Organizational Interventions to Enhance Work, Family, & Health: Design Principles and Strategies

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Abstract

A critical challenge in Occupational Health Psychology is how to develop and implement evidence-based organizational interventions that decrease work-family conflict, leading to enhanced work, family and health outcomes across different contexts and occupations. The purpose of this article is to describe the research origins, principles, and design components and strategies used by a national multi-institutional research team, the Work, Family & Health Network (WFHN), to create and implement a comprehensive multi-site intervention. The intervention was designed to integrate and enhance components from pilot studies on how to improve psychosocial workplace characteristics relevant to work, family, and health; thereby decreasing work-family conflict; and enhancing employee well-being and effectiveness in job and nonwork roles. The intervention included group and leader social change activities designed to increase support for family/personal roles (e.g., FSSB – family supportive supervisor behaviors) and performance roles; and to increase individual control over work time while emphasizing a results oriented work environment. We identified principles for designing organizational interventions for replication: (a) multilevel; (b) multi-disciplinary; (c) systemic in content and process; (d) bottom up *and* strategic design; and (e) customized and adaptive. We discuss intervention content, delivery and adaptation in two contrasting industrial occupations: lower wage health care workers, and professional information technology workers. Implications for future research and practice are examined.

Key words: organizational interventions, workplace change, work-family conflict, schedule control, health

Research on evidence-based organizational interventions aimed at altering the psychosocial work environment in order to enhance work, family, and health relationships is increasingly important. Growing numbers of employees are facing rising family and personal life demands in both industrialized (U. S. Bureau of Labor Statistics, 2010) and developing countries (Baral & Bhargava, 2011). Organizational interventions are also necessary as government support for family and personal well-being remains relatively low in the U.S., for example (Kelly, 2006; Kossek & Distelberg, 2009). Further, there are reductions in public work-family support in many countries – even those with traditionally high levels of public supports (Varney, 2011). However, despite a burgeoning literature, work-family research has had limited impact in practice in terms of leading organizational change (Kossek, Baltes, & Matthews, 2011). Leaders, employers, researchers, change agents, and policy makers must confront the challenge of not only identifying work-family problems, but in finding effective ways to improve work, family and health relationships (Bianchi, Casper & King, 2005; Kossek, Lewis & Hammer, 2010). Research is needed to describe how to apply research evidence to develop and implement innovations aimed at changing the psychosocial environment of organizations to improve work, family and health linkages.

Unfortunately, existing research suggests that organizational interventions focusing on job stress, reducing work to family conflict and improving healthy job-nonwork relationships could be considerably improved (Kelly et al., 2008; Parkes & Sparkes, 1998). A NIOSH (2002) report calls for intervention research to be more deliberate to foster organizational and member learning in the design and implementation of work interventions. Greater clarity is needed on how to create, customize and carry out evidence-based workplace interventions to improve work, family & health. Studies should provide greater description of intervention principles, key

ingredients, and implementation adaptation. This is necessary as interventions often have different components, even if similarly titled; moreover, they often require customization to different occupations and organizational contexts and are complex to design and carry out.

This paper aims to advance the design of and principles related to scientifically-grounded organizational change interventions that target reducing work-family conflict as a key pathway to improving individual, family, and employer health and well-being. As the paper overview in Figure 1 shows, we describe theory, research origins and principles; goals and key components and targeted outcomes of the intervention developed by a team of researchers in the Work, Family & Health Network (referred to throughout this paper as WFHN).

Background

The Work, Family, Health Network is a national interdisciplinary consortium of researchers that was launched by the U.S. National Institutes of Health and the Centers for Disease Control and Prevention in 2005. The WFHN members collaborated over the last eight years to design, implement, and scientifically evaluate the effects of an organizational intervention using a multi-site group-randomized field trial. The goal of the WFHN (http://www.workfamilyhealthnetwork.org) is to provide scientific evidence about how changes in the work environment can enhance the health of workers and their families while benefiting employers. The WFHN includes not only organizational psychologists and sociologists who traditionally study workplace change, but researchers from public health, medicine, economics, and human development. The intervention emanated from an interdisciplinary logic model developed by the WFHN, based on the premise there is a workplace-workforce mismatch requiring changes in the organization of work, not workers (King et al., 2012). The intervention described in this paper was designed to be evaluated and delivered a) using randomized methods

in order to overcome the positive bias in results that is found in many intervention studies designed to improve work, family and health using less-rigorous randomized designs; and b) using cross-disciplinary measures to assess how organizational change shapes occupational health across many spheres. (See Bray et al., 2011, for description of WFHN methods and measures.)

Below we describe the organizational intervention, its principles and the components that were melded to improve research and practice. The intervention draws heavily on WFHN pilot studies of intervention components and principles conducted by Hammer, Kossek, Anger, Bodner, & Zimmerman (2011); Kossek, Pichler, Bodner, & Hammer (2011); Kelly, Moen, & Tranby (2011); Moen, Kelly, & Hill (2011); and Moen, Kelly, Tranby, & Huang (2011).

Tactics, concepts and intervention components from these studies were combined to create a comprehensive intervention that was consistent with research suggesting that work-family interventions should be multi-faceted to foster greater employee autonomy and more supportive work relationships (Perry-Jenkins et al., 2011; Swanberg, McKechnie, Ojha, & James, 2011). They also were integrated with the intention of examining how work redesign can benefit a dual agenda (Bailyn, Bookman, Harrington, & Kochan, 2006) such as simultaneously benefiting employees needs (e.g., reduce work family conflict, well being, improve gender equity) and employer needs (e.g., organizational performance).

Literature Review and WFHN Intervention Origins

We first identify five principles derived from theoretically-grounded literature, and then describe the pilot studies and cumulative research findings that were built upon to create the WFHN intervention. These five principles are summarized in Table 1 and explained below.

Principles for Comprehensive Organizational Interventions

Principle 1: Multilevel perspective. Research suggests intervention designs should be *multi-level, integrating individual and organizational approaches to change*. Individual- or worker-focused interventions seek to change individual attitudes and behaviors, such as programs to increase coping skills (e.g., Neal & Hammer, 2010), reduce or manage stress (e.g., Richarson & Rothstein, 2008), or improve dietary and exercise behaviors for weight loss (e.g., Olson, Anger, Elliot, Wipfli, & Gray, 2009). Organizational-focused interventions seek to modify work structure to reduce exposure to or eliminate job stress (e.g., Biron, Cooper, & Gibbs, , in press) or conditions that promote unhealthful attitudes and behaviors. Examples include structural job redesign or changing organizational culture to be more supportive of work and family (Bailyn et al., 2006).

A recent review of ninety studies on job stress interventions classified change goals as modifying aspects of the organization (O); the individual employee (I); or both factors (OI), which includes the interface of the organization with individual workers, such as employee participation mechanisms or coworker support groups (Lamontagne, Keegel, Louie, Ostry, & Landsbergis, 2007). Individual-focused interventions were rated as only improving individual outcomes, while organizationally focused interventions were rated as moderately effective for improving both individuals and organizations to some extent. Lamontange and colleagues' (2007) review concludes that, while individually-focused interventions improved individual outcomes and organizational interventions often benefited both individuals and organizations, interventions targeting both organizational and individual levels were highest in effectiveness. This multilevel approach to research designs that include both individual and organizational level interventions is illustrated in a recent call by scholars who were part of a workshop on preventing chronic disease in the workplace (Sorensen et al., 2011), as well as by the National Institute for

Occupational Safety and Health Total Worker Health Program. Both of these initiatives emphasize the integration of health promotion and health protection workplace interventions targeting individual and organizational factors. As we discuss in the next section, the level of intervention focus is sometimes linked to discipline.

Principle 2: Interdisciplinary approach. Most interventions are grounded in one primary discipline and its core philosophical approach to deliberate change. But the literature suggests an interdisciplinary approach is more likely to produce an effective intervention, since it is more likely to a) *combine positive and negative approaches to workplace stress; and* b) *integrate multi-disciplinary knowledge* (Wallerstein, Yen, & Syme, 2011; Biron et al., in press)). This is essentially an argument that interdisciplinary work will foster greater synthesis (e.g., Hammer, Saksvik, Nytrø, Torvatn, Bayazit, 2004; Quick, Quick, & Nelson, 2000) between a psychosocial, disease-oriented focus on *preventing* workplace influences on stress, and positive approaches that *facilitate or promote* lower stress. Preventive concepts include designing work to structurally increase job control (Karasek & Theorell, 1990; Kossek, Lautsch & Eaton, 2006) or schedule control (Kelly et al., 2011; Moen, Kelly, Tranby, et al., 2011). Examples might include training to increase self-monitoring of positive behaviors, and designing healthy workplace practices that equally value work-life balance and productivity (e.g., Grawitch, Gottschalk, & Munz, 2006). Interventions that are designed to increase social support for stressful roles (e.g., Hammer, Kossek, Anger, et al., 2011) could be classified as targeting both negative (stress) and positive (positive affect and behaviors) issues.

Uni-disciplinary framing of intervention rationales and goals can frequently force a choice to focus on improving either negative or positive change issues, both of which can be problematic. A predominantly negative focus risks the change process opening up an open-

ended laundry list of all of the organizations' shortcomings, and targets the symptoms of the stress but not solutions, making it difficult to move toward positive improvement. While a predominant positive focus can facilitate the development of employee and managerial relationships through dialogue and buy-in for organizational improvements through participative management (Leana & Kossek, 2012), this type of approach risks not addressing serious structural problems faced by workers who are not in power in the organization (Biron et al., in press).

Biron and colleagues (in press) argue that psychosocial preventative and positive approaches are complimentary. They note that alleviating workplace sources of occupational stress can be synergistic with designing workplaces to foster healthy workers on and off the job. An example would be interventions that include both health promotion and health protection (Sorensen *et al*, in press).

Disciplinary homes are often aligned with specific levels of change and deeply ingrained ways to approach change. For example, psychologists typically focus on individual-level attitudes, Occupational Health researchers focus on a systems view and organizational structures (Landsbergis et al., in press), and sociologists emphasize organizational and structural influences on work and family experiences and outcomes. Similarly, some disciplines such as industrial relations take a conflict approach aimed at improving power dynamics, assuming that the interests of workers and the organization are rarely fully aligned (Edwards, 1979). Others conduct appreciative inquiry toward uniting individual and organizational goals (Cooperrider & Sekerka, 2003).

Given these discipline-specific biases/approaches and the fact that enacting workplace change to enhance work, family and health is a socially complex phenomenon, interventions designed around multi-disciplinary knowledge are more likely to integrate multiple strands of change: preventive and facilitative, negative and positive, and individual and organizationallevels of analysis.

Principle 3: Systems approaches in content and process. Research also suggests interventions need to take a *whole systems and dual work and family agenda* approach. The *whole systems approach* advocated by public health researchers such as Semmer (2006) maintains effective interventions should target three prevention levels. Primary prevention protects the health of individuals who are well; secondary prevention is geared toward early detection and prompt corrective action at the first signs of illness (e.g., high blood pressure); tertiary prevention reduces or eliminates the effects of long-term impairment and suffering, such as chronic stress and negative work structures (Semmer, 2006). Thus, both healthy workers and those perceived as in need of the intervention should be included in design and delivery.

Unfortunately, few work-family intervention studies exist, and fewer yet have been scientifically evaluated using longitudinal and experimental design (i.e., have blinded or control groups) (Kelly et al., 2008). Work-family policies, such as flexible work schedules, ostensibly can be considered primary interventions, since they are often available (at least on paper) to the whole unit of employees. Unfortunately employees career-oriented workers often do not use such policies, and those that need the policies most may have trouble accessing them or are stigmatized if they do use policies because the general culture has not been improved for all workers. Consequently, the work-family interventions that do exist (e.g., employee assistance programs, or work redesigns targeting gender equity) implicitly target workers in need (the

secondary and tertiary levels) and overlook the primary level. A prime example of this is our earlier work that demonstrated a Family Supportive Supervisor Behavior (FSSB) training intervention was only beneficial for those with high levels of work-family conflict (Hammer et al., 2011). As we found however, a focus on distressed workers can lead to backlash and stigmatization (Hammer et al., 2011), if other workers do not feel the intervention also applies positively to their needs.

A whole systems design helps ensure the intervention addresses *both informal organizational culture and the formal structure or organization of policies and practice*s (Kossek et al., 2010). Yet, work-family and health interventions rarely focus on *both* change in the structure of work *and* change in norms and culture. The "whole systems" concept also applies to balance in the actual content of the intervention. For example, many work-stress interventions try to improve work-family issues or health but overlook performance issues. But clear and consistent and well-defined performance expectations have been linked to positive social structures (Podolny & Baron, 1997); such expectations in the form of the structure and culture of performance goals can relate to work-family and personal life issues, thereby personally benefiting workers. Research increasingly suggests interventions should follow a dual agenda in design (Bailyn, 2011), and we therefore strived to include support for performance in the family role *and* the work role to address the total employee system.

Principle 4: Bottom up and strategic design. We suggest that interventions should be both *bottom up and strategic*, yet most interventions are largely one or the other. Effective designs combine high employee participation with top down senior management buy in and support for the change itself.

High involvement of employees in change processes has emerged as a best practice. It helps to ensure that the intervention is (a) focused on issues that are most relevant to workers (Semmer, 2006); and (b) more likely to be accepted by members and integrated into the organizational culture, which should reduce undermining of change during implementation (Semmer, 2006; Vroom & Yetton, 1973). Such approaches empower employees to define the most pressing workplace problems, give input to create change strategies, and experiment with changes they see as beneficial. Nielsen, Randall, and Albertson's (2007) evaluation of a stress intervention suggests employee positive identification with the change process can fully mediate relationships between intervention exposure and individual and organizational change outcomes. They argue that member assessments and valence toward the intervention itself plays a critical role in whether interventions take hold. Similarly, Burke and colleagues (2006) found that the most effective safety and health interventions were those rated as highly engaging (interactive face-to-face training), compared to those characterized as least engaging (printed materials).

The best approach seems to combine action research with experimental design in evaluation. Action research (e.g., Landsbergis, 2009) refers to partnerships where outside experts and change agents collaborate with the organization to design interventions that meet both research and intervention objectives (Rapoport, Bailyn, Fletcher, & Pruitt., 2002; Susman & Evered, 1978).

Principle 5: Customized and adaptive. Finally, interventions must be customized and adaptive in implementation. Many work-family interventions are not sufficiently customized to address variation in work processes, human resource strategies, workforce types, and job demands. By "customization", we mean adapting intervention content and delivery to fit the specific context in delivery, content and principles. For example, when the intervention was

delivered to information technology (IT) professionals, we conducted some communication and intervention activities of the intervention on line. However, since the hourly health care employees did not have email or computer access at work, we used fliers and posters in break rooms.

Another example is in the type of job redesign and change focus of the intervention principles in each industry. Whereas the IT employees could be empowered to work wherever and however they want (mostly), the health care employees focus was more centered on control over processes, such as how schedules are made, and also on having some say regarding how work is done. Some of these may seem relatively minor like changing the time of the medicine pass, meals, or unlocking a cabinet. Thus, interventions can use similar design principles across two contexts – the information technology division of a large firm and health care workers in long term health care facilities – yet must be customized in delivery and enactment to meet the occupational and cultural needs. We provide additional examples to illustrate the importance of customizing key intervention components to each workplace and industry later in this paper.

Intervention Origins: WFHN Pilot Studies

Two WFHN pilot studies formed the primary basis for the development of the current WFHN intervention. Kelly and Moen (2007) investigated the Results Only Work Environment (ROWE) in a natural field experiment. Hammer and colleagues (2011) developed and studied the Family Supportive Supervisor Behavior (FSSB) training intervention in a randomized experimental field study.

ROWE: Results Oriented Work Environment experiment. One intervention study evaluated a naturally occurring experiment called the Results Oriented Work Environment (ROWE). This initiative was conducted with a white-collar corporate workforce, initiated by

internal human resources staff at Best Buy in response to employee focus group data. The change agents concluded that a focus on results, not time spent at work, would benefit employees and the organization. Thus, they developed an initiative that would move work groups and supervisors away from traditional emphasis on long hours and face time to emphasize the quality of the work accomplished, and in doing so, put employees in control of the time and timing of their work (Kelly et al. 2011; Moen, Kelly, & Chermack, 2009; Moen, Kelly, & Hill, 2011).

The study's examination of schedule control, that is, control over work time, is consistent with studies by Karasek (1979; Karasek & Theorell, 1990) on job control or control over how work is done, research on work-family boundary control (Kossek, Lautsch, & Eaton, 2006), and autonomy in job design (Hackman & Oldham, 1976). Control over work time is a concept that refers to increased individual autonomy over where and when work is conducted (Kelly & Moen, 2007). The focus on culture change and work redesign that considers family and personal life parallels work redesign to enhance gender equity (Rapoport et al., 2002). Besides moving away from traditional time clocks and calendars defining when and where work is to be done, notable additions extended by ROWE are a focus on results and time use de-stigmatization (See descriptions by Kelly et al., 2011; Ressler & Thompson, 2008).

Thus, ROWE differs from formal flexible work arrangement programs where managers control access and permission to use formal policies, which results in some employees in a particular work group getting access to flexibility while others may not. Instead, ROWE focuses on *collective culture change* (Kelly & Moen, 2007). First, a higher level executive commits a work group (consisting of a manager and the people s/he supervises) to be trained to "migrate" to the ROWE way of working (Kelly et al.,2011). This begins a series of training sessions to foster organizational cultural movement toward a norm of self-managed flexibility where all

members in a unit are empowered to change when and where they work and how long they work *so long as the work gets done* (Kelly, Ammons, Chermack, & Moen, 2010; Ressler & Thompson, 2008). It should be noted that these ideas translate to a lower-wage hourly workforce in terms of flexibility and control over work processes more so than around time and place of work. Employees and managers are told workers do not need to ask permission or notify managers regarding their location and timing of work, as long as results are met. This guideline prompts managers to clarify and prioritize results that can be measured by outcomes and not necessarily time at work. ROWE also includes training with peers designed to change norms and question how to improve work and time use processes to reduce job presenteeism and unnecessary face time at meetings. Training strategies included role plays to reducing stigmatization of time use by eradicating "sludge." Sludge refers to comments and assumptions that "judge" whether coworkers are using time productively (or not) (Ressler & Thompson, 2008).

Using a longitudinal quasi-experimental nonequivalent control group design, Kelly, and colleagues (2011) found that ROWE work groups had significantly higher perceptions of schedule control compared to control groups and that work-family conflict declined more in the ROWE groups, because of the increases in schedule control. Employees in teams participating in ROWE were also significantly less likely to leave the organization in the year following implementation and reported significantly lower turnover intentions, as compared to employees working under the traditional company rules (Moen, Kelly, & Hill, 2011). ROWE also improved employee health behaviors, specifically increasing sleep time on nights before work days, encouraging employees to go to the doctor when they were sick, and increasing exercise frequency (Moen, Kelly, Tranby, et al., 2011).

FSSB: Family Supportive Supervisor Behaviors – randomized controlled trial. The other intervention pilot study evaluated a randomized field experiment using a supervisor training and self-monitoring intervention designed to increase FSSB, Family Supportive Supervisory Behaviors (Hammer et al., 2011; Hammer, Kossek, Yragui, Bodner, & Hanson, 2009). The study was conducted over 9 months with 239 employees and 39 supervisors employed in twelve stores of a large grocery chain. Designed and implemented by the researchers, the intervention drew on theory suggesting that higher social support from supervisors is a resource (Cohen & Wills, 1985) that buffers work-family demands and consistently is related to lower work-family conflict (Allen, 2001; Hammer, Kossek, Zimmerman & Daniels, 2007). The study also drew on empirical evidence suggesting that: a) family-specific supportive supervision has a greater impact on work-family conflict than generally supportive supervision; and b) perceptions of one's supervisors' family supportiveness is the pathway through which individuals see organizations as family supportive (Kossek, Pichler, et al., 2011). Thus, increasing social support from supervisors who are in a key employee-organizational interface role is a positive interpersonal and psychosocial change that proactively improves employee-organizational relationships related to work and family.

Focus groups identified and then validated a measure of Family Supportive Supervisory Behaviors (FSSB) (Hammer et al., 2009). The FSSB includes ratings of employee experience with four behaviors: instrumental, emotional, role modeling, and creative work-family management. Targeted training designed to increase FSSB was presented in self-paced computer-based training that lasted about an hour, on average. The computer-based training combined theory on knowledge dissemination with behavioral role modeling training (Taylor, Rus-Eft, & Chan, 2005) and education principles (Edgar & Sulzbacher, 1992) delivered by a

derivative of programmed instruction (Anger et al., 2001; Eckerman et al., 2002; Rohlman et al., 2005). Behavioral modeling training draws on five cumulative steps (Taylor et al., 2005): a) clear description of the behaviors or skills to be learned; b) models of effective use; c) opportunity to practice the behaviors; d) feedback and social reinforcement; and (e) motivators to foster on-the-job transfer, which was accomplished via self-monitoring of actions (Gravina & Olson 2009).

Once all managers in a store were trained, the research team gave certificates and awards to the managers, held a luncheon and conducted an hour of face-to-face group training and role playing to depict a family-supportive supervisor interacting with his/her employee. Managers were also invited to participate in behavioral self-monitoring on the job to support transfer of training (Gravina & Olson, 2009; Olson & Winchester, 2008). This involved goal setting and recording the frequency of supportive behaviors each day for at least two weeks to facilitate training transfer to the workplace (Hammer et al., 2011).

Comparing baseline data collected 9 months prior to the intervention, Hammer and colleagues (2011) found that employees with higher family-to-work conflict were most likely to benefit from having trained supervisors. These employees had significantly more favorable job satisfaction, physical health reports and lower turnover intentions. The interactive effect of training and family-to-work conflict was mediated by employee perceptions of family-supportive supervisor behaviors.

Summary. The literature review identified five principles for WFHN intervention design: 1) multilevel; (2) multi-disciplinary; (3) systemic in content and process; (4) bottom up *and* strategic design; and (5) customized and adaptive (See Table 1). The pilot studies included two intervention components: 1) a results oriented work environment (ROWE) that focused on work

quality and not time at work, putting employees in control of their work time; and 2) family supportive supervisor behaviors (FSSB) to increase leader work-family support. In the next section, we discuss how we put these principles in practice in developing and testing an intervention in a randomized field trial at two organizational sites.

Intervention Context, Design and Customization

Intervention organizational partners. To date, most workplace work-family health interventions have been studied in a single context. By contrast, the WFHN chose to investigate its intervention in two different contexts with contrasting workforces to take a more holistic approach promoting understanding of the commonality and distinctiveness of principles and processes of change. Two major employers from contrasting industries were selected for the intervention based on selection criteria that may be useful to replicate. The chosen organizations needed to have expressed serious commitment to improving work, family and health relationships. They had to be willing to allow the intervention to be conducted on work time. They had to have enough work sites to meet statistical power analysis requirements. They had to be willing to be part of a randomized scientific study. We selected the information technology workforce of a communications organization, which we gave the pseudonym of "Tomo", and the health care work force of a Long Term Care Organization, which had the pseudonym of "Leef." The intervention had the same goals in both organizational sites, and the process and content were adapted slightly (customized) for each context. We refer to the version of the intervention implemented with information technology professionals at "Tomo" as STAR (Start. Transform. Achieve. Results.). We refer to the intervention implemented at "Leef" as START (Start. Transform, Achieve Results, Today).

Design principles/strategies. We integrated the five design principles described above in the intervention design. The intervention was designed to be *multilevel*. It targeted organizational (work-family culture, leader, coworker behaviors, and the structure of work); and individual (perceived support and control, reinforced by self-monitoring) change elements. It addressed multiple levels of occupational health prevention by being delivered to entire work units (teams at Tomo, i.e. employees reporting to the same manager, long term care facilities at Leef). In this way, the intervention dose was delivered to not only those in highest need (which risks stigmatization), such as those with high work-family conflict, but coworkers who were not necessarily experiencing high work-family stress. The intervention was *interdisciplinar*y. The team integrated concepts such as improving the psychosocial environment to increase schedule control (Kelly et al., 2011; Moen, Kelly, Tranby, et al., 2011); FSSB (Hammer et al., 2011; Kossek, Baltes, et al., 2011); social learning and social-cognitive self-regulation (Bandura, 1977; 1991); crossover theory (Westman, 2001); and results-oriented time use culture change (Kelly et al., 2010).

The intervention focused on *whole systems change*, targeting an entire work site or work unit. Given the complexity of work-family and organizational effectiveness issues, change is unlikely to be achieved by altering or just changing one aspect of the system. The intervention had a *dual agenda* (Bailyn, 2011) focusing on redesigned work to jointly reduce work-family conflict and enhance work performance. The intervention was *bottom up, yet strategic* in delivery. It was participatory in enactment, yet required top management support for the change and the intervention was delivered during work time as part of normal business practice with the expectation that all employees and managers in the unit or site would be involved. Management

support was also necessary for the randomized experimental nature of the intervention delivery and the parallel (but separate) longitudinal study evaluating it.

The research team developed consensus that the intervention design was to have the same principles across the two industries and work unit contexts even as it needed to be *adapted* to local needs and *customized* to each industry. Given the disparities and diversity in work and family and occupational health contexts, a key challenge the research team faced was whether and how to customize the design of intervention components that had been developed in unique contexts. For example, how could the ROWE intervention, which was initiated for white-collar corporate professionals, be adapted to hourly workers in a 24-7 patient-centered work system? Or how should the FSSB and behavioral self-monitoring component of the intervention, developed largely in an hourly workforce setting, be adapted to a professional IT context? What does work-time control look like for lower-level hourly workers with place-bound jobs (Haley-Lock, in press) compared to IT workers who have high connectivity to work and family via cell phones and the Internet? The WFHN decided that the intervention in each industry would follow similar goals (increase support, control and results orientation), yet adapt to each context. We next discuss the customization process to modify content, timing, and sequencing to adapt common content, goals and processes to each of the industries.

Stages and goals. The WFHN intervention was designed to reduce employees' degree of work-family conflict and improve well-being and effectiveness in employee work, family and health outcomes. Figure 1 shows its main goals: (1) increasing employee perceptions of supervisor and co-worker support for employees work and family/personal lives; and 2) changing the culture towards a results-orientation with eradication of stigma regarding how work time is used, thereby increasing workers' control over the time and timing of their work.

The supervisor training was modified from the pilot studies to include not only FSSB but performance support to be consistent with a results orientation. Collective or group employee behavioral self-monitoring activities were also developed to support transfer of the face-to-face training.

Intervention components were designed to be integrative and reinforcing. Figure 2 describes the three stages used to organize the delivery of intervention activities. Stage 1 included preparing for the change. Sites needed to be readied to understand the need for change, particularly the health care workforce. Because the employer made a decision to participate in our research endeavor, the intervention was a randomized employer-sponsored initiative which employees could choose to attend if they wanted. Evaluation of intervention effectiveness via an independent data collection was voluntary and had to be conducted via employee consent. In the long term care facilities, since each site operated independently, some sites needed to be readied to understand the need for change. Stage 2 included actually delivering the intervention. Stage 3 entails activities related to sustaining the change.

Intervention activities and content. The intervention was delivered as a workplace improvement/corporate sponsored program. It involved three main types of activities: leadership/management computer-based training, facilitated participatory sessions delivered face to face to employees, managers or both, at spaced intervals over 4 months, and on-the-job transfer of training activities (individual and group self-monitoring, action learning and process improvement teams). It was important that the intervention was conducted over time drawing on distributed learning principles that suggest training and learning is likely to be more effective when carried out at intervals as compared to delivery in large masses ("Why One Way of Learning is Better than Another", 2009). Overall, the intervention involves multiple modes of

delivery (participatory sessions, computer-based training, and behavioral self-monitoring using an iPod Touch device) that are sequenced to build on each other, reinforce core messages, and address different learning styles (Dunn & Dunn, 1978). The research team designed and delivered the computer-based training and self-monitoring activities for both supervisors and employees. External consultants who had developed ROWE at Best Buy were hired to deliver the face-to-face participatory training.

Training materials and content. Table 2 shows that the intervention treatment as rolled out in each industry included the common components of: 1) participatory face-to-face sessions with staff and managers; 2) participatory face-to-face sessions for only managers and supervisors; 3) on the job activities for all employees to reinforce learning from sessions; 4) manager-only computer-based training and behavioral self-monitoring. To maintain fidelity, the researchers and consultants worked together to prepare a facilitators' guide for participatory sessions using semi-structured scripts as well as interactive activities (including role plays, games, etc.). These sessions encouraged supervisors and employees (either jointly or separately) to reflect on current practices and identify strategies to increase supervisor support, increase work-time control, and reduce work-family conflict, while continuing to meet or exceed business goals. Additionally, a computer-based training protocol and supervisor self-monitoring protocol was developed and used to ensure fidelity.

Overview of training content

Initiative process flow: From orienting sessions to problem solving toward workplace improvement . As Table 2 shows, in both types of industry sites the change initiative first orients managers and employees to the goals and to the participatory nature of the change process.

Depending on the leadership structure, managers only or steering teams of managers and employee team leaders are first oriented to the goals and the process. Then employees are oriented in groups, in team induction and sludge sessions alone. Later sessions then turn to a facilitated reflection of the current organizational culture and more concrete problem-solving in joint groups. This entails allowing participants to identify goals and begin efforts to implement them by making selected changes in everyday work practices.

Supervisor computer-based-training and self-monitoring. Labeled *weSupport* training and tracking, this intervention component targeted managers. It was designed to motivate supervisors to increase their support for employees' family and personal lives and job performance, teach specific skills to effect such changes, and provide a technology to support those changes. Supervisors first completed computer-based training (*weSupport* training) early in the intervention process, followed by two rounds of self-monitoring of supportive behaviors (*weSupport* tracking).

The computer-based training provided managers with information about the relationship between work and non-work and how this relationship can impact the health and performance of supervisors and their employees. After delivery of every 8-10 screens of information in the computer-based training, supervisors completed a quiz question with multiple-choice answers to assess what they have learned and provided correct/incorrect feedback; errors on quiz questions led to repetition of the information and the quiz question (repeated until the correct answer was selected). Pre-training and Post-training tests of the supervisor support material were given without feedback, to assess learning. The training content gave examples of supervisor strategies for providing more support for employees' family and personal lives and to facilitate employees' control over work time. These included expressing appropriate and genuine

interest in employees' lives outside of work; sharing accurate information on the company's work-life policies and benefits; modeling work-life balance in their own work patterns; establishing standard procedures for managing scheduling conflicts in a fair and transparent manner; and facilitating cross-training that will allow for easier management of schedules. Managers' support of strategies to maximize employees' work-time control, while still meeting business goals were also included. These may include self-scheduling systems; establishing standard procedures for requesting schedule changes or trading shifts (Leef only) cross-training to increase back-ups within the work group; standard procedures for requesting an experienced floater/utility person (Leef only); designated "no meeting hours" policies (Tomo Only); or a shift to laptop computers, when feasible, to allow more work to be done remotely (Tomo Only).

After the training, supervisors were asked to set goals and track the ways they actually provided family and performance support for employees. The tracking exercise was designed to help supervisors apply supportive concepts learned in training in their workplace environments. Supervisors are encouraged to concentrate on specific behaviors that support employees' effectiveness on and off the job.

Supervisors completed two trials of tracking using iPod Touch devices. Each trial with the iPods lasted for two weeks, and involved goal setting, daily self-monitoring of family and performance supportive behaviors, and individual and group feedback loops. This process was designed to increase supervisors' awareness of what they were doing for employees and stimulate behavior change. The activity was informed by current best practices in self-monitoring methods (Korotitsch & Nelson-Gray, 1999; Olson & Winchester, 2008). Examples of practices incorporated included goal setting, twice daily alarm cues for self-monitoring, high frequency automated feedback provided by iPods, and normative group feedback provided at

follow up. All feedback in the process highlighted gaps between actual supportive behaviors versus personal goals. Based on the social-cognitive theory of self-regulation and behavioral motivational theory, rich feedback about "performance gaps" was expected to function as motivational stimuli (or motivating operations) for supportive supervisory behaviors (Bandura, 1991; Laraway, Snycerski, Michael, & Poling, 2003).

Cultural evaluation sessions. Facilitator led face-to- face employee "Sludge Eradication" sessions are designed to reduce presenteeism and judgments about appropriate and inappropriate time use. Employees were invited to reflect on assumptions and expectations underlying the current culture around the social organization of work time, and how this culture affects both their own well being and the group's performance and productivity. In Tomo, employee conversations often focus on expectations of long hours, "face time," and constant availability. In Leef, employee conversations often focus on recognizing everyone's contribution to patient care rather than being caught up in negativity across roles.

Employee self-monitoring. After the sludge session, IT (Tomo) employees completed a web-based group self-monitoring activity called the Sludge Poll. In this activity employees self-monitored their personal sludge eradication efforts and received live feedback about group participation and behavior. Because Leef employees do not have access to computers as easily, this was called the Sludge Eradication Activity in the health care industry. It involved tracking via posters, stamps, and lanyard cards. Analogous to the Tomo web poll, the Leef poster activity was constructed so individual self-monitoring resulted in a visual display of group-level participation and sludge eradication behaviors. In both industries these activities were designed to help employees notice how they interacted with others in the workplace and begin to change negative interactions.

Action learning and tracking of everyday Practices. The next participatory facilitated session, "Culture Clinic", used role plays and other activities to help employees and managers consider whether everyday work practices (e.g. calendar notices and meeting practices in Tomo; work scheduling practices and how teams are organized to respond to patient needs in Leef) aligned with the STAR/START goals. At the conclusion of the session, employees were charged over the next two weeks to do at least one thing that would have been "scary" (Tomo) or "different" (Leef) in the old culture (e.g., working from home in the morning without asking permission for Tomo or finding coverage for a few hours in order to attend a child's recital during normally scheduled work hours for Leef), and at least one thing that would be supportive of the new culture (e.g., taking a task from a co-worker to support a family or personal need). Employees chose actions from a list of possibilities developed through focus groups in each industry. In Tomo, employees reported and described what they did with a Do Something Scary web forum. At Leef employees used posters, and the activity was called "Do Something Different" because the framing of "scary" didn't fit with a safety oriented patient culture.

Employees also engaged in the Do Something Supportive activities in both industries. After this, managers met once more with the facilitator for peer-to-peer discussions of their concerns and early experiments. In both industries, managers completed a second round of supportive behavior tracking. Several weeks after the Culture Clinics, employees and managers returned for a final session that allowed them to share early successes and brainstorm together about challenges – these were called Forums. In the long term care facilities, employees are invited at that point to work with others on task forces implementing specific changes and those activities are supported by START. A special START Moving Forward session was created to

support this effort at Leef, and was facilitated by site personnel rather than by the outside consultants.

Intervention Customization to Industry Sites

The intervention was customized to each industry in delivery, development of supplemental materials, in addressing the time in training-job pay tradeoff, inclusion decisions, and cultural framing.

Delivery. The organization of the collective for intervention delivery, defined as the "work unit," were teams of employees at Tomo who reported to the same manager. At Leef, the work unit was the entire long term care facility or work site. Managers in charge of each team or work unit were invited to implement STAR(T).

The main training delivery issue at Tomo was adaptation to a virtual workplace and linking training to formal policies. Remote workers had teleconference access to participatory sessions. Web-based polls and forums were scheduled as repeating Outlook events to provide easy employee access to self-monitoring activities. Remote managers were given access to the computer-based training.

The biggest delivery issues at Leef were simply in organizing and scheduling training delivery, given the nature of the health care work being done. It was very challenging to set training schedules in advance, socialize workers to get off the floor for training, and ensure there was coverage of patients during training without increasing overtime work and pay. Group based work-family intervention training of this scale had never been tried in this context. To ensure that the intervention was widely delivered at Leef facilities, change advocates from all departments and all levels were identified and were responsible for bringing employees up to

date if they missed sessions, and a "Steering Team" was implemented with members that included managers, department representatives, and front line employees.

While the Steering Team format helped with communication when sessions were cancelled for bad weather or if some workers were unable to find coverage in order to attend face-to-face training sessions, it also is reflective of the necessarily somewhat less bottom up organic nature of the intervention design at Leef. Because long term care facilities are often highly hierarchical in structure and top down in decision making, the steering team was developed as a way to allow for representative participation in leadership roles for workers from lower-level employee groups.

The WFHN intervention team monitored and ensured intervention fidelity by tracking participation rates, and troubleshooting as needed over the rollout of the intervention from site to site to ensure attendance was sufficiently high to ensure evaluation could be done. For example, if attendance dipped at a site, we found out why and took action to remedy. We also encouraged participation by offering raffle prizes for attendance and participation in activities.

Supplemental adaptive training materials and systems. In both sites, some employees were not able to attend the facilitated sessions because of absences or because they were not scheduled to work during the times sessions were offered. This was particularly true of night shift workers in Leef or those who work a weekend or three-day schedule that was not during training. Handouts with key messages were shared by the Steering Team members at Leef and also left with the administrator for dissemination. At Tomo, handouts and the session calendar were posted on an internal website specially created for that purpose. Employee self-monitoring activities were conducted using posters and cards (where employees marked each time they did

an activity suggested in the session) at Leef. At Tomo, these activities were also conducted using the internal website and email reminders.

Paid time and training tradeoff. A key issue in both sites was determining how to conduct delivery during paid work time, as the intervention training and activities took employees off the job. At Leef, the paid time customization involved agreement with management that the training would not lead to overtime., or if overtime did occur this would be allowed to support training participation. At Tomo, management came up with a special billable code that was used by employees to track training time.

Inclusion design. Even though the intervention was company-sponsored and the WFHN aimed to have the intervention be inclusive, collective and site based to foster organization-wide change, due to resource limitations some workers had to be excluded. This meant that at Tomo contract workers were excluded (since their employment conditions are set by the consulting or contracting organization that officially employs them). At Leef, night shift and weekend workers were typically excluded, though sometimes they were invited to come in on their day off or hours off for training. The decision to include workers at Leef who are not engaged in patient care, such as housekeepers and dietary staff, was dependent on the top managers' view and whether the work site was organized into patient-centered neighborhood teams where indirect care workers (e.g., food service, housekeeping, recreation) worked intensively with nursing staff.

Language, symbols, visioning. For all training components, in each industry, care was taken to include examples, language, and pictures appropriate for the work context. For example, while there was a high degree in overlap in target supportive behaviors across industries, customization required different target behavior examples in certain behavior

categories. In the health care industry (i.e., Leef), an example of instrumental support was "Posting work schedules on time so employees can plan for family and personal commitments." In the information technology industry, where shift work and schedules are less relevant to workers, an example of instrumental support was "adjusting or facilitating work assignments to support employees' family or personal needs."

Similarly, language in the facilitated sessions was changed. An example is that at Tomo, a visioning principle used in the orientation session was "Every day feels like Saturday". At Leef, since some hourly workers work on Saturday, the guidepost was changed to "Every day feels like my day off." Examples like taking several hours off to get a pedicure during the workday that were used at Tomo, were dropped at Leef, where workers generally had less discretionary income, and were focused on paying rent and basic food costs. Examples of leaving for long periods during the work day were also sometimes less effective for workers who had long commutes, or were less able to extend or restructure their 8-hour shift.

In addition to the guidepost vision statement adjustment above, other statements used at Tomo were eliminated at Leef due to not fitting with the hourly-wage workforce. This change in vision was compensated by innovation in the change tenets of the intervention. For example, a Leef-only guidepost statement was created that employees were able to work in the way that was best for them as long as it was "Safe, Legal and Cost Neutral." These principles helped set work site boundaries about how far culture change and work redesign could go. Overall, slightly more experimentation and trial and error, and customization was needed in the low-wage workers context, an over-bounded system with many occupational health challenges (Murray, 2003).

Discussion

It is important that both practitioners and scholars collaborate to study and implement research-based interventions in order to foster the goals of a) state-of-the-art transfer of academic-based scientific principles to practice; b) enabling evidence-based diagnosis and evaluation of organizational change processes and outcomes; and c) permiting scholars to adapt textbook principles to the realities of real-world workforces and industry contexts, which should enhance change implementation.

We identified the intervention goals of increasing support for family/nonwork and performance roles, and changing the work environment to focus on results to give employees more control over the time and timing of their work as key targets for change during intervention design. Although these principles are the same in both industry contexts, we argue that customization of principles is a critical part of adaptive change processes. Organizational interventions need to be designed to address how the organization of work contributes to occupational health disparities and work-family conflict, which may differ across organizational contexts.

Many work-family interventions to date have not been multilevel and multi-disciplinary; neither have they been whole systems approaches or oriented to change organizational cultures and structures in both preventative and proactive ways. Prior interventions have tended not to integrate participative processes with strategic support; neither have they been sufficiently customized and adapted to local circumstances, much less integrated work-family and performance issues. Furthermore, few work-family workplace interventions have been evaluated using rigorous experimental designs enabling the identification of evidence-based programs that can be disseminated to other workplaces. We argue that the WFHN intervention described in this paper represents an important advance on all of these fronts.

Future Challenges

Future research should build on and extend the principles that motivated the WFHN research design, addressing the balancing of social science disciplinary strengths in approaches to intervention design and delivery. For example, the WFHN found that balancing the structured micro-psychological and behavioral approaches with the sociological cultural macro-approach was not always easy, but also produced interesting and innovative results.

Another challenge occurs around decisions about when to standardize and when to customize interventions. While it is true that industry and workforce differences must be respected, given these are interventions that change the social organization of work, customization must be done judiciously. There are also organizational cultural challenges, such as the WFHN experience of the intervention being choreographed in a more top-down hierarchical approach in Leef than in Tomo. In this case respecting industry differences required walking a fine line, which risked derailing the change process in the more hierarchical systems.

Finally, future research should also include intervention process evaluation data. That is, information on the integrity of intervention implementation and on how the unfolding process of intervention delivery might be related to outcomes. Collecting data on participation rates and how the intervention is defined and enacted provide important information for evaluating intervention fidelity and effectiveness.

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Figure 1. Summary of Network Intervention Components and Goals

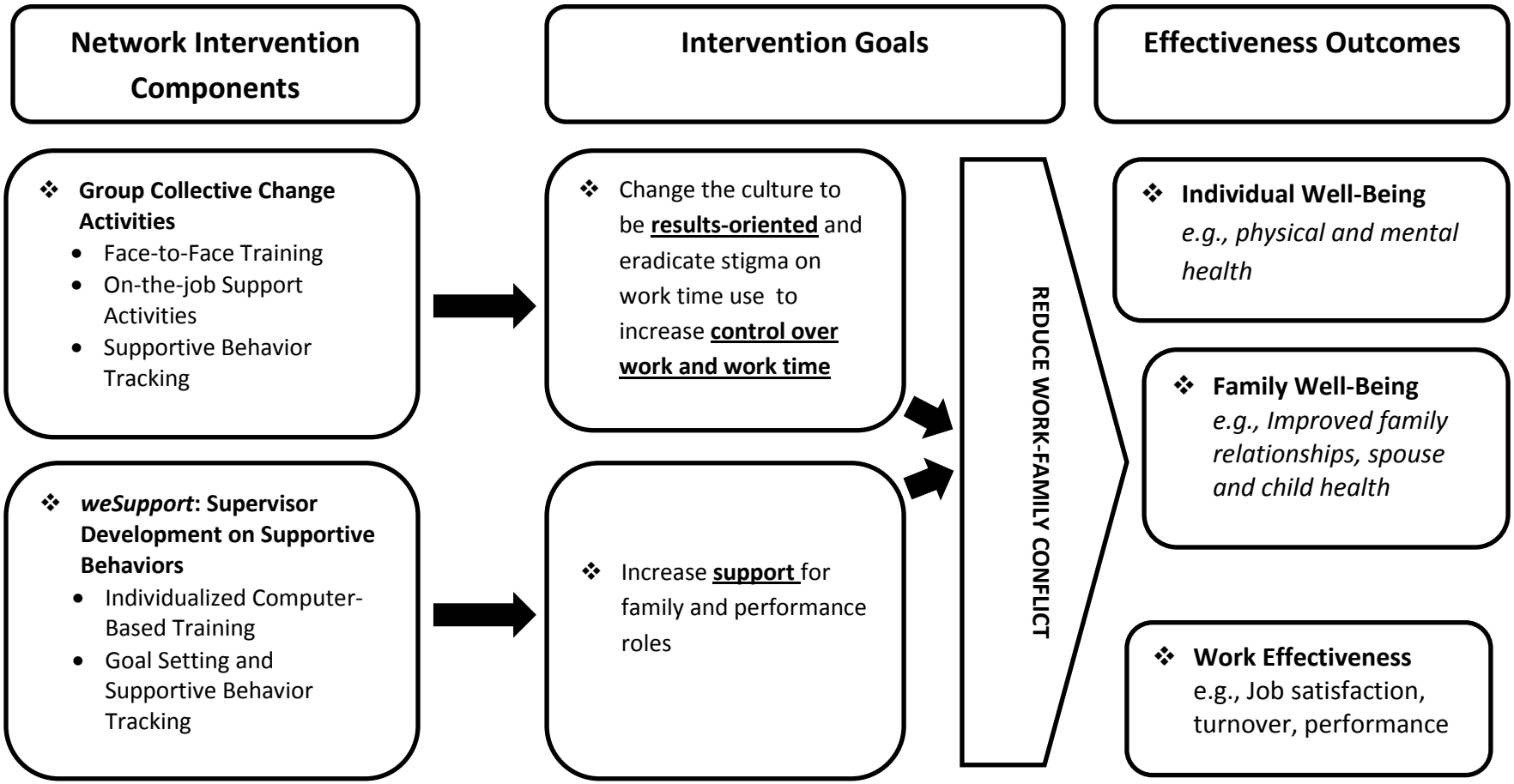

Figure 2. Intervention Stages and Activities Distributed Over 4 months

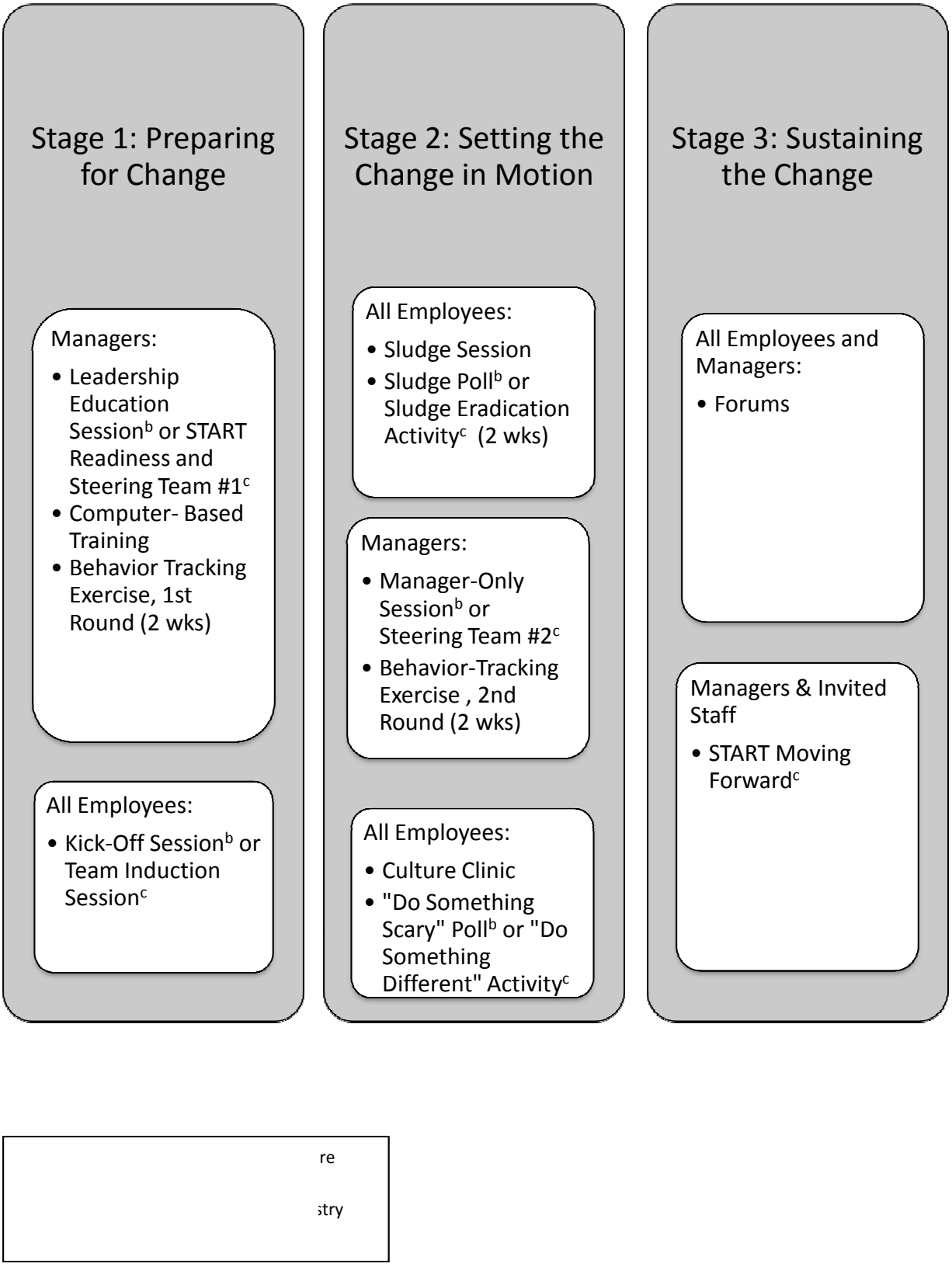

Table 1. Five Guiding Principles for Comprehensive Organizational Interventions

Principle	Description	Examples
1. *Multilevel*	Integrates individual and organizational approaches to change	Develop individual coping strategies (e.g., Individual) Structural Job change (e.g., Organizational)
2. *Interdisciplinary*	Integrates knowledge and multiple perspectives from multiple disciplines. Can also combine a positive and negative approach to workplace stress.	Increase of social support targeting multiple disciplinary approaches e.g., using EAP program to reduce stress by targeting individual behaviors (a social work perspective) versus proactively inclusion of coworker support as part of job description (a organizational behavior perspective)
3. *Whole Systems and Dual-Agenda Focus*	Examining all aspects of organizational culture, both formal and informal structures, as well as the work and family roles	Redesign of supervisor performance goals to align with supportive practices
4. *Participative (Bottom Up) Yet Strategic*	Combination of high employee participation with top down management buy in and support	Highly engaging, participative employee sessions
5. *Customized and Adaptive*	Adapting intervention content and delivery for the organizational context	Conducting online versus in person training; changing timing and number of sessions

Table 2: A Listing of STAR and START Intervention Components, Audience and Timing for Organizations in Information Technology and Health Care Industries

Audience	**Participatory session**	**Manager Training and Employee Outside Activities**	**Time**
STAR in the IT Industry "TOMO"			
Managers	Leadership Education		2 hours
Managers		Computer-based Training	1 hour
Managers		Supportive Behavior Tracking, 1st round	Two weeks
All employees	Kick Off		2 hours
All employees	Sludge		2 hours
All employees		Sludge Poll	Two weeks
All employees	Culture Clinic		2 hours
All employees		Do Something Scary	Two weeks
Managers	Managers Only		2 hours
Managers		Supportive Behavior Tracking, 2nd Round	Two weeks
All employees	Forum		1.5 hours
	TOTALS Managers Employees		 12 hrs 30 min 7 hrs 30 min
START in the Long-Term Care Industry "LEEF"			
Managers	START Readiness		1 hour
Steering Team	Steering Team #1 Overview		20 minutes
Managers	Management Team Induction/Sludge		2 hours 40 minutes
All employees	Team Induction/Sludge	Sludge Tracking	1 hour 30 minutes
Steering Team	Steering Team #2 Review		20 minutes
Managers		Computer-based Training	1 hour
Managers		Supportive Behavior Tracking (1)	Two weeks
All employees	Manager Culture Clinic		2 hours 40 minutes
All employees	Culture Clinic		1hour 30 minutes
Managers		Supportive Behavior Tracking (2)	
Managers	Forum		1 hour
All employees	START Moving Forward		1hour 30 minutes
	TOTALS Managers Employees Steering Team (non-managers)		 9 hrs 30 min 4 hrs 6 hrs 10 min