Work and Family Conflict: Does Home-Based Telework Make a Difference?

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WORK AND FAMILY CONFLICT:
CAN HOME-BASED TELEWORKING MAKE A DIFFERENCE?

Organizations continually seek to find ways to improve the performance of individuals, groups, and the entire organization. Research has shown that, when employees’ work-family conflict levels are reduced, performance in the workplace can be increased. How to reduce these levels, however, is a complex task. One claim that has been made, but not thoroughly researched, is that teleworking can assist employees in reducing their work-family conflict. This empirical study researched the effects of home-based teleworking on work-family conflict. Its purpose was to investigate the differences in work and family conflict (i.e., overall, forms, directions) between full-time worksite employees and full-time teleworking employees (individuals who teleworked from home at least two days per week). Employees in seven for-profit companies in Minnesota were sampled. Of the 308 surveys distributed, 98 teleworker and 123 non-teleworker surveys were returned for a return rate of 71.7 percent. The findings indicate that teleworkers had lower levels of overall work and family conflict as well as most of the other work-family conflict variables explored (i.e., strain-based, time-based, work interference with family, family interference with work). Relationships were also found between work and family conflict and gender, health, number of hours worked, and number of children.
WORK AND FAMILY CONFLICT:
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Organizational leaders are continually seeking to find ways to improve the performance of individuals, groups, and the organization as a whole. These methods typically include interventions focused on changing processes, systems, techniques, products, services, people, programs, or even intra- and inter-personal employee challenges and concerns. In recent years, one specific area that organizations have begun to address is that of employees’ work-family conflict. Employees' work-family conflict levels have increased throughout the years because of changes in demographics, family structure, values, workplace needs, and more (e.g., Duxbury, Higgins, Lee, & Mills, 1992). In fact, Jacobs and Gerson stated that "there is little doubt that workers are facing new and unprecedented challenges in meeting the demands of work and family" (1998: 442). Frone, Yardley, and Martel stated that understanding this work-family interface is a "pivotal concern of both work and family researchers" (1997: 145).

Work-family conflict can produce difficulties for employees, employers, families, and society as a whole. According to Carlson and Kacmar, “how individuals react to and deal with the interaction between the work and family domains have vital consequences for the individual and the organization” (2000: 1031). More specifically, Senge (1990) purported that organizations limit their overall effectiveness and ability to learn by fostering avoidable work-family conflict for employees. Even though conflict is a normal part of life, experiencing increased levels of work-family conflict has been linked to negative consequences for both the work and home domains (e.g., Adams, King, & King, 1996; Duxbury, Higgins, & Mills, 1992). Research has shown that a reduction in employees’ work-family conflict levels can often lead to increased performance in the workplace. How to reduce these levels, however, is a complex task.
One claim that has been made, but not thoroughly researched, is that teleworking can assist employees in reducing their work-family conflict. Although the telework area appears to abound in research, there is little related to its possible effects or connections with work-family conflict. However, as more employees are struggling with family and work demands, it continues to be important for researchers to study the various relationships between work-family conflict and possible workplace interventions and programs (Grandey & Cropanzano, 1999). For example, Carlson (1999) explained that organizations can better design work and training and tailor career programs or assistance strategies to be more successful if they better understand the construct of work-family conflict. Interestingly, even though little systematic research exists to support these claims, many organizations are already targeting telework initiatives at highly valued employees for the purpose of easing the work-family conflict that employees experience (Mirchandani, 1998). Thus, the purpose of this study is to investigate the differences in various work-family conflict constructs between full-time teleworking employees (individuals who telework from home at least two days per week) and full-time worksite employees. This will be used to determine whether teleworking is associated with reduced levels of work-family conflict. This study also examines the relationships between various demographic variables (such as gender, age, martial status, number and ages of children, total hours worked per week, and health status) to see if they are related to work-family conflict. This article reports on part of the data collected from a larger study in this area. In a previous report (NAME REMOVED FOR REVIEW), specific work-family conflict dimension findings have already been reported. In this article, results regarding the more general work-family conflict forms (time-based, strain-based, and behavior-based) and directions (work interference with family and family interference with work) are reported.
WORK AND FAMILY CONFLICT

Work-family conflict is “a form of interrole conflict in which the role pressures from the work and family domains are mutually incompatible in some respect” (Greenhaus & Beutell, 1985: 77) and is a source of stress, especially in today’s society, that many individuals experience (Carlson, Kacmar, & Williams, 2000). Duxbury, Higgins, Lee, and Mills (1992) found that work-family conflict occurred when individuals performed multiple roles (e.g., worker, spouse, parent, and volunteer). Each of these roles imposed demands on time, energy, commitment, and increased balance requirements which resulted in role strain (Edwards & Rothbard, 2000). Tompson and Werner (1997) reported that it was not simply the number of roles that is most critical in work-family conflict, but the perceptions of the roles and the interactions between them. It is important to note, however, that under certain conditions multiple roles can influence positive results or benefits (e.g., energy creation, happiness, and self-esteem) for individuals (Barnett, & Hyde, 2001; Williams, & Alliger, 1994).

The role conflict theory (based upon a theory that has received vast attention in the work and family literature in the past decade) not only provides the primary theoretical framework of this study but also assists in clarifying and defining the work-family conflict phenomena. This theory states that experiencing ambiguity or conflict within a role will result in an undesirable state. Because of conflicting demands (e.g., time, incompatible behaviors) among roles, multiple roles lead to personal conflict as it becomes more difficult to perform each role successfully (Grandey & Cropanzano, 1999). Biernat explained that role conflict exists when role expectations are incompatible. "Role strain or difficulty in meeting role demands is inevitable" and a person "must continually make role decisions and bargains in order to meet role
requirements" (1997: 9). Greenhaus and Beutell (1985) presented three forms of work-family conflict (i.e., time-based conflict, strain-based conflict, and behavior-based conflict).

1. **Time-based conflict:** This type of conflict is exhibited when the time demand by one role is seen as an interference with participation in the other role (Greenhaus & Beutell, 1985). An example would be when a father is required to travel out-of-town for a business meeting the evening of his daughter’s yearly dance recital. This shift of time or attention often leaves demands in one domain unmet (Edwards & Rothbard, 2000).

2. **Strain-based conflict:** This type of conflict emerges when the strain experienced in one role intrudes into, and interferes with, another role (Greenhaus & Beutell, 1985). Symptoms include tension, anxiety, fatigue, depression, apathy, and irritability. An example would be when a husband and wife’s disagreement about family roles (e.g., household chores, wife’s employment) spills over into frustrations at work, inhibiting performance (Edwards & Rothbard, 2000).

3. **Behavior-based conflict:** This type of conflict is believed to take place when certain behaviors are inappropriately transferred from one role to another (Netemeyer, Boles, & McMurrian, 1996). For example, a parent may use a straightforward confrontational approach to leadership at work, but the use of this approach at home may cause problems.

Other researchers (e.g., Duxbury, Higgins, & Mills, 1992; Frone, Russell, & Cooper, 1992; Gutek, Searle, & Klepa, 1991) have purported that, to understand work-family conflict, both directions (work interference with family, family interference with work) must be considered. Work interference with family primarily stems from interference of events in the work role with
an individual’s ability to perform effectively in his or her family role. An example would be when a parent has no flexibility at work to be able to spend an hour during the day to take a child to a dentist appointment. Family interference with work stems from interference of events or responsibilities in the family role with an employee’s ability to perform his or her job effectively. For example, a child gets the chicken pox and cannot be around other children for nearly a week. The employee does not have extended family or other support mechanism in place so he or she must work at home while missing a number of important meetings and on-site duties. These three forms and two directions are used as the framework for the current study. Carlson, Kaemar, & Williams (2000), introduced these forms and directions (constructs) as the six dimensions of work-family conflict. Further, their work provided the theory behind their work-family conflict instrument which, with slight adjustment, was used in this study.

Although Carlson (1999) explained that each of the work-family conflict forms is a unique construct, it is clear that the forms and directions of work-family conflict can influence each other. Research has found that work interference with family and family interference with work affect each other (Higgins, Duxbury, & Irving, 1992), and work conflict is a more important predictor of overall work-family conflict than family conflict. In addition, Frone et al. (1992) found that family boundaries were more permeable than work boundaries for both men and women. Studies (e.g., Aryee, Luk, Leung, & Lo, 1999; Eagle, Miles, & Icenogle, 1997; Frone et al., 1992; Kinnumen & Mauno, 1998; Yang, Chen, Choi, & Zou, 2000) report that work interfering with family conflict is great and more common than conflict initiated from the family and interferes with work.

TELEWORK
Teleworking is a phenomenon that has received attention in both popular and academic presses. Shin (1997) explained that telework attracts interest from both academia and practitioners because of its potential and implications on individuals, organization, and the society. Ellison (2000) noted that this area of inquiry draws on knowledge from several disciplines and methodologies (e.g., communication, sociology, management, architecture, transportation, urban studies, technology, economics, and psychology).

The increase of telework utilization throughout the past few decades can be attributed to a number of factors: changes in dual wage earner and single parent families, pressures to balance work and family life, sociological trends, worker values, technology, pressures for environmental conservation, and pressures for organizations to be more competitive, reduce costs, and improve ability to recruit and retain workers (e.g., Bond, Galinsky, & Swanberg, 1998; Kugelmass, 1995). Many organizations, agencies, and individuals see telework as a direct means of increasing productivity and flexibility, a tool in socio-economic development and job creation, and a way to increase the control of work and to achieve a better fit between personal, family, and work life (Gray, Hodson, & Gordon, 1993; Kugelmass, 1995). When telework programs are designed and implemented effectively, research does suggest that its benefits outweigh the challenges and problems that employees and employers may face (e.g., Pratt, 1999; Thompson, Beauvais, & Lyness, 1999).

In a landmark study conducted for the International Telework Association and Council, Pratt (1999) found that 19.6 million people in the United States reported working as teleworkers in 1999. Another source reported estimates, in 1997, ranging from 9 million to 42 million telecommuters nationally (Ellison, 2000). The wide discrepancy with numbers in these reports can be attributed to the lack of clarity and consistency in the various definitions and descriptions.
of telework. In fact, the number of terms referring to telework in part or whole can be confusing (e.g., telecommuting, networking, flexible working, homeworking, hoteling, remote working, home-based working, mobile working, electronic cottage, virtual organization, virtual workplace, satellite centers, and neighborhood work centers) (Alston, 1997). Ellison (1999) explained that the definitions of these terms have been the “subject of substantial deliberation and little consensus for both academics and practitioners” (p. 340). The two most common terms used in the research are “teleworking” and “telecommuting.” Many researchers use these terms interchangeably, assuming that telework is preferred by Europeans, while telecommuting is preferred in the United States (e.g., Minnesota State Bar Association, 1997). Hence, in this report telework and telecommute are used interchangeably.

So, what is telework? Gray et al. defined telework as “a flexible way of working which covers a wide range of work activities, all of which entail working remotely from an employer, or from a traditional place of work, for a significant proportion of work time” (1993: 11). They explained that telework may be done on either a full-time or a part-time basis and that the work often involves electronic processing of information, and always involves using telecommunications to keep the remote employer and employee in contact with each other. Hence, telework is a specific form of flexible work arrangement. Alston (1997) suggested that any definition should include the use of telecommunications, the need to be organizational employees, and the replacement of travel to the worksite. One of the most cited definitions is from Nilles, the “father” of telework. He defined teleworking as “any form of substitution of information technologies for work-related travel” (Ellison, 1999: 341). He also explained that teleworkers must work from home, a client’s site, or in a telework center one or more days per week. Joice defined telework as a “work arrangement in which employees work at alternate
worksites to conduct some or all of their officially assigned work during paid work hours” (1999: 3). He also stipulated that the alternative worksite must reduce the employees’ commute, and that the employee must average at least eight hours every two weeks. Interestingly, the number of hours or days stipulated in the numerous definitions reviewed ranged from one day per month to three or more days per week.

Because of the discrepancies in definitions and the number of potential influencing variables, I determined that the operational definition of telework for this study would include only full-time corporate employees who worked from their homes (hence, home-based teleworkers) two or more days per week. All teleworkers should use information technologies in their work to produce services and products and to communicate with their primary worksite and clients. Because some companies implement other flexible work arrangements for certain positions (e.g., compressed work week), it was deemed that including only employees who worked from home two or more days a week would help distinguish employees using telework from other types of work arrangements.

RELATIONSHIP BETWEEN WORK-FAMILY CONFLICT AND TELEWORKING

As previously stated, one claim that has been made without adequate research support is that teleworking will reduce the level of work-family conflict for an employee (McCloskey, 1998). Because many employees appeared to increase their overall job performance when levels of work-family conflict were reduced (Bond et al., 1998; Duxbury, Higgins, & Mills, 1992), this claim, if true, could be important to management and human resource professionals.

A number of studies addressed work-family conflict as one small construct, measured with only a few items. Although some of the following mediators are not directly researched in the current study, it is important to note that they do lend general support for the directional
hypotheses to be proposed and, therefore, are included in this review. Chapman, Sheeny, Heywood, Dooley and Collins (1995) stated that telework had the potential to increase role conflict while Schreiber (1999) found that it actually reduced role conflict. Bernardino (1996) found that employees perceived that telecommuting would reduce work-family conflict, while Meador (1995) reported that such a perception may be linked to greater feelings of control that, in turn, appeared to reduce conflict. Mirchandani (1999) reported that teleworkers felt it allowed them greater control, which assisted them in managing family responsibilities with less stress. Reports of increased job satisfaction through teleworking are numerous (e.g., Pratt, 1999). DuBrin (1991) reported that elevated job satisfaction appeared to be linked to working conditions, the opportunity to take care of family and personal responsibilities, and the scheduling of one's own working hours (control). Although they found that the positive benefits of flexible schedules were found to diminish over time, Baltes, Briggs, Huff, Wright, and Newman (1999) found a significant relationship between flexible scheduling and employee job satisfaction. Thomas and Ganster (1995) and Kossek and Ozeki (1998) also found that relationships between work and family had important effects on both job and life satisfaction. Satisfied employees appeared to experience less work-family conflict. In addition, control perceptions (increased through telework and other flexible scheduling) were associated with lower levels of work-family conflict.

Crossman and Burton (1993) stated that, even though workers found it somewhat difficult to separate work and family time (i.e., blurred boundaries), none of them suggested it was a major problem or very stressful. On the other hand, Batt and Valcour (2003) found that general flexible scheduling policies (teleworking being one type) did not have an impact of work-family conflict but that specific work design characteristics (autonomy, coordination,
technology, work hours, and travel) were strong predictors of work-family conflict. Although some were associated with lower work-family conflict, using flexible technology (faxes, e-mail, home computers, and pagers) to manage work and family demands was associated with higher work-family conflict. Hill et al. (1998) also found that telecommuting provides flexibility but also allows work to invade family space. It is important to note, however, that Batt and Valcour’s work-family conflict measurement consisted of only two items and that flexible scheduling arrangements were primarily lumped together. It is my argument that telework has many important distinguishing features from other flexible scheduling practices and should be studied separately.

McCloskey (1998) and De Lay (1995) conducted two of the few available studies on the effects of telework on work-family conflict forms and directions. It is important to note, however, that both studies utilized small samples. McCloskey’s research study addressed the three forms of work-family conflict (time-based, strain-based, and behavior-based conflict) as proposed by Greenhaus and Beutell (1985). McCloskey found that there were a number of intercorrelations among the work-family conflict forms that were different for teleworkers and non-teleworkers. However, she did not find that there were differences between the level of behavior, time, or strain-based work-family conflict reported by the two groups. Importantly, the majority of her sample (67 percent) was out of the office only one to three days per month. De Lay used a hybrid quasi-experimental design to study the permeability (i.e., work interference with family and family interference with work) of work-family conflict (but not the forms). She studied a small sample of employees who started telecommuting and measured their work-family conflict levels at the beginning and after the sixth week and sixth month of their experiences. The results from her sample showed that teleworking impacted work interference with family but
had no impact on family interference with work. She explained that "this may stem from the fact that telecommuting is an intervention specifically targeted toward relieving stress due to job structure, and, thus, does not address family issues" (1995: 53). Based on these research findings and the adjustments made to the methods of the current study, I predict:

*Hypothesis 1:* Home-based teleworkers (full-time employees who telework from home at least two days per week) will have lower overall work-family conflict levels than full-time worksite-based employees.

*Hypothesis 2:* Home-based teleworkers will have significantly lower time-based, strain-based, and behavior-based work-family conflict levels than full-time worksite-based employees.

*Hypothesis 3:* When compared to full-time worksite-based employees, home-based teleworkers will have significantly lower work-family conflict levels related to work interference with family but not family interference with work.

**DEMOGRAPHICS AND OUTCOMES**

Specific literature regarding several antecedents was particularly helpful in the design of this study and, specifically, in the development of hypotheses. Addressed first are gender, marital status, company “family-friendly” culture, and employee age. First, the literature reported either no evidence of significant gender difference in work and family interference and work-family conflict levels (e.g., Cinamon & Rich, 2002; Eagle et al., 1997; Kinnunen & Mauno, 1998; Yang et al., 2000) or significant differences with females having higher levels of work-family conflict than males (e.g., Duxbury, Higgins, & Lee, 1994; Hammer, Allen, & Grigsby, 1997). In a teleworker sample, McCloskey (1997) found that women had higher levels of work-family conflict than did males. Generally, more current literature appears to report no differences.
Second, a spouse can affect an employee's work-family conflict in various ways. It has been found that a spouse's work-family conflict influenced an employee's conflict (Hammer et al., 1997). A spouse's occupational salience, commitment, work role involvement, and success were also found to be sources of work-family conflict. On the other hand, supportive spouses have been found to buffer or decrease this conflict and its negative effects (Aryee et al., 1999; Grandey & Cropanzano, 1999). However, what is not clear is whether the existence of a spouse (general marital status) reduces or increases work-family conflict. Interestingly, Duxbury et al. (1994) discovered that, even though other researchers had found that single parents have more work-family conflict, single mothers and fathers reported no more overload and interference from family to work than did their married counterparts. Third, Thompson et al. (1999) suggested that, when there is a work-family supportive organizational culture, employees were able to manage work-family conflict more effectively. Since all organizations utilized in this study were considered “family-friendly” it is expected that responses among companies will be similar. Finally, Thompson et al. (1999) and Kinnunen and Mauno (1998) found no relationship between employee age and work-family conflict.

The relationship between work-family conflict variables and presence of children, number of children, and age of youngest child have been addressed at length in the literature. For example, researchers (e.g., Carlson, 1999; Grandey & Cropanzano, 1999; Kinnunen & Mauno, 1998) have found that the presence of children, the specific number of children (more children—higher conflict), and the ages of the children (infants, toddlers, preschool—more conflict) in the home were significantly related to work-family conflict. Because little data have been reported related to teleworker demographics and work-family conflict, I will focus my hypotheses for these demographics solely on this sample.
The number of hours worked per week, the number of days teleworked from home, and the length of time an employee has teleworked are also discussed in the literature. First, many researchers (e.g., Duxbury, Higgins, Lee, & Mills, 1992; Gutek et al., 1991; Major, Klein, & Ehrhart, 2002) have noted that time commitments and expectations, as well as the actual number of hours spent working, were significantly associated with work interference with family and family interference with work. Batt and Valcour (2003) also found that the number of weekly work hours was positively related to work-family conflict, and it is expected this is true for teleworkers. Although some literature does state that teleworkers can work more hours without negatively impacting their families, it is still expected that working more hours, generally, will heighten levels of work interference with family and time-based conflict. Second, Fritz (1995) found that the length of time a person has been teleworking had a significant effect on his/her ability to perform effectively which may be linked to work-family conflict (more experienced teleworkers have reduced work-family conflict). The highest levels are reported within the first three to six months of initiating a telework arrangement but levels seem to plateau after a year. Third, highest productivity gains have been reported for employees who telework between one to three days per week (McCloskey, 1998, Weidner, 1994). McCloskey found no differences in work-family conflict levels with her sample (1 day per month or more). Importantly, no research has been reported on the conflict differences between employees who telework two, three, four, or five days per week.

In sum, the demographic literature suggests that following hypotheses:

**Hypothesis 4a:** There will be no differences in work-family conflict levels (forms or directions) among genders, marital status categories, age ranges, or companies in either sample.
**Hypotheses 4b:** Teleworkers who have children will perceive higher work-family conflict levels (time-based, strain-based, family interference with work). Levels will increase based on total number of children and age of the youngest child (infant and pre-school will be the highest).

**Hypothesis 4c:** There will be no difference in work-family conflict among employees who have teleworked longer and employees who work more days from home, but teleworkers who work more total hours will have higher work-family conflict perceptions (work interference with family, time-based conflict).

There has also been research connecting work-family conflict to possible outcomes in the home and workplace. Research has linked work-family conflict to various adverse health problems and outcomes, as well as overall well-being (Adams et al., 1996; Frone, Russell, & Cooper, 1997). These outcomes include a direct or indirect relationship to psychological distress (Frone et al., 1992), depression (Eagle et al., 1997), somatic complaints, distress, and cholesterol increases (Adams et al., 1996), and emotional exhaustion. Stress, in general, has been found to be related to various psychological symptoms, including job dissatisfaction, anxiety, depression, and health consequences, such as high psychological fatigue, diastolic blood pressure, serum cholesterol level, heart rate, gastrointestinal disorders, and cardiovascular disease (Duxbury, Higgins, Lee, & Mills, 1992) which could have devastation effects on an employee’s performance. Grant-Vallone and Donaldson (2001) found that employees who reported high levels of work-family conflict also reported lower levels of positive well-being. More specifically, Ford and McLaughlin (1995) claimed that teleworkers experienced less or much less job-related stress than non-teleworkers, and Kugelmass (1995) stated that overall stress is reduced for some employees when they telework. Based on these research findings, I predict:
Hypothesis 5: Teleworkers and non-teleworkers who have lower work-family conflict (all forms and directions) will have higher health perceptions.

METHODS

A survey was used to determine the differences in work and family conflict between teleworkers and non-teleworkers with a questionnaire being given to samples of two different groups of employees in for-profit corporate organizations.

Sample and Population

Samples were extracted from seven Minneapolis/St. Paul area for-profit organizations with fairly well established telework programs. Even though telework experiences and policies appeared to slightly differ from company to company, it was necessary to use multiple organizations in order to obtain an adequate number of participants. All participating companies had written telework company policies (ranging from a few pages to a full booklet). Some provided a full-range of equipment (depending on number of teleworking days) including furniture, computer, monitor, and fax machine. Many provided laptops for employees so they could be moved from office to home. All companies provided phones and phone and computer lines for home offices. All companies had some type (although it varied in detail and scope) of an official agreement and specific guidelines for set-up and safety. Importantly, all organizations had specific policies not allowing workers to provide primary care for their children (especially between the ages of zero and six) during work hours.

The total employee population of these companies ranged from 350 to 200,000 employees while the employees located specifically in and around the Twin Cities area ranged from 12 to 10,000. All of the companies included in this study offered various types of family-friendly programs/initiatives for their employees and the larger organizations had established
well-known reputations for doing so. Though the companies appeared to differ widely in their
types of products, services, and industries, the job types (i.e., audit, customer service, engineers,
financial services, human resources, information technology, information service, management,
sales, staff professionals, and technical service) in these samples overlapped. The general job
type information was collected from phone interviews with the seven organizational contacts and
was not collected on individual surveys.

This study’s target population included all of the full-time employees in the seven
companies studied who either teleworked at least two days a week or had job types similar to
those who teleworked. Overall, the study utilized 172 employees in each sample (teleworker,
non-teleworker) (n=344). It was originally determined that a random sample of teleworkers
would be calculated in each organization. However, because there was a limited number of
teleworkers who fit the criteria, all applicable teleworkers within these organizations were asked
to participate. After the surveys were distributed, it was discovered that one company had given
36 teleworker surveys to employees who did not meet the teleworker criteria set forth. Their
teleworker database was not current and employees who were not longer teleworking or who
teleworked only occasionally were given surveys. Because of this, the overall sample size was
reduced to accurately represent the number of surveys distributed to teleworkers who met the
criteria (teleworker, n=136; overall, n=308). The non-teleworker sample was calculated by doing
a random sample of employees in the same seven organizations who had similarities with the
teleworkers who met the criteria for this study (e.g., job types, same departments, or same or
similar managers). This was done by working closely with organizational contacts who
coordinated with managers or obtained this information from human resource information
databases. Again, similar job types, departments, and managers were the criteria for matching the
non-teleworker sample. Matching the samples by age, marital status, number and age of children, and gender was neither practical nor possible. Because Boles and Babin (1996) and Eagle et al. (1997) found that the type and requirements of jobs were found to be related to levels of work-family conflict, it was important to ensure that both samples included employees with similar jobs and requirements. The total comparable non-teleworker population of the seven organizations combined was 2052. A random sample was completed for each organization resulting in 172 employees being selected to participate. Overall, of the 308 distributed, 224 were returned, and 221 (71.7%) were found to be usable and included in the study results (three were returned but not completed). Ninety-eight teleworkers (72.0%) and 123 non-teleworkers (71.5%) returned their completed and usable surveys. Return rates (ranging from 61% to 83%) were also calculated for each participating organization. Selected demographic results were gathered and compiled (see Table 1).

[Table 1 here]

Data Collection

Over 40 Twin Cities companies were initially contacted by e-mail and phone to discuss participation in this research project. Most often the primary contact was the human resource director or manager, although in a few large organizations contact was made with the work/life specialist or manager. Throughout these discussions it was determined the teleworker samples that met my criteria were limited or even non-existent in most organizations. In a number of large organizations, it appeared that teleworker databases were not kept and that it would be impossible for teleworkers to be located. Seven of the organizations were found to have appropriate populations and were willing to participate. Each organization had one primary contact to assist in preparing for the research which included continued correspondence by e-
mail, phone and/or occasional visits. Initially, these primary contacts were asked to answer some brief organizational information questions, gain corporate approval, and provide a letter of intent to participate. During the project, these contacts were also responsible for preparing lists/databases for random sampling, maintaining a list of sampled employees, distributing the survey envelopes, and providing one reminder to return approximately 10 to 14 days after initial distribution.

Participant envelopes included a consent letter, survey, and a folded addressed and stamped envelope. Participant envelopes were hand delivered to the key contact in each organization. They were then distributed via hand-delivery or interoffice mail to the appropriate participants. The participants were asked to mail the surveys within approximately 1 ½ weeks directly to me via the addressed stamped envelope provided.

**Instrumentation**

A multidimensional measure of work-family conflict constructed and validated by Carlson, Kacmar, & Williams (2000) was used to measure the overall levels, three forms, and two directions of conflict. The scale consisted of 18 questions that overlapped in their utilization. All 18 were used to measure overall work-family conflict perceptions or levels. Six items were designed to measure each of the three work-family conflict forms. Nine items were designed to measure each direction of work-family conflict (i.e., work interference with family, family interference with work). Sample items include the following:

- **Work interference with family**: My work keeps me from my family activities more than I would like.

- **Family interference with work**: Due to stress at home, I am often preoccupied with family matters while working.
• **Time-based conflict:** The time I spend with my family often causes me not to spend time in activities at work that could be helpful to my career.

• **Strain-based conflict:** When I finish work I am often too frazzled to participate in family activities/responsibilities.

• **Behavior-based conflict:** Behavior that is effective and necessary for me in my home life would be counterproductive while working.

The instrument used a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Overall, the instrument showed "discriminant validity, internal consistency, and invariance of the factor structure across samples" (2000: 269). According to Carlson, Kacmar and Williams, the instrument was subjected to rigorous development and validation procedures and reliability was established with coefficient alpha with scale reliabilities ranging from .78 to .87. They did admit, however, that is was validated on only two samples so additional validation was recommended. In addition, it is important to note that the instrument had two psychometric limitations. First, there was no reversed polarity in the wording of the questions. Second, similar items were clustered together. These limitations do extend to the current study's instrument because no instrument adjustments were made in these areas.

For the current study, slight wording changes on several items were deemed necessary so that the implication of where work was being done was appropriate. For example, one original question was worded “Due to all the pressures at work, sometimes when I come home I am too stressed to do the things I enjoy.” It was changed to read “Due to all the work pressures, sometimes when I finish work I am too stressed to do the things I enjoy.” These changes did not affect the core of each question but did allow it to apply more clearly to employees who telework
from home. Reliability for the adjusted instrument was established with coefficient alpha (see Table 2) with related scale reliabilities ranging from .85 to .92.

The demographic variables each had categories (boxes) for employees to check. Employees were first asked to identify whether they were teleworkers or non-teleworker (each term had a brief definition). In addition they were asked to check the appropriate box in the following areas: gender (male, female); age range (less than 21, 21-30, 31-40, 41-54, 55+); marital status (single/separated, married); number of children (0, 1, 2, 3+); age of children (no children, 0-5, 6-11, 12-18, 19+); total hours worked per week (35-40, 41-46, 47+); days teleworkers work from home (2, 3, 4+); and length of time teleworking (3 up to 6 months, 6 up to 18 months, 1-1/2 to 4 years; over 3 years). The survey clearly stated that the last two questions were to be completed only by teleworkers. Overall health status was also asked and participants were provided four choices (i.e., excellent, good, fair, poor) from which to choose. It is important to note that health is a very complex variable and detailed scales have been created and validated to thoroughly measure it. Only one simplistic item was added as an initial exploratory measure with a new sample (teleworkers). Conclusions from initial findings must be generalized cautiously and possible relationships should be further investigated utilizing validated health-related scales.

Data Analysis

The six primary work-family conflict constructs under investigation have been clearly defined in earlier sections. In addition, a sample survey item for each construct was provided. Five primary statistical analysis techniques were used to investigate and explore hypotheses: t-
test, correlations, multiple analyses of variance (MANOVA), one-way analysis of variance (ANOVA), and hierarchical regression analysis.

For the first three hypotheses, two-sample independent t-tests were used to determine whether the means of each work-family conflict construct for respondents in one sample differed from those in the other. First, the means and standard deviations were calculated. Second, the Levene's Test for Equality of Variance was computed to determine whether equal variances could be assumed or not. Finally, the appropriate t- and p-values were determined. It is important to note that there is sometimes concern of Type I Error with the running of multiple statistical tests (i.e., multiple construct t-tests). Because of this ANOVAs and a MANOVA were also analyzed using the same data. Because identical results were found with each statistical method, only the t-tests will be reported.

A number of statistical tests were used to analyze the fourth and fifth hypotheses. First, hierarchical regression analysis was utilized to examine the influence of teleworking above and beyond the many other influences. Both samples were combined to analyze the effects of the considerable demographic difference across the two groups. Second, a correlation matrix of all study variables was used to report means, standard deviations, and correlations of each sample (teleworkers and non-teleworkers separately). Finally, because existing literature is weak on demographics related to work-family conflict and teleworkers, a MANOVA was analyzed (and assumptions were met) to determine the relationship between each of work-family conflict constructs and the combination of applicable demographic variables for the teleworker sample. The demographics variables included gender, age of employee, marital status, number of children, number of hours worked each week, health status, company, number of days the employee teleworked, and the length of time the employee had been a teleworker. One
demographic (age of the youngest child) was not included in the MANOVA because, after the data was collected, it was found that the question was not well written. It was intended that the item find out the age of the youngest child actually living at home. The question was not clearly worded so ages of all children were marked whether they currently lived at home or not. For example, a divorced parent could have reported that he or she had a three year old child even if the child was living with another parent. There were 15 single/separated participants whose youngest child ranged from 0-18 years old. Instead of including this demographic in the MANOVA, a one-way ANOVA was used to compare the means of the age of the employee's youngest child and each of the work-family conflict constructs in both samples. It is important to note that the ANOVAs did not look at this demographic in combination with any of the others. In addition, statistical analyses may not be accurate because there was unbalanced data in and between groups. This demographic was included, however, in the hierarchical regressions.

RESULTS

Comparing Differences between Samples

Overall, employees in this study did not perceive themselves as having high levels of work and family conflict. In fact, the statistical means ($M$) for the directions and forms of work-family conflict ranged from only 1.97 to 2.73. In an attempt to determine whether the inclusion of single employees and employees without children were significantly driving down the scale means, t-tests and one-way ANOVAs were used. Slightly higher work-family conflict means (in all forms and both directions) were found within the marital status categories but the differences were not statistically significant. In addition, although the work-family conflict means were consistently lower for employees without children, they were still within a few tenths of a point (sometimes significantly) of employees with children. The means of employees with children
still ranged from only 2.1 to 2.7. Overall, it does not appear that these demographic variables are significantly driving down the overall work-family conflict means. To further explore the previously stated concerns and the possibility of providing a misleading picture of telework’s effect on work-family conflict because of demographic differences between samples, hierarchical regression analyses were conducted. Control variables (gender, age, marital status, number of children, age of youngest children, and number of hours worked per week) were entered on step 1 while sample (teleworker vs. non-teleworker) was entered on step 2 for each of the six work-family conflict constructs (see Tables 3 and 4). With three of the constructs, sample appears to be the only significant predictor of conflict. More detail is provided in the demographic results section.

[Table 3 here]

[Table 4 here]

The following section will report on the work-family conflict variable measured in the first three hypotheses.Interestingly, the mean of the non-teleworker sample was significantly higher than the mean of the teleworker sample (see Table 5) in all but one of the work-family conflict levels measured.

[Table 5 here]

*Overall work-family conflict.* The first hypothesis of this study predicted that home-based teleworkers (full-time employees who telework from home at least two days per week) would have lower overall work-family conflict levels than full-time worksite-based employees. An independent samples t-test was utilized to compare the overall work and family conflict statistical means of the teleworker and non-teleworker samples to see if there was a significant difference. All eighteen survey items were included in an individual's overall work and family
conflict score. The teleworker responses ($M = 2.18, SD = .59$) were significantly different ($p = .001$) from the non-teleworkers ($M = 2.48, SD = .73$) on overall perceived conflict. This hypothesis was fully supported as non-teleworkers had higher levels of overall work-family conflict than did non-teleworkers (see Table 5).

*Work-family conflict forms.* The second hypothesis predicted that home-based teleworkers would have significantly lower time-based, strain-based, and behavior-based work-family conflict levels than full-time worksite-based employees. The survey contained six items designed to measure each of these work-family conflict forms. Again, t-tests were used to compare the samples and analyze the data. First, teleworker responses ($M = 2.21, SD = .73$) were significantly different ($p = .029$) from the non-teleworkers ($M = 2.45, SD = .86$) on time-based conflict. Non-teleworkers struggled with more time-based conflict than did teleworkers. Second, a major source of the overall work-family conflict for participants was strain-based. For this type of conflict, the teleworker responses ($M = 2.01, SD = .65$) were significantly different ($p = .000$) from non-teleworkers ($M = 2.42, SD = .83$). Teleworkers had substantially lower levels of strain-based conflict than non-teleworkers. The last analyzed form of work-family conflict was caused by behavior-based struggles. The teleworker responses ($M = 2.32, SD = .82$) were not significantly different ($p = .055$) from the non-teleworker responses ($M = 2.55, SD = .93$). Even though the p-value did not reach the .05 acceptance level, it was fairly close. Nonetheless, perceived behavior-based conflict, between teleworkers and non-teleworkers was not statistically different. Therefore, hypothesis 2 was partially supported by the results of this study in that teleworkers had significantly lower levels of both time- and strain-based but not behavior-based conflict.
Work-family conflict directions. The third hypothesis predicted that, when compared to full-time worksite-based employees, home-based teleworkers would have significantly lower work-family conflict levels related to work interference with family but not family interference with work. Again, t-tests provided insight into these phenomena. First, the nine items that measured conflict stemming from work interfering with family were utilized to find the statistical mean of each sample. Teleworker responses ($M = 2.39, SD = .75$) were significantly different ($p = .002$) from the non-teleworker responses ($M = 2.73, SD = .85$) related to conflict that stemmed from work and interfered with the family. Non-teleworkers had significantly higher perceptions of work interference with family than did teleworkers. Similarly, the nine questions that measured the conflict that stemmed from family and interfered with work were utilized to determine whether there was a significant difference between the samples in that area. Even though the statistical means of the conflict based on family interference with work were lower than conflict based on work interference with family in both samples, it was found that teleworker responses ($M = 1.97, SD = .53$) were significantly different ($p = .003$) from non-teleworkers ($M = 2.22, SD = .71$). These findings provide partial support for the third hypotheses in that, as predicted, teleworkers had lower levels of work interference with family. It was not predicted, however, that they would also have lower levels of family interference with work.

Demographic and Outcome Relationships

Before discussing the results of the individual demographic variables, it is important to, once again, address the issues of sample influence after controlling for the effects of background variables analyzed through hierarchical regression (see Table 3 and 4). First, for overall work-family conflict, the demographic variables (gender, age, marital status, number of children, age of youngest child, and number of hours worked per week) accounted for 4% ($R^2$) of the
variance while the sample (teleworker vs. non-teleworker) made an additional 3% contribution. Two percent of the variance in work interference with family can be attributed to demographic variables while nearly an additional 4% contribution stems from the sample differences. For family interference with work, the demographic variables accounted for 7.7% while the sample’s contribution was only an addition 1.5%. Demographic variables accounted for 5.1% in time-based conflict while sample contributed 2.4% more to the predictability. Only 1.8% of the contribution for strain-based conflict stemmed from demographics while sample accounted for 5.7% of the variance. Finally, 8.5% of the contribution in behavior-based conflict was from demographics (primarily gender and hours worked) while practically nothing (0.2%) can be attributed to the influence of the sample.

As described previously, a multivariate analysis’ of variance (MANOVA) was utilized to determine the relationships between the work-family constructs previously described and gender, age of employee, marital status, hours worked per week, health status, number of children, number of days teleworked per week, the length of time a worker had been teleworking, and the company for which an employee worked in the teleworker sample. In addition, because of the previously mentioned concerns with the variable, age of youngest child was not included in the MANOVAs with the other demographic variables.

*Gender, marital status, age, and company.* There were a number of interesting findings related to the relationships between gender and the six work-family conflict constructs. As was presented earlier, over 42 percent of the participants in this study were males and around 58 percent were females. Hypothesis 4a predicted no differences in work-family conflict levels between genders, and this research partially supports this but also found contrary results among various work-family conflict variables. A gender teleworker t-test confirmed that male responses
Work and Family Conflict (M = 2.37, SD = .56) were significantly different (p = .007) from female responses (M = 2.05, SD = .57) on overall work-family conflict. Males had higher conflict than females. Male responses were also significantly different from female responses on work interference with family (p = .002), time-based conflict (p = .015), and behavior-based conflict (p = .020) with males having higher conflict than females. Similar results can be found in the correlation matrix. An analysis of the MANOVA found similar results with significant relationships between gender and overall work-family conflict (Wilk’s lambda = 0.87, p = .010), work interference with family (p = .003), and behavior-based conflict (p = .004). Again in all cases, males perceived higher levels of conflict than females. However, the MANOVA did not show significance in the relationship between gender and time-based conflict (see Table 6). In the hierarchical regression (both samples) gender appeared to have fairly high predictability (β = -.247) for behavior-based conflict.

[Hypothesis 4a] also predicted no differences in work-family conflict in among marital status categories, age ranges, or companies. As expected, statistical analysis found that none of these variables predicted any work-family conflict construct in the telework sample.

Children. Hypothesis 4b predicted that teleworkers who have children would perceive higher work-family conflict levels (i.e., time-based, strain-based, and family interference with work) and that levels would increase based on total number of children. There was a significant relationship between an employee’s number of children and his or her overall work-family conflict (Wilks’ lambda = 0.86, p = .003), work interference with family (p = .013), family interference with work (p = .003), and time-based conflict (p = .001) (see Table 6). An employee’s number of children was related to various conflict constructs but may be based in time-based
struggles. Hence, this research primarily supports the hypothesis, although evidence was not found in the link between number of children and strain-based conflict. Similar results were also found in the correlation matrix. This demographic was not found to be a significant predictor of any work-family conflict construct in the hierarchical regressions (combined samples).

It was also predicted that work-family conflict levels would increase based upon the age of the youngest child (preschool children would be the highest). Because the survey questions regarding the age of the youngest child was not well written, the age of the youngest child was not included in the MANOVAs but was analyzed through use of one-way ANOVAs. In the teleworker sample, the only related work-family conflict construct was time-based conflict ($p = .036$). This means that teleworkers with young children have increased time-based conflict when compared to employees who do not have young children. The correlation matrix also shows that the age of the youngest child is related to time-based conflict ($r = .27$) in the non-teleworker sample as well. This demographic also appears to be a significant predictor of time-based conflict ($\beta = -.257$, $p = .001$) in the related regression. Results of this study support only the relationship of age of children to time-based and not the other predicted variables.

*Hours, days, and length worked.* The number of hours an employee worked per week and its relationships with work and family conflict was also examined. Hypothesis 4c predicted that teleworkers who work more total hours would have higher work-family conflict perceptions (work interference with family and time-based conflict). The teleworker MANOVA found that the number of hours an employee worked was significantly related to only one construct, time-based conflict (Wilks’ lambda = 0.88, $p = .013$) (see Table 6). It appears that the more hours a teleworker worked (overall), the higher the perceived levels of time-based conflict. Table 2 showed correlations between number of hours worked and time-based conflict ($r = .30$) and work
interference with family \( (r = .25) \). This demographic also demonstrated some predictability in two regression models: family interference with work \( (\beta = -.19, p = .05) \) and behavior-based conflict \( (\beta = -.18; p = .05) \).

The same hypothesis also predicted that there would be no difference in work-family conflict among employees who had teleworked longer and employees who work more days from home. As predicted, it appears (in the MANOVA) that neither the number of days teleworked nor the length of time an employee had teleworked predicted work-family conflict levels in workers (see Table 6). However, Table 2 does show significant correlations between the number of days teleworked per week and work-family conflict, family interference with work, and time-based conflict.

Health. The one work-family outcome explored in this study was health. Again, because of the weak measure of health used for this research, caution should be used with any statistical interpretations. The final hypothesis predicting that lower work-family conflict would be associated with higher perceptions of health was supported. Strong relationships between the perception of health and the perception of work and family conflict were found when analyzing the MANOVAs for both samples. The higher the perceptions of health status (e.g., excellent), the lower were the employees' perceptions with all six work-family constructs in the teleworker sample. These included overall work-family conflict \( (\text{Wilks’ lambda} = 0.72, p=.000) \), work interference with family \( (p=.000) \), family interference with work \( (p=.016) \), time-based conflict \( (p=.000) \), strain-based conflict \( (p=.000) \), and behavior-based conflict \( (p=.014) \) (see Table 4). For non-teleworkers, highly significant relationships were also discovered with five constructs including overall work-family conflict \( (p=.001) \), work interference with family \( (p=.002) \), family interference with work \( (p=.003) \), time-based conflict \( (p=003) \), and strain-based conflict \( (p=.001) \).
(see Table 6). It appears that health was significantly related to most work-family conflict constructs in this research study which suggests interesting future research (using validated and more comprehensive scales). Correlational data also support these findings.

**DISCUSSION**

Overall, employees in this study did not perceive themselves as having high levels of work and family conflict. This range restriction is a concern for this type of study. Some of this can be explained by the sole use of “family-friendly” organizations. As explained previously, over 40 organizations were contacted and the companies who agreed to participate had established telework programs and appeared to be the most generally “family-friendly” of those contacted. Interestingly, even though most work-family researchers have stated that work-family conflict is a concern and problem in today’s society, these results are similar to others. Using the same instrument, Carlson, Kacmar, and Williams (2000) reported that the means for their sample (on all forms and directions) were a comparable 1.77-2.91 (using the same 5-point scale), and Kinnunen and Mauno (1998) found a sample mean of work interference with family conflict at 2.67 and family interference with work conflict at 1.88 on a 5-point frequency-based response scale. In addition, Coveyduck (1997) concluded that her telecommuter sample identified low to moderate levels of work-family conflict, and Crossman and Burton (1993) stated that, even though workers found it somewhat difficult to separate work and family time, none of them suggested that it was a major problem or very stressful. With this in mind, there are unanswered questions: Do employees’ perceptions of work and family conflict accurately reflect their actual work-family conflict? If employees truly have high levels of this conflict, why do some teleworker and non-teleworker studies report only low to moderate perceptions? It is possible, as
in my research, that interested and participating companies are employers who are actively engaged in reducing work-family conflict.

This study supports the role conflict theory and its various components. As explained previously, this theory states that experiencing ambiguity or conflict within a role will result in an undesirable state. In addition, it was found that work-family conflict can not be accurately measured and understood as a sole construct. Certain forms and directions are related to and perhaps influenced by work arrangement (i.e., teleworking), gender, perception of health, number of children, number of hours worked per week, and possibly age of the youngest child. This study supports the premise that work-family conflict should be studied and researched as distinct and separate forms and directions. It is important to note, however, that each of the form and direction constructs, as expected, significantly correlated with each other (see Table 2). Even with these high correlations, results and literature suggest that the specific forms and directions are influenced by different demographics, work arrangements, and other possible mediators.

On the other hand, it is also important to address why I chose to include overall work-family conflict as a specific hypothesis when the forms and directions of conflict are the primary focus of this study. In reviewing the literature, I found that a large number of related research reports use only a few items to access general work-family conflict instead of focusing on specific directions and/or forms of conflict. In addition, human resource and management practitioners writing proposals for telework and other flexible scheduling interventions will most likely report general research findings to provide support for such programs. Hence, it was deemed that providing a general finding of work-family conflict could be helpful for some researchers and practitioners alike.
Comparing Differences between Samples

Overall, this study found that teleworkers had lower perceptions of various dimensions of work-family conflict than did non-teleworkers. This finding also supports De Lay's (1995) conclusions that telework influences work-family conflict perceptions. Since teleworking can provide workers with more autonomy and control as well as job and life satisfaction, it is no surprise that work-family conflict levels are lower for those who regularly telework from home. However, current findings contradict McCloskey (1997) who found no conflict differences between teleworkers and non-teleworkers; however, again, her study included primarily employees who teleworked only one to three days each month. This may mean that reduced work-family conflict stems from teleworking at least two or more days per week and doing so from home as opposed to other off-site locations.

Because this was one of the first studies to measure work-family conflict forms and direction differences, it is difficult to compare the findings with previous research. This study found that teleworkers had lower overall perceptions of the following variables: overall work-family conflict, work interference with family, family interference with work, time-based, and strain-based. Generally, teleworkers perceived lower levels of work-family conflict. Because telework is typically more flexible, work can be scheduled around family time commitments leading to lower levels of time-based conflict. Because of the more relaxed environment in the home, the reduction of distractions, the decreased time and strain from commuting, and other telework advantages, teleworkers could experience less strain-based conflict (results could have been different if teleworkers were attempting to provide primary care for children during work hours). These findings support De Lay's (1995) study that found no difference between samples in overall behavior-based conflict. Teleworkers are less likely to be concerned with adjusting
their work behavior to be appropriate in their nonwork lives. It contradicts the same study by reporting differences in time-based conflict and strain-based conflict, while De Lay found no differences. Overall, perceptions of family interference with work in both samples were substantially lower than work interference with family. De Lay reported that teleworking impacted work interference with family but not family interference with work. Other studies have also reported that work interference with family was greater and more common than family interference with work (Aryee et al., 1999; Yang et al., 2000). This study concludes that teleworking is linked to both work-family conflict directions.

Demographic and Outcome Relationships

The finding that men teleworkers had higher levels of behavior-based conflict than females is quite surprising as well as contradictory to other findings. A relationship was also discovered between gender and conflict that stems from work and interferes with family; however, it appears that this finding was strongly influenced from the behavior-based conflict results as well. These findings contradict De Lay's (1995) research that discovered that women teleworkers feel higher levels of work-family conflict than their male counterparts; it also partially contradicts Carlson's (1999) conclusions that no relationship exists between gender and time-based conflict, strain-based conflict, and behavior-based conflict. In addition, it contradicts findings by Hammer et al. (1997) and others who suggested that gender differences do exist, with men reporting lower work-family conflict. Overall, this study found that men and women have similar perceptions of time-based and strain-based conflict but that men have higher levels of behavior-based conflict primarily stemming from work and interfering with the family. Anecdotal evidence does suggest that women (especially mothers) are fairly proficient at multi-tasking which may mean they are able to adjust quickly from the employee to the parent mode.
faster and easier than do men. Another reason may be that many women may use similar behaviors as an employee and family member. These findings support the premise that teleworking men may have a more difficult time adjusting the behavior they use as an employee to the behavior they need and use as a spouse and/or parent.

This study found no relationship between marital status and any forms or directions of work-family conflict for teleworkers. This supports Carlson’s (1999) study that found no relationship between marital status and time-based conflict, strain-based conflict, and behavior-based conflict. In addition, Duxbury et al. (1994) discovered, in their study, that single mothers and fathers reported no more overload and interference from family to work than did their married counterparts. This finding makes sense because marital status alone does not provide much helpful data. A supportive spouse may help decrease a teleworkers conflict while a non-supportive spouse may be instrumental in substantially increasing all forms and directions of work-family conflict. Single employees may also have children and/or significant others living with them which could also influence conflict levels in a variety of ways.

Teleworkers in this study worked slightly more hours per week than non-teleworkers. McCloskey (1997) did not find a difference in the amount of time reported working between teleworkers and non-teleworkers but, again, the teleworkers were only out of the office one to three days per month. Not surprisingly, relationships were found in the teleworker sample between hours worked and time-based as well as work interference with family conflict. Working more hours reduced the amount of time the employee could spend in the family domain. McCloskey found that both teleworkers and non-teleworkers experienced more conflict as they worked more hours. As already discussed, a host of other researchers have found this
connection between the number of hours worked and work-family conflict to be both evident and obvious.

Results from the current study’s teleworker sample support past research (Carlson, 1999; Gutek et al., 1991; Kinnunen & Mauno, 1998) that found the existence and number of children can influence an employee’s work-family conflict perceptions. An employee's number of children was related to overall work-family conflict, work interference with family, family interference with work, and time-based conflict. Because the most prominent relationships revolved around time-based conflict, it stands to reason that children's activities and commitments would create more time-based concerns for the parents. The current study found that the difference was primarily between employees who had no children compared to employees who had any number of children.

The number of days an employee teleworked from home and the length of time an employee had been employed as a teleworker had no relationship with any of the work-family conflict variables (in the MANOVA). McCloskey (1997) found that teleworkers who had more childcare responsibilities and spent more time in the family role had more behavior-based conflict than non-teleworkers who spent a similar amount of time in the family role. Teleworkers in this study did not have primarily childcare responsibilities, at least during the core of their work hours. There were, however, some correlations found between number of days teleworked and work-family conflict, family interference with work, and time-based conflict. Future research in this area is needed to clarify these relationships. The positive correlations infer that the more days an employee teleworks—the higher conflict levels are perceived. There were a large group of employees who teleworked full-time (all five days) from home. Literature (e.g., Crossman & Burton, 1993) does suggest that full-time teleworking can result in negative
consequences (e.g., productivity decrease, isolation) and that two to three days per week are optimal. It is possible that conflict reduction gains can decrease if an employee works from home full-time, however, further research is needed to clarify this premise. Because the current study accepted only teleworkers who had worked a minimum of three months, the limited prior research (e.g., De Lay, 1995) can neither support nor refute the results of this study related to length of time employed.

Again, health was the only outcome analyzed in this research and its measurement was fairly weak. However, health was found to have a significant relationship with most work-family conflict variables in both samples. Teleworkers perceived slightly higher health levels than non-teleworkers. Participants who perceived higher health status also felt that they had lower work-family conflict. This is consistent with research that has linked work interference with family and family interference with work to various adverse health problems and outcomes (Adams et al., 1996; Frone, Russell, & Cooper, 1997). Poor physical health was more significantly related to family interference with work than to work interference with family. Overall, this study found that employees who had higher work-family conflict had lower health status perceptions. It is difficult to speculate, however, whether work-family conflict causes decreased health or whether decreased health causes higher conflict.

Limitations and Directions for Future Research

There are five primary limitations in using the instrument, sampling these populations, and conducting this study. First, some employees who received surveys did not complete them. Because participant names were confidential, a non-respondent investigation was not possible. Because of this it is not known why some employees did not participate. Second, work-family conflict can be influenced by variables not measured in this study (such as child behavior
problems, marital problems, money issues, organizational unrest, presence of other flexible work arrangements in an organization, supportiveness of employee's supervisor and so forth). Third, conclusions of this study are based on self-reported data which is a common problem in research on work-family conflict. In addition, it cannot explore thoroughly into participants’ opinions and feelings. This depth would allow for a more comprehensive look at work-family conflict and the relationships between the sample groups. Fourth, results of this study can be generalized only to applicable populations within the seven for-profit organizations surveyed. Finally, the health variable was inadequately measured and, therefore, its findings should not be generalized. It does, however, support the need for additional research in this area.

Generally, further research is needed to expand the external validity of these findings. Additional instrument validation is suggested since the 18-item survey is relatively new. Furthermore, because this was the first study to measure both the forms and directions of work and family conflict between teleworkers and non-teleworkers, replications of this study are recommended so generalizability can be expanded. It is also recommended that similar telework definitions (such as the number of days an employee teleworks) be used to assist in generalizability of these results and to look at how the amount of telework done affects work-family conflict.

It is also recommended that several relationships between demographics and work and family conflict variables be explored more deeply using both qualitative and quantitative methodologies. Some research questions may include: Why do male teleworkers struggle with behavior-based conflict more than females? Why is this difference more evident in teleworkers as opposed to non-teleworkers? Why do employees that perceived better health have lower work-family conflict? Is actual health status related to work-family conflict levels in
teleworkers? Do dual-career couples have different work-family conflict levels and are they dependent on the primary responsibilities of each in the home (e.g., household chores, childcare)? In addition, experimental research is recommended with controlled variables (although very difficult), where a dependant variable (e.g., telework) is manipulated and independent variables (e.g., time-based conflict, strain-based conflict, behavior-based conflict) are periodically measured. In addition, research has not addressed the long-term impacts of teleworking on work-family conflict. Longitudinal studies are necessary to investigate this area. Finally, additional research questions may include: Is the work-family conflict of employees in non-family-friendly organizations higher than employees in family-friendly organizations? It is presumed that this is true but research is needed for confirmation. What are specific activities, struggles, or perceptions that non-teleworkers may experience (in comparison to teleworkers) that may account for the difference in strain-based conflict between samples in this study? Can work and family conflict training lower perceived or actual conflict? Future research in the areas of work-family conflict and telework is important to the management and human resource professions. Researching these and other work and family phenomena within the management arena can provide specific information and tools (e.g., communication skills, job design, training topics) needed to improve organizational and individual effectiveness.

In conclusion, this study offers contributions to human resource management, human resource development, management, teleworking, and work-family conflict literature. First, it is one of the first few studies known to measure the differences in the forms and directions of work and family conflict between teleworkers and non-teleworkers. It is one of the few studies that has attempted to even make a connection between telework and work-family conflict. Second, it utilizes a fairly new measurement tool that appears to have promise for future use. Third, it
supports the premise that work and family conflict is complex, and employees' conflict can
emerge from various sources. It may be important to assess the forms and directions of work and
family conflict to design successful and effective individual and organization work and family
change interventions. Finally, practitioners can utilize this information to provide a theoretical
and practical foundation to assist them in assessing, designing, and evaluating new and/or
existing telework programs and/or initiatives.
References


## TABLE 1
### DEMOGRAPHIC FREQUENCIES

<table>
<thead>
<tr>
<th></th>
<th>Teleworkers</th>
<th>Non-Teleworkers</th>
<th>Total Results</th>
</tr>
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<tbody>
<tr>
<td><strong>Sample</strong></td>
<td>98 (44.3%)</td>
<td>123 (55.7%)</td>
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<tr>
<td><strong>Gender</strong></td>
<td></td>
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<tr>
<td>Male</td>
<td>40 (40.8%)</td>
<td>53 (43.1%)</td>
<td>93 (42.1%)</td>
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<tr>
<td>Female</td>
<td>58 (59.2%)</td>
<td>70 (56.9%)</td>
<td>128 (57.9%)</td>
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<td><strong>Marital Status</strong></td>
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<td>68 (30.8%)</td>
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<td>68 (55.3%)</td>
<td>114 (51.6%)</td>
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<td>6 (4.9%)</td>
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<td>58 (47.2%)</td>
<td>104 (47.1%)</td>
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<td>36 (16.3%)</td>
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<td>8 (12.7%)</td>
<td>21 (26.6%)</td>
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### TABLE 2

**INTERCORRELATIONS AMONG STUDY VARIABLES FOR TELEWORKERS AND NON-TELEWORKERS AND COEFFICIENT ALPHAS**

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Decimals are omitted. Correlations below the diagonal are for teleworkers and those above the diagonal are for non-teleworkers. For teleworkers: r ≥ [20], p < .05, r ≥ [26], p < .01, r ≥ [34], p < .001; for non-teleworkers: r ≥ [20], p < .05, r ≥ [29], p < .001
**TABLE 3**
RESULTS OF HIERARCHICAL REGRESSION ANALYSIS FOR WORK-FAMILY CONFLICT, WORK INTERFERENCE WITH FAMILY, AND FAMILY INTERFERENCE WITH WORK

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<th>Independent Variables</th>
<th>Work-Family Conflict</th>
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<th></th>
<th>Work Interference with Family</th>
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<th></th>
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<th>Family Interference with Work</th>
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<td>Δ R²</td>
<td>F</td>
<td>β</td>
<td>R²</td>
<td>Δ R²</td>
<td>F</td>
<td>β</td>
<td>R²</td>
<td>Δ R²</td>
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Standardized beta-coefficients for each variable are based on the final step of the complete model with all variables in the equation. Δ R² at each step represents the incremental proportion of variance accounted for by the set of variables entered at that step. *p<.05

**TABLE 4**
RESULTS OF HIERARCHICAL REGRESSION ANALYSIS FOR TIME-BASED, STRAIN-BASED, AND BEHAVIOR-BASED CONFLICT

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<th>Behavior-based Conflict</th>
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<td>F</td>
<td>β</td>
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<td>Δ R²</td>
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<td>β</td>
<td>R²</td>
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Standardized beta-coefficients for each variable are based on the final step of the complete model with all variables in the equation. Δ R² at each step represents the incremental proportion of variance accounted for by the set of variables entered at that step. *p<.05; **p<.01
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<td>2.42</td>
<td>.83</td>
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<tr>
<td>Behavior-Based Conflict</td>
<td>Teleworkers</td>
<td>98</td>
<td>2.32</td>
<td>.82</td>
<td>-1.926</td>
<td>.055</td>
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<tr>
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<td>Non-teleworkers</td>
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<td>2.55</td>
<td>.93</td>
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*p<.05; **p<.01; ***p<.001
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<tr>
<th>Demographics</th>
<th>*Overall WFC&lt;sup&gt;a&lt;/sup&gt;</th>
<th>*WIF&lt;sup&gt;b&lt;/sup&gt;</th>
<th>*FIW&lt;sup&gt;c&lt;/sup&gt;</th>
<th>*TBC&lt;sup&gt;d&lt;/sup&gt;</th>
<th>*SBC&lt;sup&gt;e&lt;/sup&gt;</th>
<th>*BBC&lt;sup&gt;f&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>6.844 .010**</td>
<td>9.221 .003*</td>
<td>2.445 .122</td>
<td>3.037 .085</td>
<td>1.128 .291</td>
<td>8.556 .004*</td>
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<tr>
<td>Age of employee</td>
<td>2.019 .159</td>
<td>2.740 .101</td>
<td>.702 .404</td>
<td>1.819 .181</td>
<td>.137 .712</td>
<td>2.016 .159</td>
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<td>Marital status</td>
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<td>.048 .827</td>
<td>.009 .925</td>
<td>.006 .940</td>
<td>.007 .934</td>
<td>.090 .765</td>
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<td>Hours worked</td>
<td>1.016 .316</td>
<td>2.823 .096</td>
<td>.001 .980</td>
<td>6.400 .013*</td>
<td>1.116 .294</td>
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<td>Health status</td>
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<td>30.143 .000***</td>
<td>5.985 .016*</td>
<td>13.856 .000***</td>
<td>19.439 .000***</td>
<td>6.286 .014*</td>
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<td>Home days</td>
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<td>Time teleworked</td>
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*p<.05; **p<.01; ***p<.001

a. R² = .343, Δ R² = .276; b. R² = .401, Δ R² = .340; c. R² = .216, Δ R² = .136; d. R² = .336, Δ R² = .268; e. R² = .250, Δ R² = .173
f. R² = .217, Δ R² = .137

*WFC = work-family conflict; WIF = work interference with family; FIW = family interference with work; TBC = time-based conflict; SBC = strain-based conflict; BBC = behavior-based conflict