cross-training on work skills (i.e., FSSB); (f) 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; (g) role-play by presenters of filling out self-monitoring cards, and request for volunteers to fill in their estimate both how often they currently perform these behaviors and their goal for the following weeks; and (h) distribution of certificates for completing the training and a small gift with the universities' logos (pen, calculator). Prior to receiving their certificate, participants completed training reaction questionnaires on the computer-based training (five items) and face-to-face training (four items) that addressed the frequency of other supervisor training, ratings of the training they received and the usefulness of the training. An example item was "How do you rate the information you learned in the computer-based training that you took yesterday or the day before?" (1 = *Poor*, 2 = *Not very good*, 3 = *Neutral*, 4 = *Good*, 5 = *Excellent*).

Behavioral 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 six behaviors and to set a goal of increasing the frequency of those six behaviors. The behaviors were: (a) speak with store employees; (b) ask something about an employee's family; (c) say something about their (the supervisor's) family; (d) give positive feedback about an employee's work performance; (e) suggest a constructive improvement in an employee's performance; (f) initiate a question about, or offer a way to improve, an employee's schedule.

The computer-based and face-to-face training requested that the supervisors carry a three by five inch "Supervisor Daily Data Card" and mark each time they carried out one of the six behaviors noted above, each of which was pre-printed on the card. One card was provided for each day. In order to provide a baseline and a goal, the supervisors were asked, in the face-to-face training, to provide an estimate of how frequently they *currently* performed each behavior each day, and to set a goal of how much they would increase it (supervisors 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 two to three weeks.

Procedures

Pre-intervention and post-intervention surveys were administered to employees individually in face-to-face interviews. Each interview consisted of 196 survey questions and lasted 35–50 minutes. This process led to virtually no missing data. Surveys were typically administered in managers' offices or in break rooms of the stores for quiet and privacy.

The intervention took place approximately nine months after the pre-intervention survey was administered. The post-intervention data were collected approximately one month following the end of the intervention. The computer-based training was set up for managers in a private area of the grocery store such as a break room or in the managers' office area. The self-paced computer-based training lasted approximately one hour. Usually, one to two days after the computer-based training was delivered to all managers, and the 60 to 90 minute group face-to-face training session was provided at the grocery store during a slow time of the work day. At the end of the one-hour face-to-face session, the optional behavioral self-

monitoring described in the computer-based training was re-introduced. Given that this portion of the training intervention required managers to provide informed consent, not all managers chose to participate.

Pre-Intervention /Post-Intervention Survey Measures

Family supportive supervisor behaviors (FSSB)—This 14-item scale developed by Hammer et al. (2009) included four dimensions: *emotional support* (5 items, $\alpha = .90$), *role modeling behaviors* (3 items, $\alpha = .86$), *instrumental support* (4 items, $\alpha = .73$), and *creative work-family management* (6 items, $\alpha = .86$). A sample emotional support item is “My supervisor is willing to listen to my problems in juggling work and nonwork life.” A sample role modeling item is “My supervisor is a good role model for work and nonwork balance.” A sample instrumental support item is “I can depend on my supervisor to help me with scheduling conflicts if I need it.” A sample creative work-family management item is “My supervisor thinks about how the work in my department can be organized to jointly benefit employees and the company.” The reliability estimate for the total FSSB scores was .94; the total score was used in the analyses with higher scores representing higher levels of the construct.

Work-family conflict—The construct of work-family conflict was measured in two directions with a total of 10 items (Netemeyer et al., 1996). A sample item is “The demands of my work interfere with my home and family life.” Coefficient-alpha reliability for work-to-family conflict was estimated at .87, and at .85 for family-to-work conflict. Higher scores represented higher levels of the constructs.

Job satisfaction and turnover intentions—Job satisfaction was measured with a 5-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. Higher scores represented higher levels of job satisfaction. 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. Higher scores represented higher levels of intentions to quit. All of the above scales were based on 1 = strongly disagree to 5 = strongly agree Likert-type response scales.

Physical health—Physical Health was measured with the SF-12 (v2) 7-item physical composite score (Ware, Kosinski, & Keller, 1996). The SF-12 is an internationally used self-report assessment of subjective health, with physical health and mental health composite scores with means of 50 (± 10 SD; Kudielka, Hanebuth, von Kanel, Gander, Grande, & Fischer, 2005). 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?” Scores were reverse-coded such that higher levels of the construct indicated more positive health. The reliability for the Physical Health Composite Score of the SF-12 in our study was .82.

Summary of Training Outcome Measures: Reaction, Learning, Behavior, and Results

Using Kirkpatrick's (1959) classification of training criteria, we moved beyond training reactions, the most frequently used criterion measure to evaluate training (e.g., Alliger, Tannenbaum, Bennett, Traver, & Shotland, 1997; Arthur, Bennett, Edens, & Bell, 2003; Sitzmann, Brown, Casper, Ely, & Zimmerman, 2008), and extended our evaluation to include learning, behavior, and results criteria. Furthermore, these methods were based on data from supervisors and their employees. More specifically, we used (a) supervisor reaction questionnaires immediately following the computer-based and face-to-face training (i.e., Reaction Criteria); (b) supervisor multiple choice knowledge tests (pre-test/post-test)

embedded in the computer-based training (i.e., Learning Criteria); (c) supervisor self-reports of family-supportive behaviors based on completion of the Supervisor Daily Data Cards in the weeks following the training (Behavior Criteria); and (d) employee surveys about work and family, safety, and health outcomes before and after the intervention (Results Criteria).

Results

Training Outcomes for Supervisors: Reaction, Learning, and Behavior Criteria

A total of 39 supervisors from the intervention stores received the work-family intervention training (computer-based and face-to-face); 32 of these 39 supervisors participated in the self-monitoring. The self-monitoring was voluntary as opposed to the company-mandated training.

Reactions of supervisors ($N = 39$) indicated that they found the computer-based training to be useful. Supervisors rated the information they received in the computer-based training as 'Good' ($M = 4.10$; $SD = .50$) and they indicated that both the computer-based training and the face-to-face training formats had a moderate to high degree of perceived usefulness ($M = 3.65$; $SD = .67$ for computer-based, and $M = 3.32$; $SD = .58$ for the face-to-face training).

Learning was assessed using the pre-/post-test scores from the computer-based training. The supervisors scored a mean percent correct of 74.1% ($SD = 11.4\%$) on the pretest, and they improved to 91.8% ($SD = 10.4\%$) on the post-test. This difference is significant, $t(39) = 7.77$, $p < .001$, $d_{\text{gain}} = 1.23$, an effect size considered large per Cohen (1988). Thus, the computer-based training taught the material effectively based on the results of the multiple-choice test.

Behavior criteria were assessed using self-monitoring data. Of the 39 managers who completed the computer-based training, 32 (80%) volunteered to self-monitor and all but four completed Supervisor Daily Data Cards on a mean of 7.5 days ($SD = 3.7$) over a 25-day period; the range of the number of days on which managers completed cards was 1–15 days.

Of the supervisors who completed cards during the intervention, 24 listed estimates of the frequency of the six behaviors we asked them to increase and 23 set goals for how much they would increase the frequency of those behaviors. The mean goal ranged from an increase of 63% for the number of times they would speak to employees, to 107% for the number of times they would initiate a conversation about scheduling with an employee (typically increasing from one time per day to a goal of two times per day).

Self-report data on the individual behaviors we requested supervisors to increase also suggests that they did in fact increase. Given the total potential opportunities for supervisors to exceed their estimated baseline number of behaviors (24 supervisors \times 6 behaviors) and meet or exceed their goals (23 \times 6), 62.5% exceeded their estimated baseline number of behaviors at least once and 48.6% met or exceeded their goals at least once during the intervention. While we emphasized in the training that the purpose of the cards was to allow them to be more objective and thus accurate about their actual behavior (and that the data would not be shown to management), we were not able to conduct independent observations of supervisor behaviors to verify these self-reports.

Impact of Supervisor Training on Employee Outcomes: Results Criteria

Of the 360 employee participants at baseline, 239 were also available at follow-up. Two techniques were used to assess and minimize the potential biases that this level of attrition may produce. First, we assessed the bivariate relationships between the variables under study and a variable indicating whether the employee was or was not available at follow-up.

We found no significant difference in the percentage of drop-outs in stores with (35%) and without (36%) the supervisor training, $\chi^2(1, N = 368) = 0.06, p = .82$. However, we did find that drop-outs had significantly lower mean job satisfaction ($M = 3.31, SD = 0.71$) than completers ($M = 3.47, SD = 0.65$), $t(358) = 1.99, p < .05$, and drop-outs had significantly higher mean turnover intentions ($M = 2.64, SD = 1.22$) than completers ($M = 2.34, SD = 1.02$), $t(358) = 2.49, p = .01$. In fact, we found that 71 of the total 121 people who dropped out of the study between baseline and follow-up no longer worked at the company. No other significant differences were found for the variables under study. Given the differences found in two important study variables, we used a modeling technique that can account for such differences to minimize bias. Thus, second, we used the full-information maximum likelihood routine in Mplus 4.2 (Muthen & Muthen, 2005) to conduct all of the regression analyses that follow. This routine provides unbiased estimation of model parameters when the data are missing-at-random (i.e., variable missingness does not depend on the variable's value but can depend on other observed variable values). Given that, in the regression analyses that follow, the outcome variables at follow-up are predicted by the same variables at baseline, along with several other control variables that are almost completely observed, we found "missing-at-random" to be a reasonable assumption.

The means, standard deviations, and correlations among study variables are in Table 2. Multiple regression analyses were used to evaluate the study hypotheses. In these regression analyses, we focused primarily on the effect of training, the interactive effect of training and work-to-family conflict, and the interactive effect of training and family-to-work conflict on post-intervention work and health outcomes while controlling for pre-intervention levels of those outcomes. Ideally, we would have employed multilevel modeling given the nesting of stores within training conditions and employees within stores; however, the number of stores (i.e., six stores per treatment condition) precluded precise estimation of random effects across stores. Therefore, as is typical in such cases, store differences and the training indicator were modeled as fixed effects at the same level as the employees, yielding a one-level model. This modeling decision necessarily limits the generalizability of these results. However, we feel that generalizability in research is best served through replication rather than through assumptions about the random sampling of stores.

In these analyses, we controlled for the store level variables through a series of 10 orthogonal contrasts (i.e., five contrasts within each treatment condition). These contrasts are not of substantive interest and therefore they are not labeled; they are meant only to account for store differences that are independent of the training effect. In these analyses, we also controlled for several employee variables. Specifically we controlled for the outcome variable assessed at baseline, whether or not the employee was living as married with a partner, whether or not the employee had elderly parents living at home, how many children the employee had living at home, and the typical number of hours worked in a week. To facilitate interpretation, all predictor variables were mean-centered. Table 3 presents the results of these regression analyses to test H1 where the key predictors and parameters are italicized.

As presented in the Treatment row of Table 3, supervisor training led to a significant increase in Physical Health, but no significant change in Job Satisfaction or Turnover Intentions when evaluated at the mean for Family-to-Work and Work-to-Family conflict and controlling for the other store and employee level predictors. However as presented in the T*BFWC (treatment by Family-to-Work conflict) row in Table 3, all of these training effects were qualified by significant interactions between training and Family-to-Work conflict at pre-intervention on these outcomes. Furthermore, the training effect on Physical Health at follow-up was also qualified by a Treatment by Work-to-Family conflict

interaction. No other significant interactions of treatment with Work-to-Family conflict on the outcomes were observed.

Figures 2 and 3 present graphs of these interactions where the effect of training is evaluated at one standard deviation above and below the pre-intervention Family-to-Work (or Work-to-Family) conflict mean. Panel A of Figure 2 displays the interactive effect of training and Family-to-Work conflict on Physical Health at follow-up. Figure 3 displays the interactive effects of training and Family-to-Work conflict at baseline on Job Satisfaction and Turnover Intentions at follow-up. Inspection of these figures demonstrates that the interactive effect of training and Family-to-Work conflict on these outcomes is disordinal in nature (i.e., the direction of the treatment effect changes for those low versus high in Family-to-Work conflict). At high levels of Family-to-Work conflict at baseline, employees in stores with training exhibited higher levels of Job Satisfaction and Physical Health and lower levels of Turnover Intentions than similar employees in stores without training. However, at low levels of Family-to-Work conflict at baseline, employees in stores with training exhibited lower levels of Job Satisfaction and Physical Health and higher levels of Turnover Intentions than similar employees in stores without training.

Panel B of Figure 2 displays the interactive effect of training and Work-to-Family conflict on Physical Health at follow-up. Here an ordinal interaction was observed. That is, the direction of the effect of treatment on the outcome was consistent for the values of Work-to-Family conflict. At lower levels of Work-to-Family conflict, employees in stores with training exhibited higher levels of Physical Health than similar employees in stores without training. At higher levels of Work-to-Family conflict, the magnitude of this difference due to training was smaller. This finding is contrary to our hypothesis and will be discussed later. In all, these findings demonstrate that family-supportive supervisor training was especially successful at improving work and health outcomes for those workers with greater degrees of Family-to-Work Conflict, but was not successful and even had negative effects for those with lesser degrees of Family-to-Work conflict. Furthermore, the hypothesized effects were not observed for those with higher levels of Work-to-Family Conflict.

Evaluation of Process: Mediated Moderation Analyses

Next we turn to an evaluation of the theoretical process underlying these interaction effects. Recall that the supervisor training was designed to improve family-supportive supervisor behaviors and that the positive effects of this training on employee work and health outcomes should theoretically be attributable to increases in employee perceptions of FSSB. This would be particularly true for employees with higher levels of work-family conflict, as suggested in H2. Therefore, we conducted mediated moderation analyses (Muller, Judd, & Yzerbyt, 2005).

In classic mediation analysis (Kenny & Judd, 1984), the mediated effect is a direct or main effect; in mediated moderation analysis, the mediated effect is an interaction. Despite this important difference, the modeling process is similar in that it requires four criteria to be met across three separate regression analyses. The first regression analysis must establish the effect of interest (here the interactive effect of training and Family-to-Work conflict or Work-to-Family conflict) on the outcome of interest (here Physical Health, Job Satisfaction, or Turnover Intentions). The second regression analysis must establish the effect of interest on the mediating variable (here FSSB). The third regression must establish the effect of the mediating variable on the outcome of interest (controlling for the effect of interest) and must make the effect of interest on the outcome variable disappear (controlling for the mediating variable). All four criteria are required to justify a claim of complete mediation; a claim of partial mediation is justified if all but the final criterion is met but the magnitude of the effect of interest on the outcome of interest is weakened.

Tables 4–6 display the results of the mediated moderation analyses conducted for the outcomes of Physical Health, Job Satisfaction, and Turnover Intentions, respectively. These results support the claims that FSSB partially mediates the interactive effects of training and Family-to-Work conflict on Job Satisfaction and Turnover Intentions. However, no claim can be made that FSSB mediates the interactive effect of training and Family-to-Work Conflict on Physical Health, nor the interactive effect of Work-to-Family Conflict on Physical Health, Job Satisfaction or Turnover Intentions; these interactive effects must be due to other processes. In light of these results, Hypothesis 2 was only partially supported.

Discussion

Summary of Findings

The goal of this study was to develop, implement, and evaluate a family-supportive supervisory training intervention, integrating research from training and workplace interventions (e.g., Burke et al., 2006; Goldstein & Ford, 2002; LaMontagne et al., 2007) and social support theory (e.g., Cohen & Willis, 1985). Using pre- and post-intervention data, we conducted one of the few existing quasi-experimental work-family intervention studies reported to date. The results of this study demonstrate that, although the family-supportive supervisor training intervention was successful at improving work and health outcomes for those workers with higher levels of family-to-work conflict, ironically at the same time the training resulted in *detrimental* outcomes for employees who exhibited lower levels of family-to-work conflict. Furthermore, the expected moderating effects of work-to-family conflict were not found for the outcomes of job satisfaction and turnover intentions and were actually in the direction opposite to what was expected for the outcome of physical health. This demonstrates that those employees with the highest levels of work-to-family conflict reported the highest, as opposed to the lowest, levels of physical health.

Furthermore, the results of this study help to clarify the processes by which a supervisory training intervention affected employee outcomes. Namely employee perceptions of FSSB mediated the interactive effects of the intervention and work-family conflict (both work-to-family conflict and family-to work conflict) on job satisfaction and turnover intentions. However, FSSB did not mediate the interactive effect of training and work-family conflict (both family-to-work conflict and work-to-family conflict) on physical health.

Based on analysis of the data from the supervisors who received the training, we conclude that the supervisors generally reported that the training and self-monitoring intervention was useful. In addition, the tests embedded in the computer-based training indicated that the supervisors learned the material. Evidence of the supervisor training transferring to on-the-job behaviors was also demonstrated. Thus, in sum, our data show that the supervisors responded favorably to the training and that the training led to behavior changes on the job that in turn, impacted employee work and health outcomes. Below is a more detailed discussion of the study findings.

Employee Outcomes Associated with Supervisory Training

Two surprising findings emerged from the data that necessitate further discussion. First, we discuss the results associated with the moderating effect of work-family conflict. Second, we discuss the unique unexpected findings associated with the physical health outcome.

Moderating effect of work-family conflict—While there was support that the training had a positive impact on outcomes for some employees, our findings were surprising in that the intervention had detrimental effects on those individuals who were initially lower in family-to-work conflict. There are two related possible explanations for these findings:

“family-friendly backlash” and workgroup blending. First, it may be that the intervention had a negative backlash effect for individuals low in family-to-work conflict who may have resented that company resources or attention were being allocated to work-family supports that they were not likely to need or use. Those individuals with low levels of family-to-work conflict could have viewed the intervention as offering support that specifically favored those with families. Work-family backlash may occur due to an in- and out-group bias effect, as Grover (1991) found in a study of hypothetical work-family benefits. Employees who have lower need for work-family support may have negative reactions because they do not benefit directly from the supports and thus do not perceive it is fair (Thompson, Beauvais, & Allen, 2006). Furthermore, research by Parker and Allen (2001) found that fairness perceptions of family-friendly benefits were more positive among those who appeared to “gain the most” from the benefit, but that identifying this group was somewhat complicated (p. 456). In other words, they suggested that we can not simply examine the relationship between individual variables, such as parental status, and fairness perceptions because other factors, such as age of children, will most likely influence this relationship. Our findings suggest that those who may gain the most from our intervention are those with higher levels of family-work-conflict than to those with lower levels of family-to-work conflict. Thus, we conducted post-hoc analyses that are consistent with this suggestion of a backlash effect. Those analyses demonstrated that employees with lower family-to-work conflict in the training intervention stores actually rated their supervisors lower in FSSB than did similar employees in control stores, after controlling for the pre-intervention FSSB scores. Specifically, training leads to higher FSSB scores *only* for those employees with high family-to-work conflict, and the training actually led to decreased FSSB among those with low and mean levels of family-to-work conflict. Additional post-hoc analyses found that there were no significant differences between those with and without family responsibilities on FSSB or any of the outcomes. This may suggest that the subjective perception of having high family-to-work conflict is a more important moderator to consider than is the objective measure of having dependent care responsibilities (versus no responsibilities).

A second, but related possible explanation is the need to plan for tactics to address the unintended consequences of intervention implementation with an eye toward “blended work groups.” By this we mean that every work group has a mix of employees in high need and low need of a particular intervening work practice. Perhaps supervisors increased their FSSB behaviors in ways that had some detrimental effects on employees with low work-family conflict. It is also possible that supervisors focused their supportive behaviors on those with high family-to-work conflict. That is, supervisors’ actual behaviors may have been different towards those with high versus those with low family-to-work conflict.

Physical health findings compared to other outcomes—Tests of our hypothesis revealed that family-supportive supervisor training led to a significant increase in reports of physical health compared to the control group, but no significant change in job satisfaction and turnover intentions when evaluated at the mean for family-to-work and work-to-family conflict. In other words, the intervention appeared to have a beneficial impact on physical health reports, while the effects on job satisfaction and turnover intentions were only beneficial at high levels of family-to-work conflict, compared to low levels of family-to-work conflict. Thus, when making the case for this work-family intervention, one must be careful to clarify that this intervention is effective for some employees and not for others depending on the outcome of interest, leading to limitations in its utility.

In addition, the training effect on physical health was qualified by a treatment by work-to-family conflict interaction, such that the training was more effective for this outcome for those with lower levels of work-to-family conflict, contrary to our predictions. While employees in the treatment stores reported higher levels of physical health compared to

those in the control sites (as expected), these effects were more pronounced for those with the lowest level of work-family conflict, but not for those with higher levels of work-to-family conflict (which was contrary to our expectations).

There are several speculative explanations for our differential findings on health and higher work-family conflict which may be related to the unique nature of our sample. First, our sample included many low wage and working poor employees, who typically are left out of the mainstream work-family research. Compared to their other low income colleagues, perhaps those with higher work-family conflict have higher work role identity, and are a high functioning subgroup of the working poor. Perhaps they are working two jobs to make ends meet, working longer hours, combining work with education or other workforce development activities or are a different family structure such as less likely to be a single parent. Unfortunately, we do not have data available to test these possible alternative explanations.

Second, literature on the interaction between formal or structural work-family supports compared to informal or relational supports provides a plausible explanation for some of these results related to the physical health outcome (Kossek, Lewis, & Hammer, 2010). The FSSB intervention is more focused on informal or relational change, which may be useful in improving the physical health of those with lower levels of family-to-work conflict, but that such relational interventions may not be strong enough to budge certain outcomes for high family-to-work conflict groups. Organizations may need to integrate structural and relational supports for work-family interventions to impact outcomes for those high in work-to-family conflict. These findings point to the critical importance of the differential effects of work-family interventions for those with family-to-work versus work-to-family conflict. In addition, they suggest the need to examine these moderators separately.

Supervisory Behavior Change Findings

In addition to the effects on employees, our intervention increased supervisor knowledge about family-supportive supervision (pre- to post-test $d_{\text{gain}}=1.23$), produced increases in self-set goals for delivering family-supportive supervisor behaviors (by 63–107%) and resulted in modest improvements in self-reported family-supportive supervisor behaviors after training (by 48.6% on at least one occasion). In addition, supervisor reactions to the training were positive. Future research and practice should incorporate the intervention design principles we identified. In order to change supervisor family supportive behaviors, 1) interventions must be designed to target and measure the specific behavioral change construct of interest; 2) include a component to increase motivation for transfer of training (behavioral self-monitoring in this case); and, 3) use multiple stakeholder evaluations of changed supervisor behaviors that capture self-report and employee measures.

Methodological Contributions

This study makes several methodological contributions. We designed, implemented and evaluated a work-family intervention that addressed criticisms of prior job stress and work-family intervention research. Design limitations noted in existing intervention research have prevented the translation of such findings. These limitations include rarely implementing control groups and rarely collecting pre/post-intervention evaluation data (Glasgow & Emmons, 2007). 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 reflects improved intervention research, it shows how to design studies that use better methodology to address work-family issues. Furthermore, we assessed Kirkpatrick's (1959) four levels of training effectiveness (i.e., reaction, learning, behavior, results) in hopes that this research

will be more readily translated into practice (Glasgow & Emmons, 2007), a feat rarely reported in the training literature (Arthur et al. 2003). Reviews show reactions are influenced by factors beyond the training itself. These include trainee characteristics and organizational support for the training (Sitzmann et al., 2008). Thus, expanding training criteria to learning, behavior, and results, as suggested by Kirkpatrick (1959), provides a more thorough assessment of training effectiveness. Another methodological contribution of the study is the use of multi-source data. We trained supervisors and evaluated the effects of the training on their employees. The fact that we demonstrated beneficial effects beyond the supervisor level of analysis to the employee level strengthens the contribution of this study. Finally, we employed an improved analytical technique of mediated moderator analysis allowing us to more closely model the processes by which our work-family intervention impacts work and health outcomes.

Study Limitations

While the computer-based training and face-to-face training sessions were required by the company, the self-monitoring aspect of the intervention was voluntary by design. This is consistent with a training philosophy that voluntary on-the-job transfer is more likely to be effective than coercive transfer since supervisors have to learn how to incorporate training concepts in their daily routines. Because of this approach, we did not achieve 100% compliance of the supervisors in the self-monitoring portion of the intervention. We believe that this led to weaker results than we would have achieved had we had 100% supervisor participation in all intervention activities. However, we remain confident in our conclusions since the effects were robust despite this reduced participation. More importantly, we were unable to implement the feedback aspects of self-monitoring (i.e., graphing data so the supervisors can see their behavior trends clearly) that are believed to be critical to effective self-monitoring and suggests why our self-reported behavior changes were much smaller and thus weaker than those reported in this literature (Olson & Winchester, 2008).

An additional limitation is that we are not aware how long the training effects will continue, given that the post-intervention survey was conducted one month after training. While the self-monitoring was designed to help increase transfer of training, we know that not all supervisors participated in this activity. Given previous research demonstrating that transfer climate plays a significant role in the ability of training to transfer (Burke & Baldwin, 1999), future work-family training intervention studies should assess the extent and length of transfer and take steps to increase the transfer of training climate and “stickiness” or lasting effects of the training.

Implications of Results for Research and Theory

We suggest that the moderating effects of work-family conflict on intervention effectiveness need further research, as some work-family interventions may be more effective than others for people varying on work-family conflict, and these effects may be dependent on the outcome of interest. Work-family researchers should endeavor to include samples of employees with variance in work-family conflict in future studies of work-family intervention effectiveness, because our results suggest that such interventions may be most effective for those most in need.

Future studies should also include intervention efforts that are designed to change the workplace to increase *both* cultural (e.g., more positive supervisor attitudes) and structural (e.g., more work-family flexibility in job design) support in order to mainstream work-family initiatives with more general organizational change initiatives (Kossek et al., 2010). It may be that our intervention training increased cultural support by changing attitudes and

increasing knowledge of family-supportive behaviors, and then the supervisors informally implemented structural change in job design by being more flexible on schedules.

Because we designed the intervention to have both training and then behavioral self-monitoring in the workplace to support transfer of training, we were unable to isolate the effects of the different components. Future research should be conducted to differentiate the effects of multiple component interventions. We believe that self-monitoring behaviors are akin to general goal setting after a training effort to support transfer. Well designed interventions should consider the transfer mechanisms which could be achieved via a number of ways, from voluntary self-monitoring with feedback on behavior change to goal setting to having a mentor or “training buddy” to support transfer. The key intervention implementation lesson from this is to not just conduct work-family training or other interventions without consideration of some ways to motivate transfer as part of the intervention design.

We suggest that the findings of this study also have significant implications not only for intervention and job stress theory, but for the theoretical development of the FSSB construct, given that we have shown how to impact this construct through behavioral training based on the four dimensions of FSSB (i.e., emotional support, instrumental support, role modeling behaviors, and creative work-family management; Hammer et al., 2009). Further, research should examine whether the FSSB and family-to-work interaction mediating effects found in this study are replicated for other family outcomes or other work outcomes such as job performance and extra-role behaviors.

In addition, scholars should continue to examine other psychological and mediating processes through which work-family intervention effects operate. For example, work-family interventions aimed at increasing worker control through flexible work schedules would be expected to operate via the process of increasing perceived control. While it is a truism to say that supervisors matter for work-family policy effectiveness, ironically, very little work family research actually collects data from supervisors and then links those data to the 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 and health and productivity, as in the current study.

Implications for Practice

Overall this study has identified the conditions under which work-family interventions are likely to be most effective. We developed an intervention that focuses on changing organizational systems (i.e., the supervisory behaviors), as opposed to changing the individual employee. We elaborate on the meaning of this study for the design of effective workplace stress interventions, specifically those that are work-family specific.

First, our findings suggest that work-family interventions may be most effective if they target individuals in organizations that have higher need (higher family-to-work conflict). To date, organizations have adopted many work-family policies but often the individuals that may be most in need of help may not actually be targeted for these policies, or the interventions may not have fit their needs. Such interventions and policies tend to be more common among higher level professional positions. We studied a group of lower-wage hourly grocery workers who typically are not provided opportunities for work-family interventions due to the structural rigidity of their jobs. Perhaps providing our less formal work-family intervention of training supervisors to employ family supportive behaviors is more beneficial for workers in these types of positions that are not able to take advantage of more formal policies such as flexible work schedules. For example, Lambert and Waxman (2005) discuss the issue of work-family policy organizational stratification which refers to

situations where workers in different parts of the organization are not able to access available work-family policies such as flextime or part time work. Thus, it is important to ensure that the interventions are tailored to address the workforce needs of employees with higher work-family conflict and that such interventions reach the employee population that is likely to benefit from the intervention. At the same time, we do not want to marginalize disadvantaged, “non-ideal” workers who are considered high on work-family conflict by targeting them for work-family interventions (Kossek et al., 2010, p. 3). Rather, we encourage the development of work-family interventions that are integrated into core existing organizational structures that enable such programs and policies to operate more as the norm, rather than the exception.

Second, our findings also appear to indicate that, while the training was particularly beneficial for those higher in family-to-work conflict, we see an opposite effect for those who are low in family-to-work conflict for the outcomes of job satisfaction and turnover intentions. We believe that this suggests that there may be some “family-friendly backlash” occurring and that those with low family-to-work conflict may actually perceive the intervention as negative or as affecting them adversely. While the nature of such backlash is not clear, we suggest there is a need for organizations to pay attention to strategies for reducing or avoiding such potential backlash with any work-family intervention.

Third, many workplace interventions are more individually-focused than organizationally-focused (Hurrell, 2005). This is a fundamental problem because targeting individual change will not ameliorate stressful organizational contexts in which individuals are embedded. Our intervention improved the psychosocial environment (cf. Hurrell 2005) by changing the level of managerial support for work and family demands. This is likely to be more effective than training individual employees to solve their own problems but then return to a stressful, unchanged system. The current intervention was designed with a focus on improving supervisor skills which we illustrated as an effective psychosocial intervention. While our findings did not provide strong support for the benefits of the intervention on outcomes across all employee strata, we argue there is value in any development and testing of a work-family intervention that provides some benefit, and that the concepts can be developed and refined in future research and practice.

Although the work-family literature has long lauded the importance of increasing supervisor support for family, and implementing training for supervisors to address work-family issues, no work-family studies in the peer-reviewed literature demonstrate *how* to increase this support and ensure transfer of training. We have added to knowledge of evidence-based management practice regarding work-family support (cf. Rousseau, 2006). Overall, this study has the potential to advance the work-family field by addressing many of the limitations of existing work-family intervention research, as well as helping to improve the quality of work life in organizations that implement work-family interventions designed to increase family supportive supervisory behaviors. This study demonstrated the central importance of supervisors to supporting the work-family interface and in workplace intervention design and implementation. We hope the research and practical implications noted above will be incorporated in future work-family and job stress research and practice.

Acknowledgments

This research was partially supported by the Work, Family and Health Network, which is funded by a cooperative agreement through the National Institutes of Health and the Centers for Disease Control and Prevention: National Institute of Child Health and Human Development (Grant # U01HD051217, U01HD051218, U01HD051256, U01HD051276), National Institute on Aging (Grant # U01AG027669), Office of Behavioral and Social Sciences Research, and National Institute for Occupational Safety and Health (Grant # U01OH008788). The contents of this publication are solely the responsibility of the authors and do not necessarily represent the official views of these

institutes and offices. Special acknowledgement goes to Extramural Staff Science Collaborator, Rosalind Berkowitz King, Ph.D. (NICHD) and Lynne Casper, Ph.D. (now of the University of Southern California) for design of the original Workplace, Family, Health and Well-Being Network Initiative. Persons interested in learning more about the Network should go to <http://www.kpchr.org/workplacenetwork/>

We also want to thank Nannette Yragui, Jill Arnold, Pauline Acosta, Mindy Holdsworth, Shaun Pichler, Ryan Petty, Rachel Daniels, Lauren Murphy, Tina Riley, and Kara Burt for help with data collection. We would like to thank the employer and employees who gave their time and support to participate in this study. And finally, we would like to thank the Portland State University Department of Psychology and the Michigan State University School of Human Resources & Labor Relations for administrative and scholarly support of this study.

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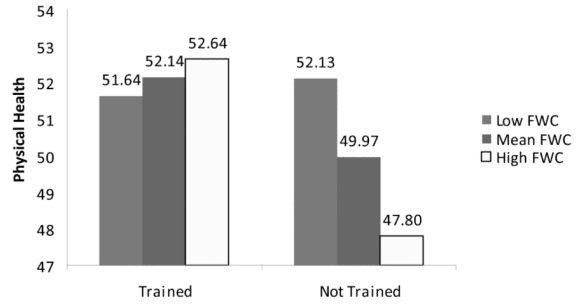
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Figure 1.
Conceptual model of Linkages Between a Work-Family Intervention Designed to Increase Family-Supportive Supervisor Behaviors (FSSB) and Job and Health Outcomes

A)



B)

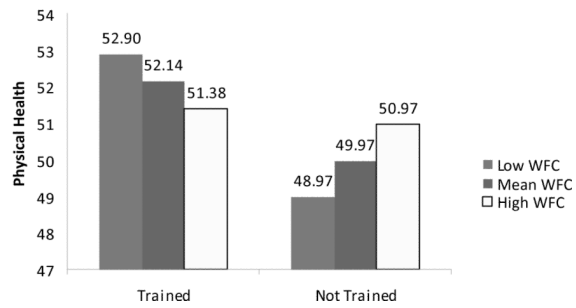
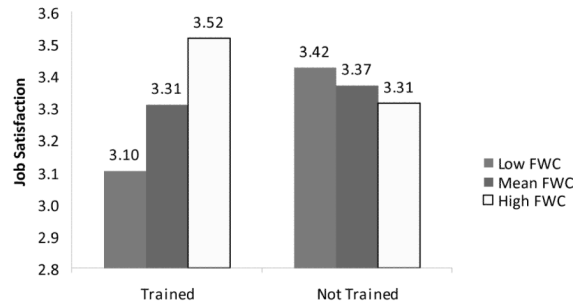


Figure 2. Interactive Effects of Training and Family-to-Work Conflict (Panel A) and Training and Work-to-Family Conflict (Panel B) on Physical Health at Follow-up from Regression Analysis Reported in Table 3.

A)



B)

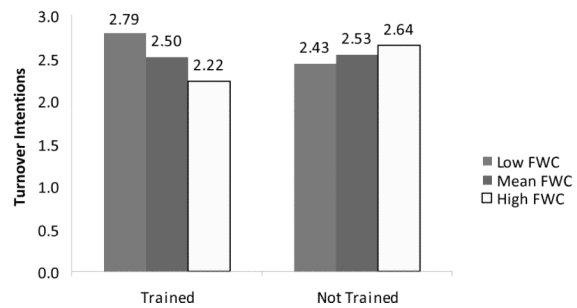


Figure 3. Interactive Effects of Training and Family-to-Work Conflict on Job Satisfaction (Panel A) and Turnover Intentions (Panel B) at Follow-up from Regression Analyses Reported in Table 3

Table 1

Participant demographics at each stage of the study.

	Pre-intervention	Training	Post-Intervention
Supervisors		39	
Male/female		14/17	
Age		42.5	
Married/Living as married		Not available	
White		100%	
Employees	360		239
Male/Female	97/262		54/186
Age	38		40
Married/Living as Married	55%		57%
White	92%		92%
Children at Home	41%		48%
Adults in need of care at Home	16%		14%
Children & Adults at Home	9%		9%

Table 2
Means, Standard Deviations, and Zero-Order Correlations of Employee Study Variables

Variable	M	SD	Correlations																		
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15				
1. Treatment	.48	.50	--																		
2. Baseline FWC	1.92	.56	-.03	--																	
3. Baseline WFC	2.61	.88	-.00	.40**	--																
4. Baseline FSSB	3.44	.71	.01	-.26**	--																
5. Follow up FSSB	3.61	.76	-.08	.08	-.56**	--															
6. Baseline PH	51.62	8.23	.02	-.06	-.09	.07	--														
7. Follow up PH	51.03	8.44	.15*	-.17*	-.06	.04	.00	.52**	--												
8. Baseline JSAT	3.41	.68	.01	-.09	-.38**	.45**	.34**	.04	.06	--											
9. Follow up JSAT	3.34	.74	.06	-.08	-.20**	.34**	.48**	.02	.00	.60**	--										
10. Baseline TOI	2.44	1.12	-.05	.12*	.33**	-.29	-.23**	.08	.09	-.62**	-.40**	--									
11. Follow up TOI	2.52	1.05	-.01	.11	.17*	-.23**	-.34**	.12	.04	-.47**	-.70**	.56**	--								
12. Living as married	.54	.50	.04	-.07	.02	-.04	-.07	-.03	.10	.01	.12	.11	*-.12	--							
13. Num. children home	1.74	1.86	.14**	.12**	-.03	-.08	-.13	-.15**	-.10	.06	.14*	-.23**	-.27**	.37**	--						
14. Hours worked	31.36	8.55	-.03	.01	.09	-.08	-.08	.11*	.09	-.01	.06	-.07	-.12	.11**	.03	--					
15. Elder care	.16	.37	.03	.14*	.11*	-.01	.07	-.04	-.08	-.03	.05	-.04	-.02	.08	.04	.05	--				

Notes.

N = 236-368 Treatment (1 = Intervention, 0 = Control); FWC = Family-to-Work Conflict; WFC = Work-to-Family Conflict; FSSB = Family Supportive Supervisor Behaviors; PH = Physical Health; JSAT = Job Satisfaction; TOI = Turnover Intentions; Living as married and Elder care (1 = yes; 0 no)

* $p < .05$

** $p < .01$

Table 3

Regression Analysis Results for the Effects of Training and other Predictors on Family Supportive Supervisor Behaviors, Physical Health, Job Satisfaction, and Turnover Intentions at Follow-up using Full-Information Maximum Likelihood Estimation

Predictor	Outcome Variable		
	Physical Health	Job Satisfaction	Turnover
	Slope (SE)	Slope (SE)	Slope (SE)
Treatment (T)	<i>2.17[*] (.88)</i>	<i>-.06 (.07)</i>	<i>-.03 (.11)</i>
Family-Work Conflict at Baseline (BFWC)	<i>-1.55[*] (.93)</i>	<i>.13 (.07)</i>	<i>-.16 (.11)</i>
T*BFWC	<i>4.78[*] (1.88)</i>	<i>.47[*] (.15)</i>	<i>-.70[*] (.22)</i>
Work-Family Conflict at Baseline (BWFC)	<i>.16 (.61)</i>	<i>-.06 (.05)</i>	<i>.06 (.08)</i>
T*BWFC	<i>-2.00[*] (.97)</i>	<i>.06 (.10)</i>	<i>-.02 (.15)</i>
Physical Health at Baseline	<i>.51[*] (.06)</i>	--	--
Job Satisfaction at Baseline	--	<i>.62[*] (.06)</i>	--
Turnover at Baseline	--	--	<i>.57[*] (.06)</i>
Living as married	<i>2.00[*] (.97)</i>	<i>.10 (.08)</i>	<i>-.08 (.11)</i>
Children at home	<i>.43 (.46)</i>	<i>.05 (.04)</i>	<i>-.02 (.06)</i>
Caring for parents	<i>-.56 (1.25)</i>	<i>.15 (.10)</i>	<i>-.12 (.15)</i>
Hours worked	<i>-.01 (.06)</i>	<i>.01 (.01)</i>	<i>-.01 (.01)</i>
Store Contrast 1	<i>-.20 (1.27)</i>	<i>-.07 (.10)</i>	<i>-.14 (.15)</i>
Store Contrast 2	<i>2.26 (1.80)</i>	<i>.03 (.14)</i>	<i>-.15 (.21)</i>
Store Contrast 3	<i>-2.53 (2.44)</i>	<i>-.34 (.20)</i>	<i>.95[*] (.29)</i>
Store Contrast 4	<i>-.98 (2.04)</i>	<i>.09 (.17)</i>	<i>.02 (.25)</i>
Store Contrast 5	<i>-1.34 (2.25)</i>	<i>-.31 (.18)</i>	<i>.63[*] (.28)</i>
Store Contrast 6	<i>1.49 (1.24)</i>	<i>.10 (.10)</i>	<i>-.12 (.15)</i>
Store Contrast 7	<i>-4.57[*] (1.84)</i>	<i>.05 (.15)</i>	<i>-.10 (.22)</i>
Store Contrast 8	<i>2.61 (2.20)</i>	<i>-.50[*] (.18)</i>	<i>.49 (.28)</i>
Store Contrast 9	<i>-.35 (1.82)</i>	<i>-.11 (.15)</i>	<i>.09 (.22)</i>
Store Contrast 10	<i>4.86 (2.51)</i>	<i>.06 (.20)</i>	<i>-.50 (.30)</i>
Model R ²	<i>.38</i>	<i>.48</i>	<i>.45</i>
Test of R ²	<i><math>\chi^2(20) = 111.55[*]</math></i>	<i>$\chi^2(20) = 146.60$</i>	<i><math>\chi^2(20) = 125.62[*]</math></i>

Notes:

N = 360. Key parameters are highlighted with italics and underlined. All variables are mean centered. SE = Standard Error. Treatment (1 = Intervention, 0 = Control). FSSB = Family Supportive Supervisor Behaviors. Store Contrast variables account for between-store differences that are independent of the training effect and not of substantive interest.

* $p < .05$

Table 4

Results of Mediated Moderation Analysis for the Effect of Training on Physical Health at Follow-up using Full-Information Maximum Likelihood Estimation

Predictor	Model 1	Model 2	Model 3
	DV: Physical Health at Follow-up	DV: FSSB at Follow-up	DV: Physical Health at Follow-up
	Slope (SE)	Slope (SE)	Slope (SE)
Treatment (T)	2.17* (.89)	-.08 (.07)	2.18* (.88)
Family-Work Conflict at Baseline (BFWC)	-1.56 (.93)	.15 (.08)	-1.54 (.94)
T*BFWC	<u>4.78*</u> (1.88)	<u>.39*</u> (.16)	<u>4.83*</u> (1.91)
Work-Family Conflict at Baseline (BWFC)	.17 (.65)	.04 (.06)	.18 (.65)
T*BWFC	<u>-2.46*</u> (1.22)	<u>-.05</u> (.10)	<u>-2.47*</u> (1.22)
Physical Health at Baseline (BPH)	.51* (.06)	.00 (.01)	.51* (.06)
FSSB at Baseline (BFSSB)	.05 (.71)	.64* (.06)	.15 (.86)
FSSB at Follow-up	--	--	<u>.01</u> (.78)
Living as married	2.01* (.97)	-.06 (.08)	2.02* (.97)
Children at home	.43 (.46)	.03 (.04)	.44 (.46)
Caring for parents	-.57 (1.25)	.16 (.11)	-.53 (1.26)
Hours worked	-.01 (.06)	.01 (.01)	-.01 (.06)
Store Contrast 1	-.19 (1.28)	.12 (.11)	-.16 (1.28)
Store Contrast 2	2.25 (1.80)	<u>-.46*</u> (.15)	2.24 (1.84)
Store Contrast 3	-2.52 (2.44)	-.40 (.21)	-2.50 (2.46)
Store Contrast 4	-.99 (2.05)	-.26 (.17)	-1.01 (2.06)
Store Contrast 5	-1.34 (2.25)	.40* (.19)	-1.34 (2.27)
Store Contrast 6	1.46 (1.27)	.09 (.11)	1.42 (1.27)
Store Contrast 7	<u>-4.58*</u> (1.85)	-.04 (.16)	<u>-4.59*</u> (1.85)
Store Contrast 8	2.64 (2.23)	-.18 (.19)	2.68 (2.23)
Store Contrast 9	-.36 (1.84)	<u>-.42*</u> (.16)	-.39 (1.86)
Store Contrast 10	4.82 (2.53)	.23 (.21)	4.79 (2.54)
Model R ²	.38	.46	.38
Test of R ²	$\chi^2(21) = 111.48^*$	$\chi^2(21) = 135.95^*$	$\chi^2(22) = 111.55^*$

Notes:

N = 360. Key parameters are highlighted with italics and underlined. All variables are mean centered. DV = Dependent Variable. FSSB = Family Supportive Supervisor Behaviors. SE = Standard Error. Treatment (1 = Intervention, 0 = Control). Store Contrast variables account for between-store differences that are independent of the training effect and not of substantive interest.

*
p < .05

Table 5

Results of Mediated Moderation Analysis for the Effect of Training on Job Satisfaction at Follow-up using Full-Information Maximum Likelihood Estimation

Predictor	Model 1	Model 2	Model 3
	DV: Job Satisfaction at Follow-up	DV: FSSB at Follow-up	DV: Job Satisfaction at Follow-up
	Slope (SE)	Slope (SE)	Slope (SE)
Treatment (T)	-.06 (.07)	-.08 (.07)	-.03 (.07)
Family-Work Conflict at Baseline (BFWC)	.12 (.07)	.15 (.08)	.07 (.07)
T*BFWC	<i>.47* (.15)</i>	<i>.40* (.16)</i>	<i>.34* (.14)</i>
Work-Family Conflict at Baseline (BWFC)	-.04 (.05)	.06 (.06)	-.05 (.05)
T*BWFC	.05 (.10)	-.06 (.10)	.07 (.09)
Job Satisfaction at Baseline	.58* (.07)	.07 (.07)	.54* (.06)
FSSB at Baseline	.08 (.06)	.61* (.07)	-.10 (.07)
FSSB at Follow-up	--	--	<i>.32* (.06)</i>
Living as married	.12 (.08)	-.07 (.08)	.14* (.07)
Children at home	.05 (.04)	.02 (.04)	.05 (.03)
Caring for parents	.15 (.10)	.17 (.10)	.10 (.09)
Hours worked	.01 (.01)	.01 (.01)	.01 (.01)
Store Contrast 1	-.06 (.10)	.13 (.11)	-.09 (.10)
Store Contrast 2	.01 (.14)	<i>-.45* (.15)</i>	.15 (.14)
Store Contrast 3	-.35 (.20)	-.38 (.21)	-.23 (.19)
Store Contrast 4	.07 (.17)	-.24 (.17)	.14 (.16)
Store Contrast 5	-.30 (.18)	.38* (.19)	<i>-.42* (.17)</i>
Store Contrast 6	.08 (.10)	.09 (.11)	.04 (.10)
Store Contrast 7	.04 (.15)	-.02 (.15)	.04 (.14)
Store Contrast 8	<i>-.49* (.18)</i>	-.14 (.19)	<i>-.44* (.17)</i>
Store Contrast 9	-.15 (.15)	<i>-.40* (.16)</i>	-.03 (.14)
Store Contrast 10	.01 (.20)	.26 (.21)	-.08 (.19)
Model R ²	.48	.46	.54
Test of R ²	$\chi^2(21) = 148.35^*$	$\chi^2(21) = 137.10^*$	$\chi^2(22) = 181.68^*$

Notes:

N = 360. Key parameters are highlighted with italics and underlined. All variables are mean centered. DV = Dependent Variable. FSSB = Family Supportive Supervisor Behaviors. SE = Standard Error. Treatment (1 = Intervention, 0 = Control). Store Contrast variables account for between-store differences that are independent of the training effect and not of substantive interest.

*
p < .05

Table 6

Results of Mediated Moderation Analysis for the Effect of Training on Turnover Intentions at Follow-up using Full-Information Maximum Likelihood Estimation

Predictor	Model 1	Model 2	Model 3
	DV: Turnover at Follow-up	DV: FSSB at Follow-up	DV: Turnover at Follow-up
	Slope (SE)	Slope (SE)	Slope (SE)
Treatment (T)	-.03 (.11)	-.08 (.07)	-.06 (.10)
Family-Work Conflict at Baseline (BFWC)	-.14 (.11)	.15 (.08)	-.08 (.11)
T*BFWC	<u><i>-.70*</i></u> (.22)	<u><i>.41*</i></u> (.16)	<u><i>-.55*</i></u> (.22)
Work-Family Conflict at Baseline (BWFC)	.04 (.08)	.05 (.06)	.06 (.08)
T*BWFC	-.01 (.15)	-.06 (.10)	-.02 (.14)
Turnover at Baseline	.56* (.06)	-.04 (.04)	.53* (.06)
FSSB at Baseline	-.09 (.09)	.62* (.06)	.13 (.10)
FSSB at Follow-up	--	--	<u><i>-.39*</i></u> (.09)
Living as married	-.10 (.12)	-.07 (.08)	-.13 (.11)
Children at home	-.02 (.06)	.03 (.04)	.01 (.05)
Caring for parents	-.11 (.15)	.16 (.10)	-.04 (.14)
Hours worked	-.01 (.01)	.01 (.01)	-.01 (.01)
Store Contrast 1	-.16 (.15)	.12 (.11)	-.13 (.15)
Store Contrast 2	-.13 (.22)	<i>-.43*</i> (.15)	-.29 (.21)
Store Contrast 3	.94* (.29)	-.40 (.21)	.79* (.28)
Store Contrast 4	.04 (.25)	-.26 (.17)	-.04 (.24)
Store Contrast 5	.62* (.28)	.37 (.19)	.73* (.27)
Store Contrast 6	-.09 (.15)	.09 (.11)	-.05 (.15)
Store Contrast 7	-.09 (.22)	-.03 (.15)	-.10 (.21)
Store Contrast 8	.46 (.28)	-.14 (.19)	.41 (.27)
Store Contrast 9	.13 (.22)	<i>-.41*</i> (.15)	-.03 (.22)
Store Contrast 10	-.45 (.31)	.26 (.22)	-.34 (.30)
Model R ²	.45	.46	.49
Test of R ²	$\chi^2(21) = 126.67^*$	$\chi^2(21) = 136.83^*$	$\chi^2(22) = 146.99^*$

Notes:

N = 360. Key parameters are highlighted with italics and underlined. All variables are mean centered. DV = Dependent Variable. FSSB = Family Supportive Supervisor Behaviors. SE = Standard Error. Treatment (1 = Intervention, 0 = Control). Turnover = Turnover Intentions. Store Contrast variables account for between-store differences that are independent of the training effect and not of substantive interest.

* p < .05