

Casting a Wider Net:

An Examination of the Widespread Effects of Occupational injuries

by

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Abstract

Although research has explored workplace injuries, injuries tend to be examined from a binary perspective, and the broad ramifications of workplace injuries have yet to be fully explored. In this research, I conduct two studies that extend current knowledge on the outcomes of workplace injuries. Study 1 examines the effects of occupational injuries among injured individuals.

Analyses suggest the nature of the occupational injury affects health, stress, and positive and negative work beliefs. Study 2 examines the effects of workplace injuries on romantic partners of injured individuals. Analyses suggest that health, objective burden, relationship satisfaction, and relationship quality of romantic partners are influenced by their partners' occupational injury. In both studies, mediating and moderating relationships are explored. Overall, these findings suggest the nature of the injury matters, and effects of workplace injuries are more widespread than typically addressed. These findings have important implications for research and practice.

Keywords: occupational injuries, romantic partners, work-life/family interface

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Casting a Wider Net:

An Examination of the Widespread Effects of Occupational injuries

“I’m still in pain and in poverty. Not being able to eat right or get anywhere, do anything — isolated all the time and just frustrated and angry,” says Fred Palmer, an Ontario man injured at work over 10 years ago who is still dealing with the aftermath of his workplace injury (as cited in “36 Years in Pain and Poverty,” 2015).

Justine Coffell says *“it’s just like someone is sitting here shaking a snow globe”* when asked to describe the effects resulting from her husband’s work injury (as cited in Berkes, 2015). Coffell further describes that as a result of her husband’s workplace injury there have been devastating effects for her husband, herself, and their family.

When occupational injuries occur, injured individuals and their families often describe ensuing and long-term job loss, relationship deterioration, financial hardship, and both physical and psychological ill-health (e.g., Association for Workplace Tragedy Family Support, 2015; Berkes, 2015; Coyle, 2014; Wangersky, 2015). In recent years, although much research and practice has focused on occupational health and safety, this attention has been concentrated in particular areas. We now have some evidence derived from well-designed research, along with anecdotal evidence such as that presented in the quotes above, indicating that physical occupational injuries have substantial negative effects for the individuals who experience them (Barling, Kelloway, & Iverson, 2003). However, research in this domain has been devoted to the prediction and prevention of occupational injuries, along with consequences for organizations, rather than outcomes for individuals (Barling et al., 2003; Laisné, Lecompte, & Corbière, 2012). This is not surprising, as researchers have understandably focused on searching for causes of accidents, injuries, and fatalities in an attempt to mitigate the frequency with which they occur at work (Barling & Frone, 2004). Consequently, as a result of this focus on antecedents, we lack a thorough understanding of how injured employees are personally affected by injuries. Furthermore, apart from provoking anecdotes and stories, research has yet to explore whether

those closest to individuals injured at work (e.g., romantic partners), may also be affected by occupational injuries. We know that the experiences of one individual can influence others (e.g., Vogel & Keith, 2015), and thus the individual outcomes related to occupational injuries are likely not restricted to those individuals who are personally injured on the job. More specifically, outcomes of occupational injuries are possibly much more widespread, affecting those who have personal and loving relationships with individuals injured at work.

The goals of my research are twofold: first, I aim to improve the overall understanding of the individual consequences of workplace injuries for the injured individual, and how these consequences might be mitigated; second, I aim to examine whether workplace injuries also have indirect consequences, by affecting the romantic partners of individuals who are injured at work, and again, to examine how these consequences might be mitigated. In an effort to achieve these goals, and potentially contribute to the empirical evidence informing the occupational health and safety domain of research, this thesis is comprised of two studies. The first is aimed at replicating and extending research that examines the individual effects of physical occupational injuries, and the second focuses on the effect that workplace injuries has on individuals in close relationships with individuals injured at work. Overall, this research is designed to extend previous research and present a more comprehensive examination of the individual outcomes associated with workplace injuries and the indirect effects of occupational injuries on romantic partners.

Below, I discuss previous literature in the occupational health and safety domain, as well as in the work and family/life interface domain. I discuss the theoretical rationale behind the ideas that comprise this research, followed by the variables and hypotheses that are examined in Study 1, focusing on injured individuals. The methods and results for Study 1, along with a brief

discussion of Study 1 are presented next. The variables and hypotheses that are examined in Study 2, focusing on the romantic partners of injured individuals follow, along with the methods and results for this study, and a brief discussion. I then provide an overall discussion that incorporates the findings, limitations, implications and recommendations for future research and practice from both studies.

Occupational Health and Safety

As noted above, it could be argued that the predominant focus on the antecedents of workplace injuries within occupational health and safety research is supported by the notion that this focus may potentially eradicate individual injuries, along with concurrent organizational costs. Indeed, occupational health and safety research has provided a wealth of information on workplace safety and injury prevention, resulting in a better understanding of safer work practices, along with improved workplace safety records (e.g., workplace injury and fatality rates; e.g., Goetzel et al., 2014; Pouliakas & Theodossiou, 2013). Moreover, the development and advancement of safety research has, in some cases, translated into a shift in organizational policies and practices (Barling & Frone, 2004; Makin & Winder, 2008). For example, as a result of research findings establishing a link between the use of positive leadership styles and favourable safety outcomes, we have seen changes in organizational leadership to include the promotion of safety in the workplace (Barling, Loughlin, & Kelloway, 2002). Furthermore, research has shown that both affect-based trust in one's leader (Conchie, Taylor, & Donald, 2012) and higher levels of job-related knowledge (Lievens and Vlerick, 2014) may mediate this relationship between positive leadership styles and safety. These findings suggest job characteristics, such as job-related knowledge and affective trust of one's leader, as well as use

of positive leadership styles, can be areas of intervention for organizations to improve safety-related behaviours.

Research has also uncovered certain factors (e.g., job routine, workplace social environment) that allow organizations to predict which employees are at the highest risk of being injured, thereby allowing organizations to create safety policies focused on these at-risk subgroups (Christian, Bradley, Wallace, & Burke, 2009; Iverson & Erwin, 1997). Overall, researchers have described both situational (e.g., leadership, ergonomics) and person-related (e.g., personality, job-attitudes) risk factors organizations can monitor and potentially modify to minimize the occurrence of many occupational injuries (O'Connell, Delgado, Lawrence, Halbesleben, & Paustian-Underdahl, 2013). Though these insights have contributed substantially to our understanding of the antecedents of workplace injuries, and even with this positive shift in preventative organizational policies and safety-related attitudes and behaviours, occupational injuries continue to occur at an alarming rate. Thus, understanding the associated outcomes for injured individuals remains a relevant research topic (Barling & Frone, 2004; Smith, Beliecky, & Mustard, 2012).

While research on the outcomes of occupational injuries has not been a main area of focus in the occupational health and safety domain, research on the outcomes of work stress in general is abundant (Barling, Bluen, & Fein, 1987; Barling, Kelloway, & Frone, 2004). Although the experience of stress can be characterized as an adaptive and necessary reaction (Selye, 1975), when experienced in excess and over prolonged periods of time, stress becomes maladaptive and harmful (Sapolsky, 1994). In the context of work, overwhelmingly, research suggests experiencing excess stress at work has significant health (e.g., Chandola, Brunner, & Marmot, 2006; Kivimaki et al., 2002¹), job performance (Blase, 1986; Stewart & Barling, 1996),

and emotional ramifications (Burke, Greenglass, & Schwarzer, 1996; Gershon, Barocas, Canton, Li, & Vlahov, 2009). The results from the famous Whitehall studies (i.e., series of studies focusing on the social determinants of health) strongly suggest individuals who experience significant stress at work are at an increased risk of metabolic syndrome, heart disease, and death (e.g., Marmot, 1993; Marmot, Rose, Shipley, & Hamilton, 1978). While research suggests work stress negatively affects employees across industries, certain industries are at an increased risk (Johnson et al., 2005). Individuals in occupations involving high stress situations (e.g., ambulance workers, police officers, prison workers, social services workers), and increased interactions with people (e.g., customer service workers, teachers) are at an increased risk for developing physical and psychological health problems, as well as reporting decreased job satisfaction as a result of experiencing work stress (Johnson et al., 2005). Following with this line of research, further evidence supports the notion that individuals in certain industries and occupations are likely at an increased risk of experiencing more severe occupational injuries, and in experiencing a more severe occupational injury, may be at an increased risk of experiencing stress (Chau et al., 2004).

A wide variety of types of workplace injuries may occur, ranging from minor injuries (e.g., micro-accidents; Zohar, 2000) requiring less than a day away from work (e.g., minor laceration, minor burn), to severe injuries requiring several months away from work (e.g., severe burn, loss of limb), or even death, in the case of extreme trauma. Moreover, research suggests that, in addition to physical workplace injuries, workplace illnesses that are related to psychological and mental health (e.g., anxiety, depression) are occurring at an alarming rate (Dembe, 2001). For example, following a significant negative experience in the workplace, individuals are at an increased likelihood of experiencing post-traumatic stress disorder (PTSD;

MacDonald, Colotla, Flamer, & Karlinsky, 2003; Matthiesen & Einarsen, 2004), which can be associated with a myriad of negative outcomes for both the individual suffering from PTSD, as well as those closest to them (Dutton, et al., 2006; Ray & Vanstone, 2009). Moreover, depression, stress, and anxiety disorders may develop from over-working, burnout, and other stress-related workplace experiences (Goetzel, Hawkins, Ozminkowski, & Wang, 2003; Goetzel et al., 2004). However, given the vast differences between physical injuries and workplace illnesses that are related to mental and psychological health (e.g., causes of injury/illness, negative outcomes, stigma in the workplace; Barling et al., 2003; Matthiesen & Einarsen, 2004; Stuart, 2003), it is appropriate for researchers to approach the study of physical injuries and psychological illnesses separately. Further, in developing a measure of injuries in the workplace, psychological illnesses will require significantly different items compared to their physical counterparts. Given these differences between physical injuries and psychological illnesses at work, for the purpose of this research, the focus will be on physical workplace injuries.

As previously mentioned, anecdotal and descriptive information provided by individuals and organizations indicates that there is wide variation among types and severity of workplace injuries (Dupré, 2000). For example, while some injuries result in no lost time from work, other occupational injuries result in substantial organizational economic costs resulting from, among other factors, medical fees, lost productivity, paid sick days, and replacement workers (Barling et al., 2003). Therefore, in addition to the necessary continued focus on the antecedents of workplace injuries and preventative workplace measures, a concerted effort to improve our understanding of the outcomes associated with a range of occupational injuries, and how these outcomes might be mitigated, is also important.

The Work-Life Interface

Like the occupational health and safety domain, the work-life interface has been widely studied (e.g., Frone, Russell, & Cooper, 1992; Greenhaus & Powell, 2006; Voydanoff, 2004). For example, we know that work and family, or more broadly, work and life, influence one another (Greenhaus & Allen, 2011). At the same time, and again similar to the workplace health and safety domain, many areas remain unexplored; one of these is the relationship between workplace injuries and the personal lives and relationships of the injured employee.

Although many people spend a large portion of their lives at work (e.g., people report an average of 40 hours per week at work; Rones, Ilg, & Gardner 1997), individuals' work lives are typically not the only important component in their lives. Peoples' lives tend to contain various important elements that, in addition to work, include families, friends, sleep, and recreational activities. Unsurprisingly, research shows these various life components are not entirely distinct, and in particular, evidence indicates that work and non-work activities are not mutually exclusive aspects of an individual's life. In fact, and of relevance to the current research, data derived from well-designed research shows that work tends to affect the personal lives of employees and their family members (e.g., Frone et al., 1992; Crouter, 1984; Demerouti, Peeters, & van der Heijden, 2012; Greenhouse & Powell, 2006; Voydanoff, 2004), and vice versa.

The interplay, or reciprocal nature, between one's work life and personal life is labeled by some as the work-life interface (e.g., Kopelman, Greenhaus, & Connelly, 1983), and has been extensively studied over the last several decades. A widely studied line of research in the work-life interface domain is work-family conflict, or family-work conflict, which occurs when there are incompatible demands between the requirements of one's work and family (Frone et al., 1992). Research supports the notion that job role conflict, job role overload, and job stressors

are antecedents to work-family conflict (e.g., DiRenzo, Greenhaus, & Weer, 2011; Michel, Kotrba, Mitchelson, Clark, & Baltes, 2011); while family role conflict, family role overload and family climate are antecedents to family-work conflict (e.g., Burke, Koyuncu, & Fiksenb, 2013; Michel et al., 2011). Of particular importance for the purpose of this research, work-family conflict is significantly related to depression, an individual-level outcome, and family distress, a group-level outcome (Frone et al., 1992). This suggests that not only are the individuals experiencing work-family conflict negatively affected, but those closest to them, namely their family members, are experiencing negative effects as well.

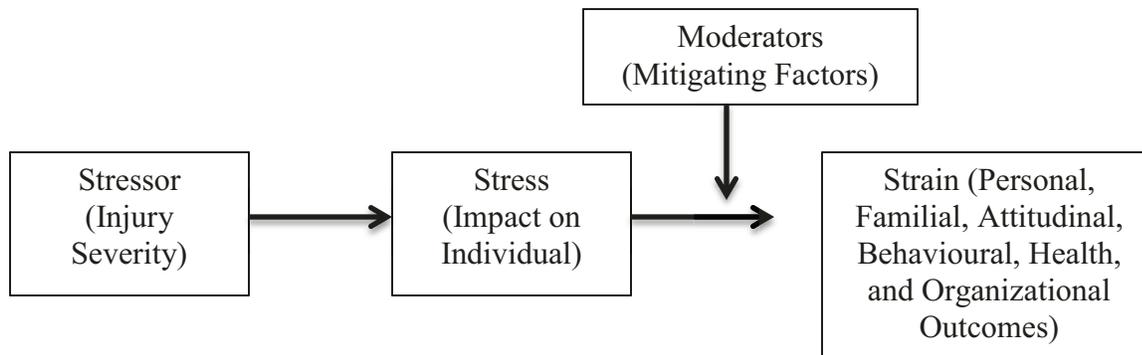
The findings discussed above relating work characteristics to family life, and vice versa, have been supported by several theoretical models. For example, person-environment-fit theory suggests that work has a more negative impact on family, and vice versa, when demands between work and family are excessive (Caplan, 1983; Voydonaff, 2005). Likewise, spillover effect hypothesizes that a positive work environment spills over into other aspects of life. Within the work-life interface, spillover can occur in either direction, where aspects of work may disrupt family life, in the case of negative work environments negatively affecting family cohesion and marriage quality (e.g., Frone et al., 1992; Grzywacz & Marks, 2000²); or family may disrupt work life, as in the example of marital conflict reducing job performance (Greenhaus & Beutell, 1985). Moreover, Greenhaus and Beutell (1985) suggest that stressors in a certain domain may lead to preoccupation, negative attitudes, or fatigue due to dealing with these stressors, limiting an individual's ability to be present or successful in the other domain. Research from this area has also suggested the spillover effect can be both positive and negative. For example, family conflict can lead to negative work outcomes, such as decreased productivity and decreased job satisfaction (Lawrence et al., 2013; Lim & Tai, 2014), whereas positive work experiences have

been shown to have positive effects for marriage, health, and sleep (Kacmar, Crawford, Carlson, Ferguson, & Whitten, 2014). Furthermore, research suggests there are mitigating and exacerbating factors that influence the spillover effect. For example, whereas encountering more barriers in balancing the work-family interface, (e.g., work stress, family conflict, financial strain), is related to an increase in negative spillover effects, more work-family resources, (e.g., social support, stronger marital quality, supervisor support), is related to an increase in positive spillover (Grzywacz & Marks, 2000¹).

Current Research

The current research is guided by research and evidence from the occupational health and safety domain, along with theories emerging from and related to the work-life interface. In particular, the theoretical stressor-stress-strain model (Barling, Bluen & Fein, 1987), which proposes that stressors lead to stress which in turn leads to strain (see Figure 1), forms the basis of the hypotheses proposed in this research. I argue that occupational injuries constitute stressors in the workplace, which can lead to the experience of stress, and in turn to strain. In line with spillover theories, I hypothesize an event at work can affect home life, which in turn can influence both an individual's personal and work life. Furthermore, I argue there are important moderating variables, from both work and home life, which have the potential to influence these relationships (e.g., resilience, various forms of social support).

Figure 1. *The proposed relationship between workplace injuries and individual outcomes.*



The Assessment of Physical Workplace Injuries

Much of the current research on physical occupational injuries tends to consider injuries from a binary perspective (e.g., injured or not injured), neglecting the more nuanced nature and related consequences of occupational injuries (Pransky et al., 2002). That is, research has tended to define injuries in terms of whether or not they occurred, thereby simplifying an injury to “damage to the body produced by energy exchanges that have relatively sudden discernible effects,” resulting in pain (Langley & Brenner, 2004, p.69), thus failing to consider the more personal and individual factors involved in the experience of an occupational injury. Slightly broader workplace injury assessments have been developed, and include questions such as type of injury, how it occurred, and if medical care was required; but these are commonly only used by organizations to assess compensation or treatment plans for insurance purposes. Regardless of the purpose, to date, most injury assessments do not go beyond items related to a brief injury description, how it occurred, and whether medical care was required (WorkSafe BC, 2007; Workers Safety and Compensation Commission [WSCC], 2014). This relatively narrow perspective of workplace injuries leaves a gap in our understanding of what injuries are and how

they affect the injured individual. For example, measuring injuries using workers' compensation (e.g., monetary) claims risks excluding those who work contract or part-time positions, or those who failed to report their injury (Dembe, 2001), thereby leading to an underrepresentation of occupational injuries.

We know the occurrence of occupational injuries has the potential to exert a negative impact on employees' well-being, behaviours, and motivations towards their jobs and employers (Barling et al., 2003; Dembe, 2001). There are several well-designed empirical studies that provide evidence of this (e.g., Keogh, Nuwayhid, Gordon, & Gucer, 2000; Laisné, Lecomte, & Corbière, 2013; Pransky et al., 2005). However, without a comprehensive analysis of the nature of occupational injuries, it is challenging for researchers to understand the full health, behavioural, attitudinal, organizational, and social ramifications. Recently, injury severity has been recognized as an important issue when considering the nature of occupational injuries (Baldwin, Butler, Johnson, & Côté, 2007; Stevenson, Segui-Gomez, Leschoier, DiScala, & McDonald-Smith, 2001); nonetheless, a broader injury assessment including injury severity (as well as other dimensions of a workplace injury) has yet to be tested. A more comprehensive analysis of occupational injuries may provide not only an improved understanding of injuries that occur at work, but also of the outcomes associated with these injuries.

McEvoy, Dupré, Barling, and MacIssac (2015) conducted a study with undergraduate students in an effort to create a broader and more complete measure of occupational injuries. The goal of this study was to examine a more comprehensive measure of occupational injuries that elaborates on the current common assessment (i.e., examining the occurrence of workplace injuries as a binary variable – yes or no – and sometimes including the type of injury and/or bodily location as a descriptive) to include characteristics that distinguish and further describe

occupational injuries (e.g., severity, pain, recency, visibility, disability). The occupational injury measure was comprised of items from pre-existing occupational injury measures and forms (Barling et al., 2003; Hayes, Strosahl, & Wilson, 1999; Jester, Harth, & Germann, 2005; WSCC, 2014), as well as some items designed by the authors to achieve a more nuanced understanding of occupational injuries (e.g., disability following injury, time away from leisure activities). Although there are many characteristics associated with an injury that research could examine (e.g., type of injury, industry of injured employee, presence of other employees), one of the foremost items that can provide a more nuanced view of injuries is severity (Baldwin et al., 2007; Stevenson et al., 2001). The factor analytic results in the McEvoy et al. study (2015) provided support for a 6-item injury severity measure, including items assessing perceived severity, level of pain, influence of the injury on work and personal life, and time off work following the injury. This broader and more comprehensive examination of occupational injuries provides a more nuanced understanding of workplace injuries and the impact they can have on individuals (e.g., how differences in workplace injuries can have different effects for individuals), and organizations, and is used to assess injuries in the studies that follow.

Study 1: The Individual Outcomes of Workplace Injuries

Research on stress at work (e.g., Barling et al., 1987; Barling et al., 2004) largely informs the relationship between workplace injuries and individual outcomes. Overall, stressful work (e.g., role overload, role conflict, threat of job loss, or demotion) tends to have negative consequences for the employees experiencing these stressors. For example, research has shown that stressful work conditions and events are related to decreased job satisfaction (Ashford, Lee, & Bobko, 1989), decreased well-being (Roskies & Louis-Guerin, 1990), and increased psychological distress (Probst, 2000). Moreover, experiencing stress at work has been shown to

influence individuals' personal lives. For example, women with young children who experience stress at work report significantly higher depressive scores than women with young children who are not experiencing stress at work (Shepherd-Banigan, Bell, Basu, Booth-LaForce, & Harris, 2015). Overall, stress at work has widespread effects for those experiencing it, including individual attitudes and behaviours at work and home, and overall health and well-being.

This relationship between stress at work and individual outcomes is supported by the Conservation of Resources theory (COR; Grandey & Cropanzano, 1999; Hobfoll, 1989; Hobfoll & Schumm, 2002). The COR theory posits that individuals strive to acquire and maintain a balance in their resources across multiple areas of their lives, and that these individuals will experience stress when they perceive a threat to this balance of resources. Individuals may use resources from one domain to cope with a threat in another domain; for example, a stressor in the workplace, such as an occupational injury, may lead the injured individual to utilize resources at home, such as relying on a romantic partner for support. As multiple domains compete for these limited resources, conflict may arise (Lawrence et al., 2013). Therefore, based on the COR theory, repercussions from a stressful work experience, such as an occupational injury, may impact multiple areas of one's life due to an inability to maintain a balance of resources across all areas of life.

Previous research has demonstrated that work stress negatively impacts work outcomes as well as personal outcomes (e.g., Ashford et al., 1989; Mitchell, Eby, & Lorys, 2015; Probst, 2000; Roskies & Louis-Guerin, 1990; Shepherd-Banigan et al., 2015). When addressing the relationship between occupational injuries and personal outcomes, research has tended to focus on the outcomes most important to organizations, such as inability to return to work and reduced workplace duties upon return (Baldwin et al., 2007; Pransky et al., 2005). Nonetheless, the

related existing research on the experience of work stress (e.g., role overload, job loss) and the experience of other traumatic injuries (e.g., spinal cord trauma, burns) suggests the effects of workplace injuries are not limited to organization-related outcomes, and the current study examines some of these alternative outcomes.

General health and well-being. Previous research supports the relationship between work life and health and well-being outcomes; positive work experiences tend to be related to increased well-being, while negative work experiences tend to be related to decreased well-being (e.g., van Veldhoven, Taris, de Jonge, & Broerson, 2005). Longitudinal research examining stressful work conditions found that employees subject to low control and high-pressure situations were more likely to experience new cardiovascular events (e.g., hypertension, heart attack; Siegrist, 1996). Furthermore, research suggests that high work demand, a proxy for work stress, is significantly related to decreased well-being (Parkes, 1990).

Moreover, related research in the traumatic injury literature suggests that following mild traumatic brain injury, more than 80% of victims experience either acute stress disorder or PTSD (Bryant & Harvey, 2014). Notably, the traumatic injury literature also suggests the severity of an injury may be related to the severity of negative health and well-being outcomes. For example, more severe brain injuries are significantly related to decreased neuropsychological functioning and emotional status, compared to less severe brain injuries (Dikmen, Machamer, Powell, & Temkin, 2003).

Therefore, drawing from research on negative workplace events and stress, I argue that experiencing an occupational injury will be negatively related to health and well-being. Indeed research supports this notion, where individuals injured at work tend to display symptoms of PTSD at a higher frequency than those not injured at work, suggesting that for many injured

employees the injury is a negative experience that has a continuing influence on their daily lives (Asmundson, Norton, Allardings, Norton, & Larsen, 1998; MacDonald et al., 2003). Further, based on this previous research, I expect that more severe injuries will be associated with decreased health and well-being.

Perceived stress. Previous research suggests perceived stress may be an important outcome related to the experience of a negative work incident. For example, a study on the relationship between daily negative work events and alcoholic intake suggests perceived stress increases following negative work events (Carney, Armeli, Tennen, Affleck, & O'Neill, 2000). However, the relationship between increased perceived stress and daily negative work events was only marginally significant, which the authors posited may be due to low frequency and low severity of the reported negative work events. Research on more severe negative workplace events, such as job loss (Howe, Levy, & Caplan, 2004), abusive supervision (Tepper, 2000), and workplace incivility (Beattie & Griffin, 2014) provide stronger support for the relationship between negative work events and stress, which suggests the severity of the negative event may be important.

In the pain and injury literature, traumatic injuries (e.g., spinal cord injuries) and chronic pain have both been significantly related to perceived stress (Rintala, Loubser, Castro, Hart, & Fuhrer, 1998; Scelza, Kalpakjian, Zemper, & Tate, 2005), suggesting injuries in general are significantly related to increases in perceived stress. Based on results from these various areas of research, I expect that more severe injuries will be related to increased perceived stress.

Workplace cynicism. Workplace cynicism is a workplace attitude characterized by feelings of work as frustrating, unrewarding and not worthy of effort (e.g., Stern, Stone, Hopkins & McMillion, 1990). Research suggests that particular adverse experiences at work may be more

likely to predict workplace cynicism (e.g., Andersson & Bateman, 1997). For example, research in the work-life interface suggests the experience of work-life conflict is significantly related to workplace cynicism (Reichl, Leiter & Spinath, 2014). Barling, Dupré, and Hepburn (1998) found that paternal job insecurity and layoffs related to children's cynicism toward work. Furthermore, work events such as organizational injustice, contract violation, role overload, and role conflict, are all related to cynicism towards work (Chiaburu, Peng, Oh, Banks & Lomeli, 2013). Overall, this research supports the notion that those who experience conflict and other forms of negative events at work tend to experience increased cynicism towards the world of work (e.g., Barling et al., 2003; Barling et al., 1998; Barling & Mendelson, 1999; Barling, Zacharatos, & Hepburn, 1999; Dembe, 2001).

Therefore, in light of this previous research, I propose that the experience of an occupational injury will be related to workplace cynicism. Moreover, I expect that injury severity will be positively related to cynicism towards work

Workplace beliefs. Extending the previous line of reasoning from the research on workplace cynicism following a negative event, other work-related attitudes and beliefs may also be affected by occupational injuries. Examples of common positive workplace beliefs include humanistic beliefs, where employees believe work can be meaningful and fulfilling, and organizational beliefs, where employees believe group success is most important (Buccholz, 1978). An example of a common negative workplace belief is Marxist-related beliefs, where employees are not trusting of management (Buccholz, 1978). Research on downsizing in organizations supports the notion that employees tend to report a decrease in positive attitudes towards work and an increase in negative attitudes towards work following the downsizing, even among employees who maintain their employment (Luthans & Sommer, 1999). Furthermore,

research on stressors in the workplace, such as work overload and workplace conflict, suggests that individuals experiencing workplace stress report decreased positive workplace attitudes and increased turnover intentions (Anderson, Coffey, & Byerly, 2002). Therefore, although these effects have not been extended to include workplace injuries specifically, based on research on other negative workplace experiences such as stress, downsizing, and work overload, I expect that more severe workplace injuries will be negatively related to positive work attitudes, and positively related to negative work attitudes.

Mediating Variables

Based on the theoretical stressor-stress-strain model (Barling et al., 1987), it is likely that the experience of a physical workplace injury (i.e., a workplace stressor) causes individuals to experience a stress reaction, which ultimately influences strain outcomes. Thus, it is likely that workplace injuries do not affect outcomes directly, but via a stress process where the workplace injury creates particular types of stress reactions that ultimately results in particular strain outcomes. Research in other domains finds support for this model (e.g., Dupré, Dawe, & Barling, 2014; Francis & Barling, 2005; Schat & Kelloway, 2003; Stewart & Barling, 1996). For example, research guided by the stressor-stress-strain model on daily work stress suggests daily work stress is significantly related to job performance via the mediating effect of mood (Stewart & Barling, 1996). Furthermore, research on perceived injustice and psychological strain supports the stressor-stress-strain model whereby the occurrence of a negative event (i.e., stressor), leads to perceived organizational injustice (i.e., stress), and results in increased psychological strain (i.e., strain; Francis & Barling, 2005). Based on this rationale, I argue that the relationship between workplace injuries and particular outcomes will be mediated by the experience of stress in response to the occupational injury. More specifically, I argue financial

difficulties, felt stigma, and meaning in life will mediate the relationship between occupational injuries and the strain outcomes described above. It is important to note that different stress reactions, likely lead to different outcomes (Zacharatos, Barling, & Iverson, 2005). That is, it is unlikely that one stress reaction mediates all outcomes, but that each outcome will be experienced via a theoretically relevant mediating variable. Based on previous research, I argue that each mediating stress effect resulting from the injury severity variable will likely be uniquely related to the outcome variables discussed above. I discuss the mediator variables and related hypotheses below.

Financial difficulties. Individuals injured at work are often compensated through worker's compensation boards; however, the compensation is often not enough to make up for the lost time at work and eventually, this compensation ends (Himmelstein, Warren, Thorne, & Woolhandler, 2005). Employees are frequently forced to go back to work before they are ready and may even be forced to leave their jobs due to their inability to complete their work (Pransky et al., 2000). Therefore, financial difficulties are an important factor related to occupational injuries that might negatively influence injured workers. Financial difficulties are often experienced as a form of stress, as suggested by the family economic stress model (Conger et al., 1992; 1993), thereby following the theoretical stressor-stress-strain model. Furthermore, the family economic stress model proposes that financial stress is significantly related to negative work beliefs and attitudes (e.g., decreased job satisfaction, cynicism at work, and negative attitudes at work; Conger, Rueter, & Elder, 1999), thus supporting the relationship between financial difficulties and various forms of organizational strain. Therefore, based on the family economic stress model, and evidence supporting a relationship between occupational health and safety and financial issues, as well as financial issues and work-related outcomes, I hypothesize

that financial difficulty will mediate the relationship between occupational injuries and negative work outcomes, namely workplace cynicism and Marxist-related work beliefs.

Hypothesis 1: Financial difficulties will mediate the relationship between (a) workplace injury severity and workplace cynicism, and (b) workplace injury severity and Marxist-related beliefs, where increased workplace injury severity is related to increased financial difficulties, which is related to increased workplace cynicism and Marxist-related beliefs.

Stigma. Previous research on stigma in the workplace has focused extensively on mental and emotional issues. Research suggests individuals with mental disorders who experience stigma in the workplace are more likely to experience poor quality of life at work, reduced career advancement, and increased likelihood of job loss (Stuart, 2003). Furthermore, these individuals are more likely to be in positions inferior to their skill levels, experience reduced responsibilities, and be the object of hostility from co-workers (Baldwin & Marcus, 2006; Stuart, 2003). Moreover, research suggests individuals who experience social stigma are more likely to experience increased stress, decreased health and well-being, and decreased academic and career achievement (Major & O'Brien, 2005). Research has not yet focused extensively on stigma associated with occupational injuries specifically; however, research on stigma associated with illness, such as HIV, and other physical injuries, such as those who have become disabled, suggests stigma is most often experienced in response to something unwanted or undesirable (Phillips, Pearson, Li, Xu, & Yang, 2002). Therefore, it is likely that occupational injuries could also be associated with stigma. For example, injured individuals may feel stigmatized by co-workers who fear being injured, or by their own family members and friends who are unsure how to treat an injured individual. Furthermore, injured individuals may feel stigmatized by individuals who insinuate that they are not truly injured, who accuse them of taking advantage of

the workers' compensation system, or who simply inadvertently stare. Given the various reasons for experiencing stigma, in the case of stigma following the experience of an occupational injury, felt stigma may be of more interest than enacted stigma. The conceptual definition of enacted stigma refers to a situation where someone in a position of power (e.g., class, race, authority), discriminates against an individual in a lower position (Link & Phelan, 2001). However, for the purpose of examining how stigma occurs as stress following the experience of a workplace injury and subsequently leads to strain, felt stigma is likely a more appropriate construct. Felt stigma refers to an individual's perception of being stigmatized and therefore provides a more accurate representation of how an individual is affected by stigma (Yebei, Fortenberry, & Ayuku, 2008). While enacted stigma is important in understanding global concepts of discrimination, felt stigma is more representative of individual experience. Although research has not yet directly addressed the association between felt stigma and workplace injuries, based on related research that supports the relationship between health and stigma, as well as stigma and well-being-related outcomes, I hypothesize that felt stigma will mediate the relationship between the experience of an occupational injury and health and stress-related outcomes.

Hypothesis 2: Felt stigma will mediate the relationship between (a) workplace injury severity and general health, and (b) workplace injury severity and perceived stress, where increased workplace injury severity is related to increased felt stigma, which is related to decreased general health and increased perceived stress.

Meaning in life. Following a traumatic experience, research suggests victims tend to question why such a negative event has occurred and why it happened to them specifically (Van der Kolk & McFarlane, 2012). To deal with these questions, research has supported the benefits

of presence of meaning in life following a traumatic experience, such as injury, loss, or victimization (e.g., Park, 2010; Triplett, Tedeschi, Cann, Calhoun, & Reeve, 2012).

Research suggests that the presence of meaning in life following a traumatic experience is significantly related to increased life satisfaction (Triplett, et al., 2012; Reker, Peacock & Wong, 1987). Furthermore, research suggests meaning in work, especially when faced with job insecurity or a role comprised of repetitive mundane tasks, is related to increased positive job attitudes and satisfaction (Clausen, Burr & Borg, 2014; Roy, 1959; Triplett, et al., 2012).

Overall, research supports the notion that meaning in life may follow a traumatic event, and the result of this meaning in life may be a positive outcome, thereby supporting finding meaning in life as a form of stress, or a direct effect of the experience of an occupational injury leading to subsequent strain, in the stressor-stress-strain model. Based on this research, I hypothesize that meaning in life will mediate the relationship between the experience of an occupational injury and positive work attitudes, namely humanistic and organizational work beliefs. I further expect that when injuries are less serious, meaning in life will be higher. Although some research supports the notion that traumatic events are positively related to meaning in life, given the gravity of workplace injuries as they become more serious, it is unlikely that greater severity is related to greater meaning in this case.

Hypothesis 3: Meaning in life will mediate the relationship between (a) workplace injury severity and Humanistic work beliefs, and (b) workplace injury severity and Organizational work beliefs, where decreased workplace injury severity is related to increased reports of meaning in life, which is related to increased positive work attitudes.

Moderating Factors

Research suggests that the experience of stress associated with workplace stressors can be influenced by other factors, and is theoretically supported by the buffer effect (House, 1981; LaRocco, House, & French, 1980). The buffer effect proposes that the relationship between occupational stressors, such as an occupational injury, and any related outcomes, such as health and work attitudes, is buffered by positive social support. This theory is further extended by the match hypothesis (Cohen & Wills, 1985), which suggests the most positive outcomes will be associated with those who have a match between their coping requirements and their available support. This theory has the potential to be extended with research focusing on occupational injuries and outcomes that may ensue as a result. For example, resilience (Jackson, Firtko & Edenborough, 2007), and various types of social support (Dickson et al, 2011), may influence the outcomes associated with occupational injuries, but have not yet been considered in such a role. In the context of workplace injuries, these factors may play important roles in mitigating general health, well-being, attitudinal, and occupational outcomes.

Bearing in mind the complex relationships involved in the work-family interface (e.g., the bidirectional nature of the spillover effect, where both work issues can spillover to family life and family issues can spillover to work life concurrently), an important aspect consistent within the theories described above is the influence of other external factors on the relationship between a stressful occupational event and the negative outcomes associated with it. As a result, the factors mitigating these relationships between injuries and various outcomes provide insight into the characteristics of individuals who are most at risk of developing negative outcomes and those most likely to be capable of overcoming such effects. Previous research provides insight into variables that may influence the impact of injuries on individuals.

Social support. Research from the traumatic injury literature suggests individuals who believe they are receiving social support report faster recovery times and better overall health and well-being (Anson, Stanwyck, & Krause, 1993; Robbins & Rosenfeld, 2001). Furthermore, research from the work-conflict literature suggests negative work outcomes associated with negative work experiences are buffered by the perception of positive social support (Ganster, Fusilier, & Mayes, 1986; Scott, Zagenczyk, Schippers, Purvis, & Cruz, 2014). Research also suggests that different types of social support buffer specific outcomes, suggesting not all social support is equal (Sherbourne & Stewart, 1991). Social support received from romantic partners, family, and friends has been related to increased health and well-being-related outcomes (Bookwala, Marshall, & Manning, 2014; Ryan, Wan, & Smith, 2014), while social support received from co-workers and supervisors has been related to better work-related outcomes (Halbesleben & Wheeler, 2015; Sakurai & Jex, 2012).

Overall, research strongly supports the notion that social support has the potential to enhance positive experiences and mitigate negative experiences (Cohen & McKay, 1984; Cohen & Wills, 1985; Cohen & Syme, 1985; Wheaton, 1982). Research supports the existence of two social support models, where on one side, social support acts as a beneficial effect, further increasing a positive experience, and on the other side, social support acts as a buffer to protect individuals from negative experiences (Cohen & Wills, 1985). Therefore, based on these related areas of research, I hypothesize that individuals who experience social support will have more positive outcomes following an occupational injury. In particular, I argue that social support will interact with financial difficulties and presence of meaning in life to influence the outcomes that are related to these variables. More specifically, based on previous research suggesting that work-related social support is important to work outcomes, I hypothesize supervisor support and

co-worker support will moderate the relationship between financial difficulties and negative work attitudes and beliefs, and that supervisor and co-worker support will moderate the relationships between meaning in life and positive work beliefs.

Hypothesis 4: Supervisor and co-worker social will support moderate the relationship between (a) financial difficulties and workplace cynicism, and (b) financial difficulties and Marxist-related beliefs, where more supervisor or co-worker support will reduce the negative effects of financial difficulties on both workplace cynicism and Marxist-related beliefs.

Hypothesis 5: Supervisor and co-worker social support will moderate the relationship between (a) finding meaning in life and humanistic work beliefs, and (b) finding meaning in life and organizational beliefs, where more supervisor or co-worker support will increase the positive effects of finding meaning in life on both humanistic and organizational beliefs.

Resilience. It is important to recognize that not all individuals who experience a workplace injury report negative outcomes. Therefore, certain factors may influence whether individuals experiencing an occupational injury will experience negative outcomes or be able to mitigate these effects. For example, research has demonstrated that certain individuals are resilient in the face of adversity, and tend to appear unaffected by stressful events (Masten & Coatsworth, 1998). Furthermore, certain individuals are able to adopt positive coping styles that have been related to positive outcomes after experiencing stressful events (Dumont & Provost, 1998). Research on stress in the workplace supports resilience as an individual-level factor that explains a significant proportion of the variance in well-being in those suffering from excessive work stress and burnout, suggesting those who are resilient in the face of adversity report significantly higher well-being than those who are not resilient (Hodges, Keeley & Grier, 2005; Kinman & Grant, 2011). Research on workplace aggression, a more severe negative workplace

event, suggests some individuals are able to continue working and even thrive despite an aggressive work environment where others cannot. For example, whereas nurses affected by workplace aggression are significantly more likely to exhibit leaving intentions or quit their jobs entirely, resilient nurses are able to continue working successfully (Glass, 2009; Jackson, et al., 2007).

Overall, while some research suggests that resilience may influence attitudes and beliefs (Shin, Taylor, & Seo, 2012), research on resilience consistently indicates that resilient individuals report significantly better health and well-being outcomes, compared to their less resilient counterparts (Black & Ford-Gilboe, 2004; Bonnano, 2004; Shin, Sim, & Kim, 2006; Tugade, Frederickson, & Feldman Barrett, 2004). Furthermore, research on felt stigma specifically, suggests stigmatized individuals who report higher levels of resilience, tend to have better health, social and attitudinal outcomes (Shih, 2004). Therefore, taken together, I hypothesize that individuals who experience felt stigma as a result of an occupational injury, and who report higher levels of resilience, will report more positive health and well-being outcomes than individuals who report lower levels of resilience.

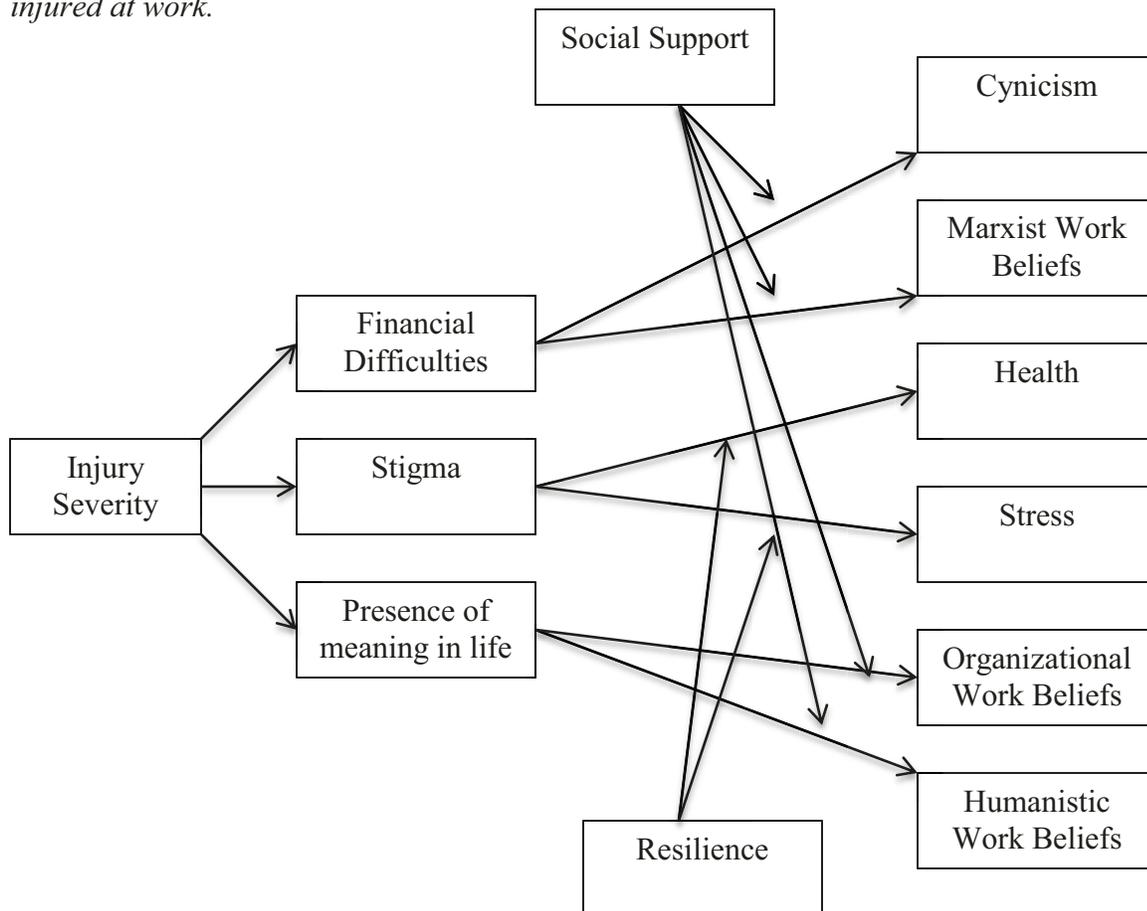
Hypothesis 6: Resilience will moderate the relationship between (a) stigma and general health, and (b) stigma and perceived stress, where increased resilience will reduce the negative effects of stigma on general health and perceived stress.

Summary of Study 1

To summarize, using theory from the stressor-stress-strain model (Barling et al, 1987), as well as work-life theories (Bolger, DeLongis, Kessler, & Wethington, 1989; Frone et al., 1997), and person-environment fit theory (Voydonaff, 2005), I aim to provide a better understanding of the widespread effects of occupational injuries. Study 1 proposes and tests hypotheses designed

to address a current gap in the literature surrounding how occupational injuries directly affect the injured individual, as well as factors that mitigate this relationship. See Figure 2 for the proposed relationships in study 1. Using a broader, more in-depth measure of occupational injuries, the relationship between occupational injury severity (measured by severity, pain, work disruption, leisure disruption, immediate time off following injury, and continued time away from work because of injury) and general health, perceived stress, work beliefs (i.e., Marxist-related, organizational, and humanistic work beliefs), and cynicism towards work among individuals who have experienced an occupational injury was assessed. Mediators in the relationship between occupational injury severity and negative health and work outcomes were assessed (i.e., financial difficulties, felt stigma, and meaning in life). Finally, potential moderators in the relationship between mediator and outcome variables were assessed (i.e., co-worker and supervisor social support, and resilience). Overall, the results from Study 1 have the potential to expand our understanding of the individual consequences of workplace injuries on the injured individual.

Figure 2. *The proposed relationships between workplace injuries and outcomes for individuals injured at work.*



Method

Data was collected using the online survey and participant recruitment tool, Qualtrics. Qualtrics is an online service that assists researchers in collecting their desired number of pre-screened participants. Qualtrics members, pre-screened for individuals who have experienced an occupational injury in the last 12 months and who had been living with their romantic partner for at least 6 months prior to their occupational injury, were invited to participate in the current study (see Appendix A for the Qualtrics recruitment notice). Qualtrics aimed to recruit approximately 200 individuals who had experienced a recent occupational injury and had been living with their heterosexual romantic partner for at least 6 months prior to the injury to participate in this study. All participants were compensated using a Qualtrics-specific points

system, where participants receive points for participating in online surveys, which can later be cashed in for gift cards or various consumer products. Participants received the equivalent of \$5 US in Qualtrics points for participating in this online survey study.

Questionnaire. Pre-screened individuals who were interested in participating clicked on the link to the online survey. Before completing the survey, participants were asked to read an online informed consent form (see Appendix B for the online informed consent form). Those who agreed were then directed to the online survey; participants were asked to complete an online survey that took approximately 20 minutes to complete (see Appendix C for the full survey). Following the completion of the online survey, participants were electronically linked to a debriefing form pertaining to this study. The online debriefing presented participants with information about the study, including the hypotheses, and provided resources for participants who had questions or experienced negative emotions following their participation in this study (see Appendix D for the debriefing form).

Through the questionnaire, I assessed three experiences of stress that may arise in response to the stressor (i.e., the injury) among individuals who had experienced an occupational injury: financial difficulties, stigma, and finding meaning in life (or not finding meaning in life). Further, individuals responded to two measures assessing moderating factors: social support, and resilience. Finally, individuals were asked questions related to their health and well-being, as well as their work beliefs and attitudes. Further information pertaining to each measure is presented below.

Injury severity measure. Individuals who experienced an occupational injury responded to a series of questions about their injury. The injury questions were adapted from a previous study measuring occupational injuries (McEvoy et al., 2015), where 250 university students

responded to questions regarding their experience with an occupational injury and the effect of their injury on negative workplace beliefs. A factor analysis revealed 6 items, measuring various aspects of injury severity, formed the best measure and was significantly related to negative workplace beliefs, where more severe injuries were significantly related with more negative workplace beliefs. This six-item measure included items assessing the (1) pain associated with the injury, (2) degree of severity of the injury, (3) amount of time the injury prevented the individual from doing their job, (4) time away from leisure activities as a result of the injury, (5) missed workdays immediately following the injury, and (6) continued frequency of absence as a result of continued issues from the injury. The reliability of this injury measure was $\alpha = .90$.

Financial difficulties. As a measure of financial difficulties, three questions were used, rated from 1 (a little) to 5 (a lot; used in Kessler, Turner, & House, 1988; Vinokur, Price, & Caplan, 1996). These three questions were: “How difficult is it for you to live on your total household income right now?” “In the next two months, how much do you anticipate that you or your family will experience actual hardships such as inadequate housing, food or medical attention?” and, “In the next two months, how much do you anticipate having to reduce your standard of living to the bare necessities of life?” The reliability of the financial difficulties measure was $\alpha = .91$.

Felt stigma. As a measure of stigma, the felt stigma questionnaire, modified for occupational injuries (Baxter, 1989; Gray, 2002), was used. This is a four-item questionnaire ranging from 1 (never) to 5 (most of the time). Items include, “People treat you differently because of your injury” and “People are uncomfortable with you because of your injury”. The reliability for the felt stigma questionnaire was $\alpha = .92$.

Meaning in life. As a measure of meaning in their lives, injured individuals answered the Meaning in Life Questionnaire (Steger, Frazier, Oishi, & Kaler, 2006), a ten-item questionnaire on a scale from 1 (absolutely untrue) to 7 (absolutely true). Items included “I am always looking to find my life’s purpose” and “I have a good sense of what makes my life meaningful”. Although this questionnaire can be used as a single scale, there are two subscales, search and presence, for which the alpha coefficients, $\alpha = .86$ and $\alpha = .80$, respectively, were higher than the reliability for all of the items together, $\alpha = .75$. Therefore, I separated the two subscales (i.e., search and presence) and used the presence of meaning in life subscale in all analyses. This scale was positively coded, so individuals without meaning in life (i.e., search or presence) scored lower on meaning in life, while individuals who were with meaning in life scored higher on meaning in life. Of note, the searching for meaning subscale was used in a post-hoc analysis to assess if the same mediation model would hold using the searching subscale, rather than the finding subscale.

Social support. As a measure of social support, five questions were answered with two different people in mind: “your supervisor”, and “your co-workers”. This scale was developed by Frese (1999) and answers range from 1 (never) to 5 (always). Questions include “How much each of these people can be relied on when things get tough at work?” and “How easy is it to talk to each of the following people?” The scale was separated into two subscales based on the source of social support (i.e., supervisor, and co-workers). The alpha coefficients were $\alpha = .92$, $\alpha = .89$, for supervisors, and co-workers, respectively.

Resilience. As a measure of resilience in the face of adversity, the Connor-Davidson Resilience Scale (10-item CD-RISC; Cambell-Sills & Stein, 2007) was used. Items, including “I am able to adapt to change” “I tend to bounce back after illness or hardship” and, “I think of

myself as a strong person”, were rated on a 4-point scale from 1 (not true at all) to 4 (true nearly all the time). The reliability for the CD-RISC was $\alpha = .89$.

Health and well-being. As a measure of health and well-being, the General Health Questionnaire (GHQ; short form; Ware, Kosinski, & Keller, 1996) was used to assess well-being following the experience of an occupational injury. Questions were answered on scale from 1 (not at all) to 7 (all of the time) and included answering the questions, “Following my/my partner’s occupational injury I have been feeling under strain”, “...I have been losing confidence in myself”, and the reverse coded item, “...I have been reasonably happy, all things considered”. The alpha coefficient for the GHQ was $\alpha = .82$. This scales items were coded such that higher scores represent better health and lower scores represent poorer health.

Perceived stress. As a measure of perceived stress in response to an occupational injury, participants completed the Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983). This questionnaire assessed the experience of certain thoughts and feelings in response to the occupational injury. Thoughts and feelings (e.g., feeling nervous and stressed, feeling unable to control important things in your life) following the experience of the occupational injury were rated on a scale of 0 (never) to 4 (very often). The reliability for the perceived stress scale was $\alpha = .77$.

Workplace beliefs. As a measure of workplace beliefs, the Workplace Beliefs Scale (including the Humanistic, Marxist-related, and Organizational subscales; Buccholz, 1978) was used. Items were rated on a scale from 1 (strongly disagree) to 4 (strongly agree) and included “Work can be made meaningful” from the Humanistic subscale, “ Management does not understand the needs of the worker” from the Marxist-related subscale, and “Survival of the group is very important in an organization” from the Organizational subscale. The workplace

beliefs scale was separated into the three subscales, Humanistic, Marxist-related, and Organizational, where humanistic and organizational beliefs represent positive workplace beliefs, and Marxist-related represents a negative workplace belief. The reliabilities for the workplace beliefs scales were $\alpha = .84$, $\alpha = .89$, and $\alpha = .82$, for Humanistic, Marxist-related, and Organizational, respectively.

Workplace cynicism. The Workplace Cynicism Scale (Stern, Stone, Hopkins, & McMillion, 1990) was used to assess participants' degree of cynicism towards the world of work. This 10-item questionnaire, using a scale from 1 (strongly disagree) to 4 (strongly agree), included items such as "I believe in working only as hard as I have to" and "If I had the chance, I would go through life without ever having to work". The reliability for the workplace cynicism scale was $\alpha = .90$.

Demographics. Participants provided information regarding their age, education, gender, relationship status and length of relationship, work status and experience, and household income. Pertinent demographic information can be seen in Table 1.

Table 1.

Study 1 Means and Standard Deviations of Descriptive Statistics

Variable	N	Range	M	SD
Age	209	22-65	40.00	10.01
Relationship Length	210	6months – 10+years	3.82	1.25
Work Experience	208	Less than 1 year – 25+years	11.90	7.83
Gender			<i>Percentage</i>	
Male	156		74.3	
Female	54		25.7	

Statistical Analysis

The hypotheses of Study 1 were assessed using several tests for moderated mediation (see Hayes, 2013; Preacher, Rucker, & Hayes, 2007). Specifically, the Process macro (Hayes, 2013; <http://www.afhayes.com>) is used to assess the hypotheses presented in this study.

Regression analyses were conducted to estimate mediation and moderation with bootstrapping and confidence intervals. This model allows for the estimation of direct and indirect effects in moderated mediation models, which were appropriate for testing the mediation and moderation hypotheses proposed in this research (e.g., Bach, Gaudiano, Hayes, & Herbert, 2013; Zhao, Lynch, & Chen, 2010). The statistical analyses in Study 1 were performed in three stages. In the first stage, linear regression equations were estimated where each of the proposed mediator variables (felt stigma, financial difficulties, and presence of meaning in life) were regressed one at a time onto the workplace injury severity measure. In the second stage, logistic regression

equations were estimated. (1) Health and (2) perceived stress were regressed separately onto felt stigma, workplace injury severity, and felt stigma X resilience interaction; (3) Marxist-related beliefs and (4) cynicism towards work were regressed separately onto financial difficulties, workplace injury severity, and supervisor support X financial difficulties and co-worker support X financial difficulties interactions; and (5) humanistic beliefs and (6) organizational beliefs were regressed separately onto presence of meaning in life, workplace injury severity, and supervisor support X presence of meaning in life and co-worker support X presence of meaning in life interactions. Statistical significance of the indirect effects was decided using bias-corrected 95% confidence intervals (CI), based on 5,000 bootstrapped resamples (MacKinnon, Lockwood, & Williams, 2004). The indirect effect was deemed significant at $p < 0.05$ if the bias-corrected CIs did not include zero. Unstandardized regression coefficients are reported for all analyses in Tables 3 and 4. I controlled for age, gender, and work experience given that young males with less work experience tend to be the cohort most likely to be injured at work (Breslin, Koehoorn, Smith, & Manno, 2003).

Results

Participants

Data was collected from 210 individuals who had experienced an occupational injury within the last 12 months and had been living with a romantic partner at least 6 months prior to their occupational injuries. Three-quarters of the participants were males (74%; 156 males), and the mean age was 40 (standard deviation of 10.01 years). Over half of the sample worked in a manual labour industry (e.g., construction, manufacturing, agriculture; 58.6%) and over 80% of the sample had either a high school or college education. However, the level of work experience varied greatly (standard deviation of 7.8 years). Furthermore, 75% of the sample was married,

versus simply living with their partner, and over 65% of the sample had been in their relationship for more than 5 years. The type of injuries in this sample included 25% who had experienced a fracture, 31% who had experienced a back strain, 19% who had experienced a sprain, 16% who had experienced significant bruising, 15% who had experienced an open wound, and 8% who had experienced a head injury. Furthermore, the most common body parts affected by the workplace injuries were the spine (28%), the upper extremities (27%), and the lower extremities (28%). The head (15%) and the neck (13%) were also common. The injury severity and pain ratings were normally distributed. See Table 1 for means and standard deviations of demographic variables.

Correlation Analysis

Before testing the study hypotheses, correlations between study variables were assessed. See Table 2 for means, standard deviations and correlations between study variables. The injury measure was significantly correlated with all of the mediator variables – felt stigma, financial difficulties, and presence of meaning in life. Furthermore, the individual mediator variables were significantly correlated with outcome variables – health, perceived stress, organizational and humanistic work beliefs, cynicism towards work, and Marxist-related beliefs.

Table 2

Study 1 Correlations and Descriptive Statistics of Variables.

Variables	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Injury	3.18	1.08	-															
2. Finance	3.03	1.28	.38**	-														
3. Stigma	3.24	1.27	.39**	.54**	-													
4. Meaning	5.14	1.26	.20**	-.10	.08	-												
5. GHQ	4.50	0.94	-.25**	-.45**	-.42**	.43**	-											
6. Stress	2.63	0.80	.34**	.40**	.44**	.01	-.28**	-										
7. Cynicism	2.36	.074	.09	.34**	.47**	-.08	-.36**	.42**	-									
8. Marxist	3.07	0.60	.21**	.42**	.32**	-.06	-.26**	.30**	.44**	-								
9. Humanistic	3.34	0.47	-.02	-.11	-.04	.44**	.33**	.11	-.17*	.13	-							
10. Organizational	3.15	0.57	.13	.13	.18**	.23**	-.02	.18*	.12	.24**	.38**	-						
11. Supervisor	3.58	1.10	-.06	-.17*	-.05	.30**	.26**	.01	-.09	-.19**	.34**	.36**	-					
Support																		
12. Co-worker	3.74	0.30	-.01	-.10	-.03	.31**	.34**	.06	-.03	-.12	.35**	.31**	.54**	-				
Support																		
13. Resilience	3.27	0.55	.04	-.01	-.06	.45**	.41**	.09	-.03	.04	.42**	.22**	.30**	.41**	-			
14. Gender	1.26	0.44	-.04	.15*	.14*	.06	-.11	-.07	.08	.10	.01	.06	.09	-.05	-.08	-		
15. Work	11.9	7.83	.11	-.08	-.15*	.04	.13	.01	-.21**	-.03	.02	-.07	-.05	-.04	.06	-.11	-	
Experience																		
16. Age	40.0	10.0	.10	-.09	-.07	.10	.06	-.07	-.22**	-.12	-.02	.05	-.03	-.04	.02	-.13	.55**	-

Note: GHQ = General Health Questionnaire, Gender: 0 = male, 1 = female

* $p < .05$.

** $p < .01$

Mediation Analysis

The results of the regression analyses supporting the mediation hypotheses are in Table 3. Workplace injury severity was significantly related to financial difficulties ($b = .416$, CI [.266, .566]), felt stigma ($b = .468$, CI [.368, 2.037]), and presence of meaning in life ($b = .248$, CI [.089, .408]). Subsequently, after controlling for age, gender, and work experience, logistic regression analysis showed that financial difficulties predicted cynicism towards work ($b = .164$, CI [.083, .244]) and Marxist-related beliefs ($b = .179$, CI [.113, .245]), stigma predicted decreased health ($b = -.241$, CI [-.346, -.135]) and increased perceived stress ($b = .229$, CI [.142, .315]), and finally, presence of meaning in life predicted humanistic work beliefs ($b = .173$, CI [.125, .220]) and organizational work beliefs ($b = .092$, CI [.030, .153]). Therefore, hypotheses 1a and 1b, 2a and 2b, and 3a and 3b were supported.

Table 3

Study 1 Mediation Analysis

Path	Estimate	SE	p	95% CI Lower, Upper
Injury → Finance	.42	.08	<.001	.27, .57
Finance → Cynicism	.16	.04	<.001	.08, .24
Finance → Marxist	.18	.03	<.001	.11, .25
Injury → Stigma	.47	.07	.005	.37, 2.04
Stigma → Health	-.24	.05	<.001	-.35, -.14
Stigma → Stress	.23	.04	<.001	.14, .32
Injury → Meaning	.25	.08	.003	.09, .41
Meaning → Humanistic	.17	.02	<.001	.13, .22
Meaning → Organizational	.09	.03	.004	.03, .15

Note: Controlling for age, gender, and work experience. 5,000 bootstrap resamples used to generate 95% confidence intervals.

Post-hoc analysis. Of interest, the searching for meaning in life scale (a subscale of the finding meaning in life scale) was entered in the regression analysis post-hoc. When the searching for meaning subscale was entered in the regression analysis in the place of the presence of meaning subscale the mediation hypothesis was not supported. That is, while presence of meaning in life mediates the relationship between workplace injury severity and positive work attitudes (Humanistic and Organizational work beliefs), search for meaning in life does not.

Moderation Analysis

The results of the conditional process analysis assessing moderated mediation can be found in Table 4. The results of these analyses were mixed. The finance X supervisor support interaction ($b = .093$, CI [.028, .158]; see Figure 3) and the finance X co-worker support interaction ($b = .116$, CI [.040, .192]; see Figure 4) were found to predict cynicism towards work, supporting hypothesis 4A. However, the finance X supervisor support interaction ($b = .018$, CI [-.035, .071]) and the finance X co-worker support interaction ($b = .008$, CI [-.056, .071]) did not predict Marxist-related beliefs, thus failing to support hypothesis 4b. The presence of meaning in life X supervisor support interaction ($b = .055$, CI [.003, .107]; see Figure 5) and the presence of meaning in life X co-worker support interaction ($b = .073$, CI [.014, .132]; see Figure 6) were found to predict organizational work beliefs. However, neither the presence of meaning in life X supervisor support interaction ($b = .008$, CI [-.034, .050]), nor the presence of meaning in life X co-worker support interaction ($b = -.008$, CI [-.055, .039]) predicted humanistic work beliefs, providing only partial support to hypothesis 5. Finally, the stigma X resilience interaction was found to predict both health ($b = -.195$, CI [-.344, -.047]; see Figure 7) and perceived stress ($b = .231$, CI [.098, .365]; see Figure 8), thus supporting hypothesis 6.

Table 4

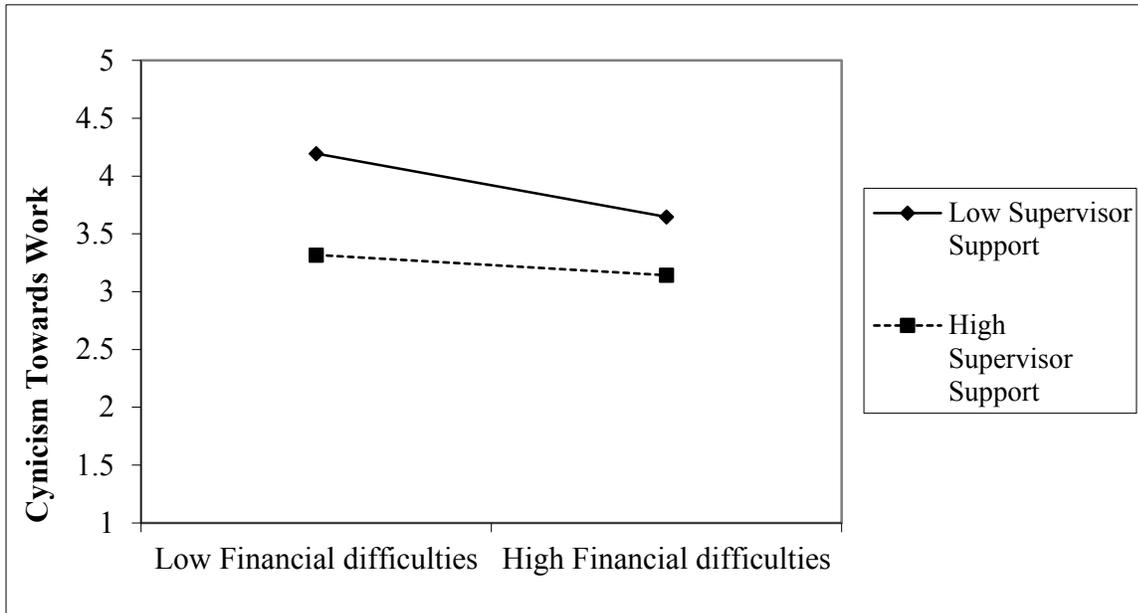
Study 1 Moderated Mediation Analysis

Path	Estimate	SE	p	95% CI	
				Lower	Upper
Finance → Cynicism	-.18	.13	.153	-.43	.07
Finance x Supervisor Support	.09	.03	.005*	.03	.16
Finance → Cynicism	-.28	.15	.067	-.59	.02
Finance x Co-worker Support	.12	.04	.003*	.04	.19
Finance → Marxist	.10	.10	.331	-.10	.31
Finance x Supervisor Support	.02	.03	.509	-.04	.07
Finance → Marxist	.15	.13	.246	-.10	.40
Finance x Co-worker Support	.01	.03	.808	-.06	.07
Stigma → Health	.44	.26	.091	-.07	.95
Stigma x Resilience	-.20	.08	.010*	-.34	-.05
Stigma → Stress	-.55	.23	.020*	-1.00	-.09
Stigma x Resilience	.23	.07	<.001*	.10	.37
Meaning → Humanistic	.12	.08	.109	-.03	.27
Meaning x Supervisor Support	.01	.02	.704	-.03	.05
Meaning → Humanistic	.18	.09	.057	-.01	.36
Meaning x Co-worker Support	-.01	.02	.727	-.06	.04
Meaning → Organizational	-.14	.09	.143	-.32	.05
Meaning x Supervisor Support	.06	.03	.040*	.00	.11
Meaning → Organizational	-.22	.12	.062	-.45	.01
Meaning x Co-worker Support	.07	.03	.017*	.01	.13

Note: Controlling for age, gender, and work experience. 5,000 bootstrap resamples used to generate 95% confidence intervals.

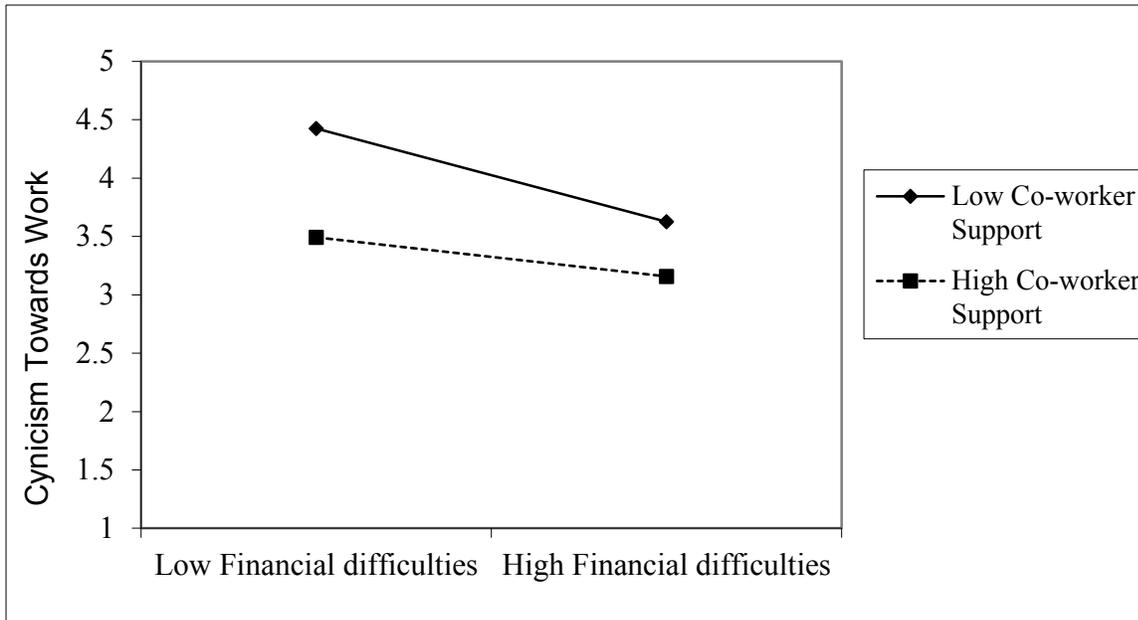
* = Statistically Significant

Figure 3. *Supervisor support as a moderator in the relationship between financial difficulties and cynicism towards work.*



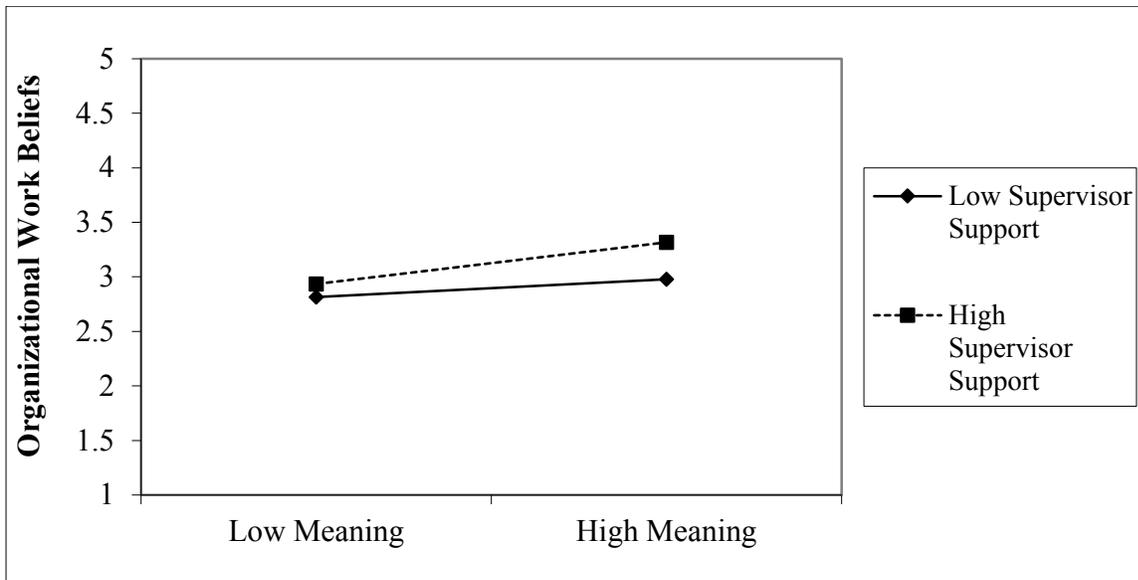
Note: Controlling for gender, relationship length, and work experience. 5,000 bootstrap resamples used to generate 95% confidence intervals.

Figure 4. *Co-worker support as a moderator in the relationship between financial difficulties and cynicism towards work.*



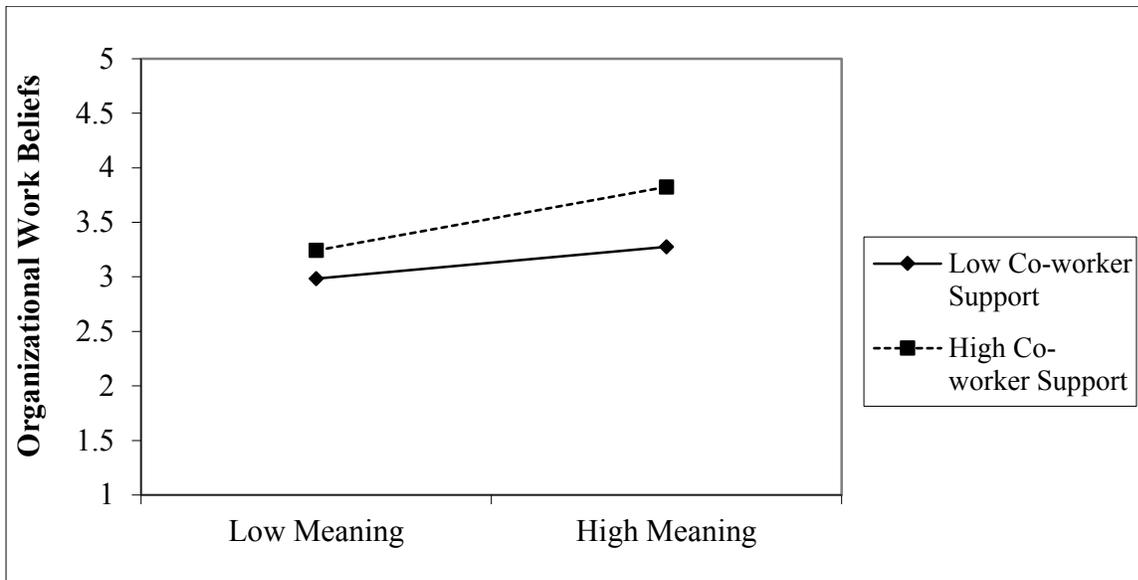
Note: Controlling for gender, relationship length, and work experience. 5,000 bootstrap resamples used to generate 95% confidence intervals.

Figure 5. *Supervisor support as a moderator in the relationship between presence of meaning in life and organizational work beliefs.*



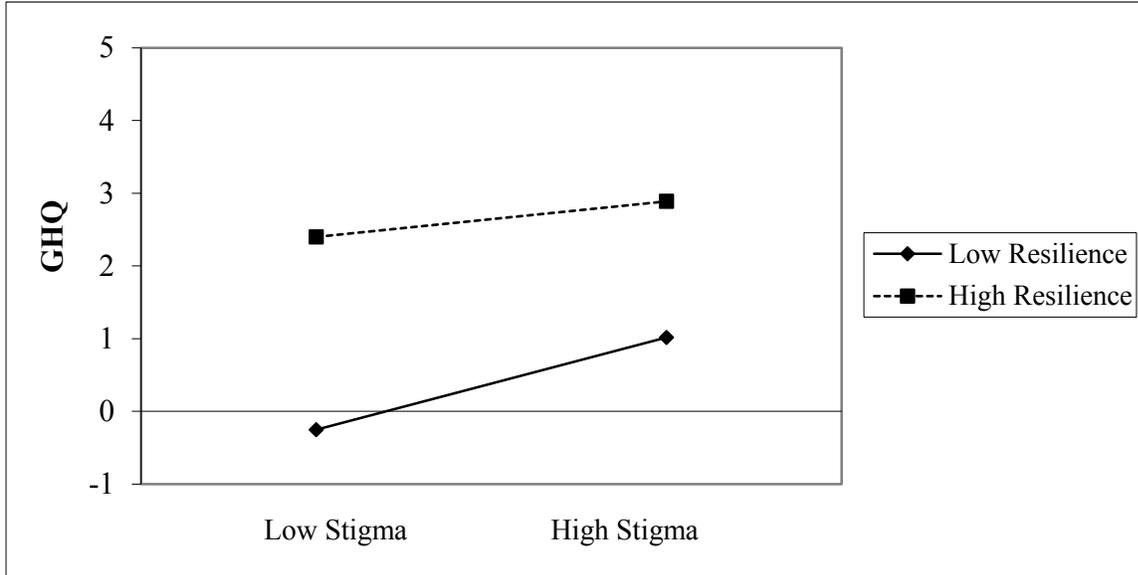
Note: Meaning = Finding meaning in life. Controlling for gender, relationship length, and work experience. 5,000 bootstrap resamples used to generate 95% confidence intervals.

Figure 6. *Co-worker support as a moderator in the relationship between presence of meaning in life and organizational work beliefs.*



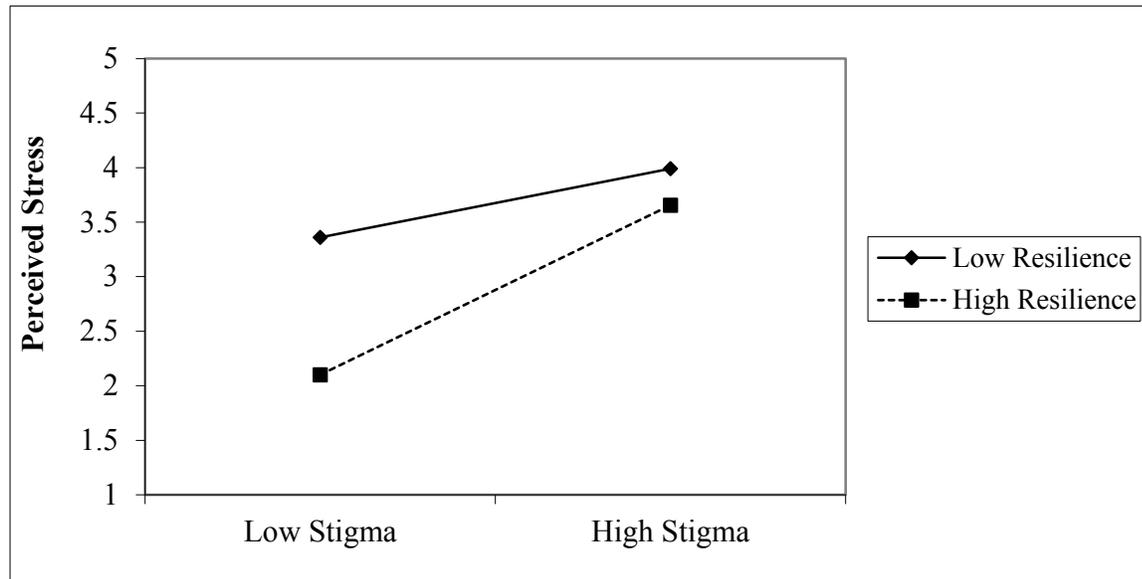
Note: Meaning = Finding meaning in life. Controlling for gender, relationship length, and work experience. 5,000 bootstrap resamples used to generate 95% confidence intervals.

Figure 7. Resilience as a moderator in the relationship between felt stigma and health.



Note: GHQ = General Health Questionnaire Stigma = Felt stigma. Controlling for gender, relationship length, and work experience. 5,000 bootstrap resamples used to generate 95% confidence intervals.

Figure 8. Resilience as a moderator in the relationship between felt stigma and perceived stress.



Note: Stigma = Felt stigma. Controlling for gender, relationship length, and work experience.

5,000 bootstrap resamples used to generate 95% confidence intervals.

Discussion

In this study, I aimed to provide a better understanding of the widespread effects of occupational injuries by testing hypotheses surrounding how occupational injuries directly affect the injured individual, as well as factors that mitigate this relationship. Using a broader, more in-depth measure of occupational injuries, the relationship between occupational injury severity and general health, perceived stress, work beliefs, and cynicism towards work among individuals who have experienced an occupational injury was examined. In an effort to demonstrate the process of how injury severity influences these outcomes, mediators in the relationship between occupational injury severity and outcomes were assessed, along with potential moderators of the mediator – outcome relationships. With a few exceptions, the results from Study 1 supported the proposed hypotheses and have the potential to expand our understanding of the individual

consequences of workplace injuries on the injured individual. The findings are discussed in more detail below.

Broader Assessment of Workplace Injuries

First, it is important to note that in an effort to extend our understanding of the effects of occupational injuries among individuals who have experienced an occupational injury, a measurement tool designed to provide a broader and more nuanced understanding of occupational injuries was used (McEvoy et al., 2015). This injury severity measure had an acceptable Cronbach's alpha, suggesting it is a reliable measure with this sample, and supporting the use of this injury measure in the current study, as well as the following study. This broader measure of occupational injuries provides a more detailed overall picture of the effects of occupational injuries on injured individuals, and provides an important first step toward better understanding these widespread effects. Future research should continue to focus on studying workplace injuries from this more nuanced perspective.

Financial Difficulties

Using theory from the stressor-stress-strain model (Barling, et al, 1987), I hypothesized that occupational injuries would constitute a stressor in an individuals' life, which would lead to stress, and subsequently to strain. Further, I noted that different stress reactions likely lead to different outcomes. That is, it is unlikely that one stress reaction mediates all outcomes, but that each outcome will be experienced via a theoretically relevant mediating variable. One of these proposed mediating stress variables was financial difficulties. I hypothesized that occupational injuries would constitute a stressor in an individuals' life, which would lead to financial difficulties, and subsequently to Marxist-related work beliefs and cynicism towards work.

Research on the family economic stress model suggests financial difficulties arise as a

form of stress in response to a negative event in one's life (Conger et al., 1992; 1993), supporting its role in the stressor-stress-strain model. The results of this study supported this hypothesis suggesting financial difficulties act as a mediator in the relationship between occupational injuries and negative workplace attitudes. This further suggests individuals who experience an occupational injury, and subsequently experience financial difficulties, are more likely to report negative workplace attitudes, namely cynicism towards work and Marxist-related work beliefs. More specifically, more severe workplace injuries are likely to be related to more significant financial difficulties, which, in turn, are likely to be related to more Marxist-related work beliefs and cynicism towards work. Research suggests financial difficulties increase feelings of worthlessness and loss of control, thus leading to feelings of anger, anxiety and depression (Conger et al., 1994; Kivimäki, Vahtera, Elovainio, Lillrank, & Kevin, 2002²; Krause, Jay, & Liang, 1991). In the case of financial difficulties that result from occupational injuries, it makes sense that this anger and resentment would be directed towards the organization employing the individual at the time of the injury. However, the results of this study do not account for the role of blame related to the injury. Therefore, future research should address this factor and its role in the relationship between financial difficulties following an occupational injury and negative workplace attitudes and beliefs.

In addition to the mediation analyses, I hypothesized that supervisor support and co-worker support would moderate the relationship between financial difficulties and cynicism towards work, and between financial difficulties and Marxist-related work beliefs. The results support both supervisor support and co-worker support as moderators in the relationship between financial difficulties and cynicism towards work, where higher levels of both supervisor support and co-worker support are associated with decreased cynicism towards work in the high financial

difficulties group (see Figures 3 and 4). However, the direction of the moderation relationship was not as predicted, where individuals in the low financial difficulties group are experiencing more cynicism towards work than those in the high financial difficulties group, with individuals reporting lower levels of supervisor or co-worker support reporting the highest levels of cynicism. While I predicted individuals in the high financial difficulties group reporting lower levels of supervisor and co-worker support to report the highest levels of cynicism towards work, this unexpected finding could be due to a factor that was not accounted for, specifically time. Individuals who experienced an injury within the last several weeks are likely to respond to questions about their injury and their experience differently than individuals who experienced an injury 12 months ago. Therefore, future research will be important in taking time and recency into account in these relationships, in order to provide a better understanding of the experience of an occupational injury and the related outcomes. Furthermore, supervisor support and co-worker support did not moderate the relationship between financial difficulties and Marxist-related beliefs. Given Marxist-related beliefs are characterized by an absence of trust in upper management and a self-centered focus, individuals who report high levels of Marxist-related beliefs are unlikely to trust their supervisor and co-workers, which could explain this non-significant finding.

The relationship between financial difficulties and negative workplace attitudes is important for organizations looking to reintegrate the injured worker into the workplace. Research suggests negative workplace attitudes are significantly related to higher turnover intentions, decreased job satisfaction, decreased job productivity, and increased job absenteeism (e.g., Aarons & Sawitzky, 2006; Chandna & Krishnan, 2009; Wanous, Reichers, & Austin, 2000). Given the frequency of financial difficulties following the experience of an occupational

injury (Dembe, 2001; Himmelstein et al, 2005), and its relationship to negative workplace attitudes in employees who have experienced an occupational injury, financial stress should be an important issue of focus for organizations and policy makers. Developing supplementary financial aid programs and simplifying the workers' compensation application process may be useful means of reducing both the financial stress and negative workplace attitudes of injured employees upon their return to work, thus, overall, improving both employee and organizational outcomes for those employees who return to work following a workplace injury.

Felt Stigma

Similar to the experience of financial difficulties, I hypothesized that felt stigma would be experienced as a form of stress following the experience of an occupational injury, and act as a mediating variable between occupational injury severity and strain outcomes. Specifically, I hypothesized that feeling stigmatized would be associated with significant decreases in health and well-being. Following the stressor-stress-strain theory (Barling et al., 1987), the results of this study support these hypotheses, suggesting felt stigma mediates the relationship between occupational injury severity and negative health and well-being outcomes, namely, general health and perceived stress. More specifically, more severe workplace injuries are more likely to be associated with increased perceptions of stigma, which are in turn more likely to be associated with decreased general health and increased perceived stress.

Research on stigma from various contexts associated with negative connotations (e.g., mental health, HIV) suggests feeling stigmatized can significantly decrease an individual's physical and mental health, well-being, and life satisfaction. Therefore, considering this relationship in terms of occupational injuries, another context that has been associated with negative connotations, the results of the current study are not unexpected. However, it is not yet

known how to stop individuals from being or feeling stigmatized. An interesting finding from a study on enacted stigma suggests those who stigmatize another individual may do so out of fear of the dangerousness of this individual (Botha & Dozois, 2015). For example, individuals with mental illness have been characterized as unstable and violent (Link et al., 1999), leading some to treat those with mental illness as dangerous, resulting in feelings of stigmatization among those with mental illness.

In the case of occupational injuries, there are several possible reasons why some may fear those who have been injured at work. Firstly, it may be that others fear the dangerousness of the injury itself, rather than the injured individual, yet still leading the injured individual to feel stigmatized. Further, fear could be associated with the meaning of the injury. Some believe that the world is a just and fair place; therefore, if a negative event befalls an individual, the perception from some is that he or she must be deserving of it (Lerner, 1980). To be able to maintain their belief in a just world, individuals may stigmatize those who have been through negative experiences, such as an injury, by believing they are bad, dangerous people who deserved their misfortune. Finally, research suggests those who have experienced an occupational injury may sometimes feel stigmatized due to the misbelief that many are out to take advantage of the workers' compensation system (e.g., Dembe, 2001; Strunin & Boden, 2004). Therefore, a fear of an injured individual could possibly stem from the negative impact this individual is thought to have on the system as a whole.

Future research will be necessary to determine how individuals injured in the workplace come to feel stigmatized. This line of research may be useful for organizations hoping to prevent stigmatization in the workplace following an injury. For example, while educating employees on the importance of kindness and respect in the workplace could be continued, research suggests

such programs are time-consuming and do not positively influence all employees (e.g., Egge, 1999). Therefore, perhaps organizational programs designed to debunk common myths surrounding the negative connotations associated with occupational injuries, such as fears of dangerousness, may be more effective. For example, including activities on stigma in the workplace during workplace injury awareness weeks, or activities about workplace injuries in workplace stigma awareness weeks may be more useful interventions in preventing perceptions of stigma following occupational injuries. By reducing or eliminating feelings of stigma, those who have been injured may experience fewer negative health and well-being outcomes.

In addition to the mediation model, the results of this study support resilience as a moderator in the relationship between stigma and negative health outcomes, suggesting certain individuals are not as affected by feeling stigmatized. In the relationship between felt stigma and health, the results suggest individuals who report high levels of resilience have significantly better overall health, compared to individuals who report low levels of resilience, suggesting resilience buffers the negative effects of felt stigma on overall health (see Figure 7). In the relationship between felt stigma and perceived stress, in conditions of high felt stigma, individuals reported high levels of perceived stress regardless of level of resilience, suggesting feeling stigmatized is a very stressful experience. However, in conditions of lower felt stigma, individuals who report higher levels of resilience experience significantly less perceived stress, suggesting in low levels of perceived stigma, resilience buffers the negative effects on perceived stress (see Figure 8).

Research suggests resilience is an individual characteristic influenced by individual-level, family-level, and community-level factors (Stewart et al., 1997). While research has previously defined resilience as a genetic factor, current research now suggests resilience is not necessarily

innate, but can be developed through the promotion of protective factors (e.g., social competence, positive attachment styles, strong extended support networks, and positive social relationships; e.g., Benard, 1993; Kim-Cohen, Moffitt, Caspi, & Taylor, 2004). Therefore, in the context of this moderation model, perhaps lower levels of perceived stigma do not negatively influence resilient individuals who have been injured because they possess these protective factors, which equip them with the ability to positively cope with the negative consequences of their occupational injury and the associated stigma. Alternatively, resilient individuals may not be as negatively influenced by lower levels of stigma because they feel positively supported by their social network. Finally, resilient individuals may not be exposed to stigma in the same way as non-resilient individuals because a positive social network surrounds them, and therefore their social network would not engage in stigmatization following their experience of an occupational injury. Future research should address the question of why resilient individuals are less likely to perceive stigma. Also, as research suggests resilience can be learned, including resilience training in injured workers programs and return-to-work programs may decrease negative health and well-being outcomes associated with occupational injuries.

Meaning in Life

The final mediator assessed in this study as a stress outcome of workplace injuries that leads to particular strain outcomes was meaning in life. The results of this study suggest the presence of meaning in life mediates the relationship between occupational injuries and positive workplace beliefs. Existing literature on the effects of occupational injuries tends to focus on negative outcomes following the experience of an occupational injury with the purpose of developing positive interventions (e.g., Barling et al., 2003; Danna & Griffin, 1999; Pransky et al., 2005). However, this intervention-centered focus does not provide a complete understanding

of the widespread effects of occupational injuries. Therefore, in addition to examining the mechanism behind important negative outcomes (i.e., health and well-being, and negative workplace beliefs and attitudes), the purpose of this research was to examine possible positive outcomes that may arise following an occupational injury. The results of this study support the presence of positive work outcomes in the mediation model, where finding meaning in life following the experience of an occupational injury mediates the relationship between occupational injuries and positive workplace beliefs, namely humanistic and organizational work beliefs. A humanistic work belief is one in which employees believe work should be meaningful and fulfilling (Buchholz, 1978). Therefore, perhaps individuals who are able to find meaning in life may also be more likely to find meaning in work. Alternatively, perhaps individuals who hold humanistic workplace beliefs are more likely to find meaning in life following a traumatic event, such as an occupational injury. Given the cross-sectional nature of the current study, the direction of this relationship could not be determined. Carefully designed longitudinal studies will be important in understanding the relationship between finding meaning in life following an occupational injury and holding humanistic workplace beliefs.

In comparison, organizational workplace beliefs describe individuals who place meaning in the success of the group or organization as a whole, rather than the individual (Buchholz, 1978). Therefore, given individuals who have found meaning in life following the experience of an occupational injury are more likely to report organizational work beliefs, individuals who have found meaning in their lives may be less likely to blame their organization for their occupational injury, leading to an increase in group-level interest and success. While attributions of blame were not assessed in the present study, future studies should address the role of blame following an occupational injury in the model examined in the current study.

When searching for meaning in life was imputed in the model post-hoc, these same results were not supported, thus suggesting there exists a fundamental difference between presence of meaning in life and searching for meaning in life. Research suggests the search for meaning does not guarantee finding meaning in life (Steger, Kashdan, Sullivan, & Lorentz, 2008). Furthermore, research does not support the same positive effects associated with searching for meaning as are supported when finding meaning in life is achieved following a traumatic event. Specifically, previous research emphasizes that the process of meaning-making is beneficial when successful, thereby suggesting those who are able to find meaning will reap the benefits, while those who continuously search but do not find, will not (e.g., Park, 2010; Steger et al., 2006; Steger et al., 2008). Therefore, the results from the current study are in line with previous research, but future research could continue to further explore this distinction between searching for meaning and finding meaning in life following the experience of a workplace injury.

In assessing workplace beliefs, I hypothesized supervisor and co-worker support would moderate the relationship between finding meaning in life and positive workplace beliefs. The results of this study partially supported this hypothesis; supervisor and co-worker support were both found to moderate the relationship between finding meaning in life and organizational work beliefs, where individuals reporting both high levels of support and high levels of meaning in life held the most organizational work beliefs (see Figures 5 and 6). However, supervisor and co-worker support were not found to moderate the relationship between finding meaning in life and humanistic workplace beliefs. As discussed, a humanistic work belief supports an individual employee finding meaning in their work, whereas an organizational work belief supports an individual finding meaning in the group's success. Therefore, the results of the current study

suggest that finding meaning within the group's efforts is more likely to be influenced by supportive group members, namely the supervisor and co-workers, than is finding meaning in one's own work. However, these results do not take attributions of blame, organizational climate, or leadership styles into account. While finding meaning in life may support finding meaning in one's work, if the organization is blamed for the occupational injury, support from a supervisor or co-worker may not have the same when effect compared to situations when organization is not believed to be at fault for the injury. Furthermore, organizational climate or leadership style, which are likely related to supervisor and co-worker support, could be what is actually influencing organizational work beliefs, where co-worker and supervisor support are by-products of a positive organizational climate or positive leadership style. Future research should include attributions of blame, organizational climate and leadership styles in this model to gain a more complete understanding of the organization's role in outcomes following an occupational injury.

Summary of Study 1

Whereas previous research has tended to focus either on the antecedents of occupational injuries in hope of increasing safety and prevention, or on the consequences of occupational injuries in terms of organizational outcomes, the purpose of this study was to examine outcomes of occupational injuries with regards to the injured worker, as well as to examine the process behind these outcomes. The results of this study supported the stressor-stress-strain model (Barling et al., 1987), where financial difficulties, felt stigma, and presence of meaning in life constituted forms of stress following the experience of an occupational injury, and negative workplace beliefs and attitudes, decreased health and well-being, and positive workplace beliefs constituted experiences of strain, respectively. While finding meaning in life and positive

workplace attitudes are not negative in nature, and thus do not necessarily constitute stress and strain following injury (i.e., in terms of how they are typically defined), adapting this model to include positive outcomes provides a more complete understanding of the consequences of experiencing an occupational injury. Furthermore, the results of this study supported the inclusion of moderating variables in this model, where supervisor support, co-worker support, and resilience influenced the outcome variables in the models presented above.

The results of this study suggest the effects of occupational injuries are widespread and influence multiple facets of the injured individuals life (e.g., health and well-being, workplace attitudes and beliefs). However, according to Bronfenbrenner's Ecological Systems theory (1979), these outcomes address only the individual level of the injured individual.

Bronfenbrenner's theory suggests individuals are influenced by multiple systems, and they will in turn influence the world around them. Therefore, according to this theory, an individual's experience of an occupational injury is likely to influence the world (which includes the people) around them. While previous research suggests an individual's experiences at work tend to cross over to their home life and vice versa (e.g., Bolger et al., 1989; Voydanoff, 1987), research has not yet directly assessed the effects of occupational injuries on those closest to the individual who has been injured, such as their romantic partners, children, parents, or friends. Given that romantic relationships tend to be the most influential relationship in an individuals life, as well as the most commonly studied interpersonal relationship in research (Graham, 2010; Malouff, Thornsteinsson, Schutte, Bhullar, & Rooke, 2010), Study 2 extends Study 1, and examines the effects of occupational injuries on the romantic partners of individuals who have been injured at work.

Study 2: The Indirect Outcomes of Workplace Injuries

While research has demonstrated that what happens at work has implications for life outside of work, anecdotal evidence also suggests the effects of occupational injuries are not confined to the workplace. Those individuals who have witnessed a workplace injury, heard about a workplace injury, or who have taken care of an injured individual, may also experience negative outcomes (e.g., as discussed by Barling et al., 2003). Relatedly, McLain (1995) found that one's subjective perception of risk of injury at work is positively associated to work stress, negative work attitudes, and having been exposed to a work injury, either personally or vicariously, demonstrating that workplace injuries do have implications for others. Research in the health psychology domain more broadly indicates that certain illnesses (e.g., cancer) and spinal cord injuries can affect individuals' relationships with their families, and vice versa (Braun & Sieper, 2007; Sherman, DeVinney, & Sperling, 2004). Family members of individuals diagnosed with a critical illness have an increased chance of developing anxiety, depression, and stress disorders (Davidson, Jones, & Bienvenu, 2012). Taken together, evidence from related areas of research suggest that romantic partners and family members are negatively impacted following a loved one's experience of a negative event (e.g., illness, injury), just as individuals who have been vicariously exposed to occupational injuries (e.g., co-workers) are negatively impacted by another's experience of a negative event. However, research has yet to examine the effects of occupational injuries on romantic partners, resulting in a gap in our understanding of the widespread effects of occupational injuries.

Based on the research presented above, along with much anecdotal evidence, I argue occupational injuries will influence the work-family interface, and in turn affect romantic relationships. Romantic partners are inextricably connected to their significant other; they love

this person, share their lives with this person and are involved in all aspects of one another's lives (Berscheid, Snyder, & Omoto, 1989). Therefore, there is most likely no other individual who would so personally experience the secondary effects of a workplace injury as the romantic partner of the injured individual. Whereas the effects of workplace injuries on romantic partners of the injured individual have not been directly assessed, related research suggests that stressful work experiences in general affect the individual's romantic partner. Research has shown that work-family conflict is related to an increase in stress leading to negative outcomes for family members (Voydanoff, 1987). For example, occupational injuries resulting in a disruption in normal family functioning may be associated with increased stress at home via work-family conflict. Previous research supports a model in which work stress crosses over to home life and negatively affects the working individual's romantic partner (Bolger et al., 1989). This crossover effect has been shown to lead to a dyadic adjustment, where romantic partners of stressed employees will compensate for their partners' work stress, for example, by taking on more of the housework (Bolger et al., 1989). Stress crossover, where the negative effects of an individual's mood transfer to those closest to them, has been shown to have negative consequences on the individual at the receiving end of the transfer. For example, research suggests the wives of husbands experiencing stress at work had more negative health symptoms (Rook, Dooley, & Catalano, 1991). Furthermore, research suggests that when individuals are experiencing burnout at work, their romantic partners also experience burnout (Westman & Etzion, 1995).

The notion that workplace injuries may have indirect effects for romantic partners is guided by research and evidence from spillover and crossover theories, along with theories emerging from and related to the work-life interface. In particular, I have extended the stressor-stress-strain model (Barling et al., 1987) to incorporate the experience of romantic partners. I

argue romantic partners experience their partners' injuries vicariously as stressors, which leads to stress (i.e., financial difficulties and stigma) and subsequent strain (i.e., decreased general well-being and objective burden, and decreased relationship quality and satisfaction). Furthermore, I argue there are important moderating variables with the potential to influence the relationships proposed in this research (i.e., social support, and resilience). Previous research has tended to focus on the organization when considering the effects of occupational injuries; however, anecdotal evidence and research from the traumatic injury literature suggests the effects of occupational injuries are likely widespread. Therefore, the purpose of Study 2 is to address the gap in the literature surrounding the effect of occupational injuries on those closest to individuals who have experienced an occupational injury, namely their romantic partners.

General well-being. Although well-being has not been directly addressed as an outcome among romantic partners of individuals who have experienced an occupational injury, research from related areas provide a basis for such hypotheses. In the work-life interface literature, research suggests that following job loss, romantic partners of those affected show significant decreases in mental health and well-being; a drop in general well-being that is comparable to the decreases seen in those who directly experience job loss (Marcus, 2013). Furthermore, romantic partners of individuals who have experienced a traumatic brain injury report significant psychological distress and negative well-being following their romantic partner's injury (Anderson et al., 2009; Pietromonaco, Uchino, & Dunkel Schetter, 2013). This research suggests both work-related negative events and injury-related negative events are associated with decreased health and well-being among the romantic partners of those affected. Based on this research, I expect that well-being will be negatively affected by the stress associated with

occupational injuries in the romantic partners of individuals who have experienced an occupational injury.

Objective burden. Research suggests that allotting time to multiple areas of life (e.g., social, occupational, personal, recreational, spiritual) is crucial for an individual's well-being (e.g., Faragher, Cass, & Cooper, 2005; House, Robbins, & Metzner, 1982), overall satisfaction (e.g., Sneegas, 1986, Judge, Bono, Erez, & Locke, 2005), and marital satisfaction (e.g., Holman & Jacquard, 1988; Orthner, 1975). However, research on traumatic injuries, such as brain and spinal cord injuries, suggests that experiencing an injury vicariously through a romantic partner is significantly related to decreased participation in leisure activities, social contact, and satisfaction with life (Hanks, Rapport, & Vangel, 2006; Oddy, Humphrey, & Uttley, 1978). Therefore, romantic partners of individuals who have experienced an occupational injury, although not personally physically impaired due to the injury, are also experiencing a decreased ability to participate in activities and social contact that are known to make life enjoyable. Thus, based on related prior research, I expect that injury burden, the extent to which the vicarious experience of an occupational injury negatively affects certain areas of an individual's life, will be negatively related to the severity of romantic partner injuries.

Relationship satisfaction and relationship quality. Romantic relationships are often rated as the most important relationship in an individual's life (Demir, 2008) and have been related to a myriad of positive outcomes and feelings, such as increased health and well-being (Braithwaite, Delevi, & Fincham, 2010), happiness (Demir, 2008), and life satisfaction (Hendrick, Hendrick, & Adler, 1988). However, negative events, such as work stress, loss of a child, and traumatic injury, can put a strain on romantic relationships (Kennedy, Lowe, Grey, & Short, 1995; Robinson, Flowers, & Carroll, 2001). Research on work stress and marital

cohesion, a construct related to relationship satisfaction and relationship quality, suggests an inverse association, where increased work stress is related to decreased marital cohesion (Robinson et al., 2001). Furthermore, research supports a strong association between work stress and marital dissatisfaction among working parents, with negligible gender differences, suggesting that both men and women are negatively affected (Bedeian, Burke, & Moffett, 1988). Evidence from the traumatic injury literature suggests that partners of victims with severe brain injury report lower marital satisfaction and marriage quality, and express that the only remaining positive aspects of their relationship were their sense of commitment and companionship (Kennedy et al., 1995), which suggests injuries may have a negative effect on relationship satisfaction and relationship quality for the romantic partner of an injured individual. Thus, I predict romantic partners of individuals who have experienced an occupational injury will report both decreased relationship satisfaction and decreased relationship quality following their partner's occupational injury.

Mediating Variables

Extending the stressor-stress-strain model to incorporate the vicarious experience of occupational injuries among romantic partners (Barling et al., 1987), I hypothesize that the relationship between a workplace injury and romantic partner outcomes will be mediated by the experience of stress in response to the occupational injury, measured by financial difficulties and felt stigma. I describe the mediator variables and hypotheses below.

Financial difficulties. Individuals injured at work are often compensated through their worker's compensation boards, however the compensation is often much less than their regular salary and eventually, this compensation ends (Himmelstein et al., 2005). In romantic partners living together, this salary is often relied upon to make ends meet. Furthermore, when injuries

are more serious, romantic partners of injured individuals often have to take time away from work to care for their partners, and therefore are also not receiving their full salary, thereby reducing the total household income (Parker, 1993). Thus, financial difficulties are an important factor related to occupational injuries, and have the potential to not only influence the individual who has been injured, but to also negatively influence the romantic partners of individuals who have experienced an occupational injury. The family economic stress model (Conger et al., 1992; 1993) proposes that financial stress is related to depression, irritability, and decreased marital outcomes, such as satisfaction and intimacy (Vinokur et al., 1996; Conger, Rueter, & Elder, 1999). Furthermore, research supports financial difficulties as one of the major factors negatively influencing romantic relationships (Amato & Rogers, 1997; Goldhart, 2015). Therefore, based on the family economic stress model, I hypothesize that financial difficulties will mediate the relationship between occupational injury severity and relationship outcomes among romantic partners of individuals who have experienced an occupational injury.

Hypothesis 1: Financial difficulties will mediate the relationship between (a) partner workplace injury severity and relationship satisfaction, and (b) partner workplace injury severity and relationship quality, where increased partner workplace injury severity will be related to increased financial difficulties, which is related to decreased relationship satisfaction and decreased relationship quality.

Stigma. Although research has tended not to focus on felt stigma in the romantic partners of individuals injured at work, there has been significant research on felt stigma in family members of individuals with mental and other health issues. Results from a study on individuals with schizophrenia and their family members suggest that felt stigma has negative effects not only on the individual with schizophrenia, but also their family members (Phillips et al., 2002).

Individuals who described themselves as more emotional, more highly educated, or whose family members schizophrenic symptoms were more visible, tended to experience greater felt stigma or reported being more affected by the experience of stigma (Phillips et al, 2002). Furthermore, family members of individuals suffering from a disability, such as quadriplegics, or severe illness, such as HIV, report more depressive symptoms and decreased overall well-being and life satisfaction (Arrabito & Leung, 2014). Research has also focused on the negative consequences of felt stigma. Evidence suggests individuals who experience social stigma are more likely to experience increased stress, decreased health, and decreased well-being (Major & O'Brien, 2005). Furthermore, research on another often stigmatized condition, obesity, suggests individuals who feel stigmatized experience decreased well-being and decreased relationship and life satisfaction, regardless of whether is it the obese individual or their romantic partner who is feeling stigmatized (Boyes & Latner, 2009). As previously mentioned, stigma is felt in response to the experience of something undesirable (Phillips et al, 2002), and therefore, in the case of occupational injuries, even when experienced vicariously, individuals may report feeling stigmatized. Therefore, romantic partners of individuals feeling stigmatized, or romantic partners feeling vicariously stigmatized are more likely to experience decreased health and well-being outcomes, compared to those who do not feel stigmatized (Major & O'Brien, 2005). Based on these related areas of research, I hypothesize stigma will mediate the relationship between romantic partner occupational injury severity and negative health and well-being outcomes in romantic partners of individuals who have experienced an occupational injury.

Hypothesis 2: Felt stigma will mediate the relationship between (a) partner workplace injury severity and general health, and (b) partner workplace injury severity and objective

burden, where increased partner workplace injury severity will be related to increased reports of felt stigma, which will be related to decreased general health and objective burden.

Moderating Factors

Current research suggests that what happens at work does not stay at work, and therefore, in line with this reasoning, it may be possible to extend current theoretical frameworks on work stress and employees to family members of employees experiencing work stresses. For example, the buffer effect (House, 1981; LaRocco, House, & French, 1980) proposes that the relationship between occupational stressors, such as occupational injuries, and any related outcomes is buffered by positive social support. This theory may extend to the romantic partners of individuals experiencing work stress, in that social support may mitigate some of the negative effects of work stress on romantic partners. Furthermore, match hypothesis (Cohen & Wills, 1985) suggests the most positive outcomes will be associated with those who have a match between their coping requirements and their available support, which may also be relevant for romantic partners vicariously experiencing their partner's work stresses. Related areas of research suggest social support (Hostinar & Gunnar, 2015; Vinokur et al., 1996) and resilience (Jackson et al., 2007) may be factors that influence the outcomes of workplace injuries; however, they have not been considered directly in terms of outcomes exhibited by the romantic partners of individuals who have experienced an occupational injury. In the context of workplace injuries, these factors may play important roles in mitigating negative health, well-being, and relationship outcomes following the experience of a romantic partner's workplace injury.

Social support. Although not yet examined in the context of occupational injuries, research from related areas such as the traumatic injury literature and poverty literature, suggest social support is an important factor in the mitigation of negative effects in romantic couples.

For example, research on romantic partners of individuals with brain injuries suggests social support is an important moderator in the relationship between experiencing stress and decreased relationship outcomes (Chwalisz, 1996). Social support and positive venting of emotions were found to be related to positive outcomes, while loss of control, mainly through the introduction of a paid caregiver, was associated with negative outcomes in spousal caregivers of UK spinal cord injury patients (Dickson et al, 2011). Research on couples in poverty or with low-income jobs suggests that seeking familial and romantic partner social support is a primary coping strategy, and often results in more positive relationship interactions and overall well-being, suggesting individuals struggling with finances may utilize romantic partner and friend/familial support specifically (Kalil & Ryan, 2010). Based on this related research, I hypothesize that individuals with positive social support from their romantic partner, friends, and relatives will have more positive outcomes following their partner's experience of an occupational injury.

Hypothesis 3: Romantic partner social support will moderate the relationship between (a) financial difficulties and relationship satisfaction, and (b) financial difficulties and relationship quality, where increased romantic partner support will buffer the negative effects of financial difficulties on relationship satisfaction and relationship quality.

Hypothesis 4: Friend/Relative social support will moderate the relationship between (a) financial difficulties relationship satisfaction, and (b) financial difficulties and relationship quality, where increased friend/relative support will buffer the negative effects of financial difficulties on relationship satisfaction and relationship quality.

Resilience. As with health and work outcomes among individuals who have experienced an occupational injury, it is important to note that not all romantic partners of individuals who have experienced a workplace injury will report negative health outcomes. Therefore, certain

factors may influence whether individuals who experience an occupational injury vicariously will experience negative outcomes. Research has demonstrated that certain individuals are resilient in the face of adversity, and will appear unaffected by stressful events (Masten & Coatsworth, 1998). Furthermore, certain individuals are able to adopt positive coping styles that have been related to positive outcomes after experiencing stressful events (Dumont & Provost, 1998). This resilience has even been shown to have positive effects that extend beyond the resilient individual. For example, research on family caregivers of spinal cord injury patients suggests resilience in the caregiver is related to more positive outcomes in both the caregiver and the injured individual (Simpson & Jones, 2012). Furthermore, as previously noted, research on felt stigma, suggests stigmatized individuals who report higher levels of resilience, tend to have better health, social and attitudinal outcomes (Shih, 2004), and this should hold true in individuals who feel vicariously stigmatized. Therefore, based on these related areas of research, I hypothesize the romantic partners of individuals injured in the workplace who report higher levels of resilience will also report more positive health outcomes.

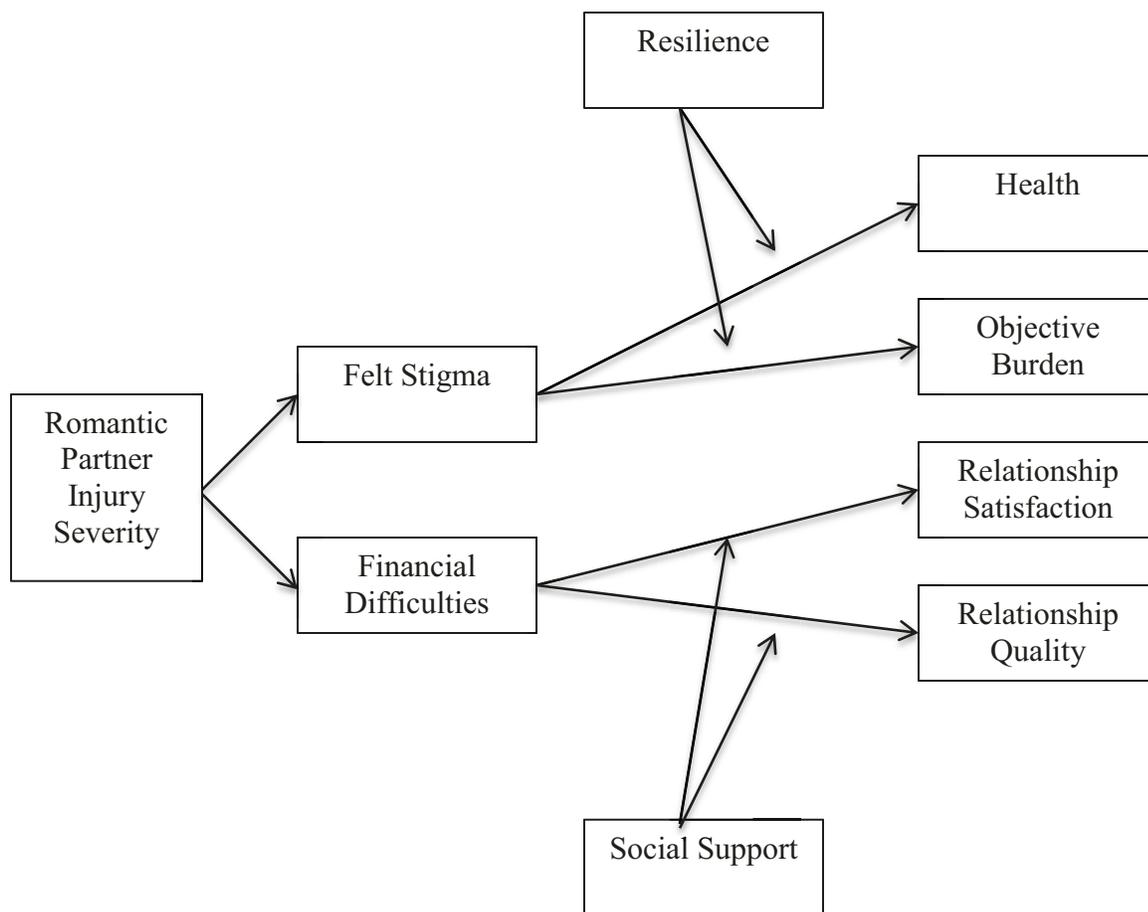
Hypothesis 5: Resilience will moderate the relationship between (a) stigma and general health, and (b) stigma and objective burden, where higher levels of resilience will buffer the negative effects of stigma on general health and objective burden.

Summary of Study 2

To summarize, using theory from work-life literature (Bolger et al., 1989; Voydonoff, 1987), as well as the stressor-stress-strain model (Barling et al, 1987) adapted for romantic partners, I aim to provide a better understanding of the widespread effects of occupational injuries by examining the effect on romantic partners of injured individuals. Study 2 proposes and tests hypotheses designed to address a current gap in the literature surrounding how

occupational injuries indirectly affect those closest to the injured individual, namely their romantic partner, as well as factors that may mitigate this relationship. Using a broader, more in depth measure of occupational injuries, the relationship between occupational injury severity and general health, objective burden, relationship satisfaction, and relationship quality in romantic partners of injured individuals is assessed. Mediators in the relationship between occupational injury severity and negative health and relationship outcomes are assessed (i.e., financial difficulties, and felt stigma). Finally, potential moderators in this mediator – outcome relationship are assessed (i.e., romantic partner and friend/relative social support, and resilience) for their potential as mitigating factors. See Figure 9 for the proposed relationships in study 2. Overall, the results from Study 2 have the potential to expand our understanding of the indirect consequences of workplace injuries on those who are often closest to injured individuals.

Figure 9. *The proposed relationships between workplace injuries and outcomes for romantic partners of individuals injured at work.*



Method

As in Study 1, all data was collected using the online survey and participant recruitment tool, Qualtrics. Qualtrics members, pre-screened for individuals who are currently living with a romantic partner who experienced an occupational injury in the last 12 months, were invited to participate in the current study (see Appendix A for the Qualtrics recruitment notice). Qualtrics aimed to recruit 200 individuals in heterosexual relationships, whose romantic partner had experienced an occupational injury, and who had been living with this romantic partner for at

least 6 months prior to the injury. All participants were compensated using a Qualtrics-specific points system, where participants receive points for participating in online surveys, which can be cashed in for gift cards or various consumer products. Participants received the equivalent of \$5 US in Qualtrics points.

Questionnaire. Pre-screened individuals who were interested in participating in the current study clicked on the link to the online survey. Before completing the survey, participants were asked to read an online informed consent form (see Appendix E for online informed consent form). Those who agreed were then directed to the online survey; participants were asked to complete an online survey that took approximately 20 minutes to complete (see Appendix F for the full online survey). I assessed two experiences of stress that may arise in response to the stressor (the romantic partner's injury) in the romantic partners of individuals who had experienced an occupational injury, namely, financial difficulties, and stigma. These romantic partners also responded to three measures assessing the moderating factors, namely, social support and resilience. Finally, the romantic partners were asked questions related to their health and well-being, as well as their romantic relationship. Following the completion of the online survey, participants were directed to the online debriefing form, which contained hypotheses for the study and resources for participants who found the study to be emotionally draining (see Appendix G for online debriefing form).

Injury severity measure. Romantic partners were asked the same questions assessing their perception of their romantic partner's injury severity, pain, disability, work status and time away from leisure activities, following their partner's most recent occupational injury, as were used in Study 1, adapted to be from the romantic partner's perspective (McEvoy et al., 2015). The reliability of the 6-item workplace injury severity measure in Study 2 was $\alpha = .89$.

Financial difficulties. As a measure of financial difficulties, three questions were used, rated from 1 (little) to 5 (a lot) supported by Vinokur et al. (1996). These three questions were: “How difficult is it for you to live on your total household income right now?” “In the next two months, how much do you anticipate that you or your family will experience actual hardships such as inadequate housing, food or medical attention?” and finally, “In the next two months, how much do you anticipate having to reduce your standard of living to the bare necessities of life?” The reliability of the financial difficulties scale was $\alpha = .88$.

Felt stigma. As a measure of stigma, the felt stigma questionnaire, modified for the vicarious experience of occupational injuries (Baxter, 1989; Gray, 2002), was used. This is a 4-item questionnaire ranging from 1 (never) to 5 (most of the time). Items include “People treat you differently because of your romantic partner’s injury” and “People are uncomfortable with you because of your romantic partner’s injury”. The reliability of the felt stigma questionnaire was $\alpha = .94$.

Social support. As a measure of social support, five questions were answered with two different people in mind, your romantic partner and your friends/relatives, for a total of 10 questions. This scale was developed by Frese (1999) and answers range from 1 (never) to 5 (always). Questions include “How much each of these people can be relied on when things get tough at work?” and “How easy is it to talk to each of the following people?” The scale was separated into two subscales based on the individual providing social support, romantic partner and friends/relatives. The reliabilities of the romantic partner support and friends/relatives support subscales were $\alpha = .88$, and $\alpha = .91$, respectively.

Resilience. As a measure of resilience in the face of adversity, the Connor-Davidson Resilience Scale (10 item CD-RISC; Cambell-Sills and Stein, 2007) was used. Items, including

“I am able to adapt to change” “I tend to bounce back after illness or hardship” and, “I think of myself as a strong person”, were rated on a 4-point scale from 1 (not true at all) to 4 (true nearly all the time). The reliability of the CD-RISC scale was $\alpha = .89$.

Health and well-being. As a measure of health and well-being, the General Health Questionnaire (GHQ; short form; Ware, Kosinski, & Keller, 1996) was used to assess well-being following the vicarious experience of an occupational injury through their romantic partner. Questions were answered on scale from 1 (not at all) to 7 (all of the time) and included answering the questions, “Following my romantic partner’s occupational injury I have been feeling under strain” “...I have been losing confidence in myself” and the reverse coded item, “...I have been reasonably happy, all things considered”. The reliability of the GHQ was $\alpha = .82$. Although this scale is normally coded so that high scores represent poor health, as in Study 1, I reverse coded the scale to interpret high scores as better health and low scores as poorer health.

Objective burden. As a measure of burden on the romantic partner following the occupational injury, the objective burden questionnaire (Montgomery, Gonyea, & Hooyman, 1985), was used. This is an 8-item scale ranging from 1 (better) to 5 (worse) measuring eight areas of life that may have been affected by their romantic partner’s workplace injury (e.g., “Amount of time you have to yourself,” “Amount of vacation activities and trips you take”). The reliability for the objective burden questionnaire was $\alpha = .92$.

Relationship satisfaction. As a measure of relationship satisfaction, the Couples Satisfaction Index (Fincham & Bradbury, 1987; used in Funk & Rogge, 2007) was used. Items were rated on a scale from 0 (never) to 5 (all the time), and included “I have a warm and

comfortable relationship with my partner” and “In general, I am satisfied with my relationship”.

The reliability of the Relationship Satisfaction Scale was $\alpha = .94$.

Relationship quality. As a measure of relationship quality, the Relationship Assessment Scale (Hendrick, 1988) was used. This 7-item questionnaire, using a scale from 1 (low satisfaction) to 5 (high satisfaction), included questions such as “How good is your relationship compared to most?” “How much do you love your partner?” and “How many problems are there in your relationship?” The reliability of the Relationship Assessment Scale was $\alpha = .78$.

Demographics. Participants completed information on their age, education, gender, relationship status, work status and experience, household income, and whether they themselves had experienced an occupational injury in the past.

Statistical Analysis

As in Study 1, the hypotheses of Study 2 were assessed using several tests for moderated mediation (see Hayes, 2013; Preacher, Rucker, & Hayes, 2007). I tested the study hypotheses using the PROCESS program developed by Hayes (2013; <http://www.afhayes.com>). Regression analyses were conducted to estimate mediation and moderation with bootstrapping and confidence intervals. This model allows for the estimation of direct and indirect effects in moderated mediation models, which were appropriate for testing the mediation and moderation hypotheses proposed in this research (e.g., Bach et al., 2013; Zhao et al., 2010). The statistical analyses in Study 2 were performed in three stages. In the first stage, linear regression equations were estimated where each of the two proposed mediator variables (felt stigma and financial difficulties) were regressed one at a time onto the partner workplace injury severity measure. In the second stage, logistic regression equations were estimated. (1) Health and (2) objective burden were regressed separately onto felt stigma, partner workplace injury severity, and felt

stigma X resilience interaction; and (3) relationship satisfaction and (4) relationship quality were regressed separately onto financial difficulties, partner workplace injury severity, and romantic partner support X financial difficulties and friends/relatives support X financial difficulties interactions. Statistical significance of the indirect effects was decided using bias-corrected 95% confidence intervals (CI), based on 5,000 bootstrapped resamples (MacKinnon et al., 2004). The indirect effect was deemed significant at $p < 0.05$, if the bias-corrected CIs did not include zero. Unstandardized regression coefficients are reported for all analyses in Tables 5 and 6. I controlled for age, gender, and relationship length given young females tend to be the most likely to have romantic partners who have been injured at work (Breslin et al., 2003), and relationship length tends to be a significant indicator of relationship satisfaction and quality (Duffy & Rusbult, 1986), as well as personal experience with an occupational injury.

Results

Participants

Data was collected from 201 individuals who have been in a heterosexual romantic relationship with an individual who had experienced an occupational injury within the last 12 months and had been living with this individual for at least 6 months prior to the occupational injury. Nearly three-quarters of the participants were females (72%, 145 females), and the sample had a mean age of 38 (standard deviation of 10.68 years). Over 70% of the sample had either a high school or college education, and 18.4% of the sample had a graduate degree, yet, the income of the sample was evenly distributed across tax brackets. Furthermore, almost three-quarters of the sample were married (72%), versus simply living together, and over 60% of the sample had been in their relationship for more than five years. The type of romantic partner injury experienced in this sample included, 38% who had experienced a back strain, 25% who

had experienced a fracture, 22% who had experienced a sprain, 20% who had experienced an open wound, 18% who had experienced significant bruising, and 14% who had experienced a head injury. Furthermore, the most common body parts affected by partner's workplace injuries were the spine (29%), the upper extremities (25%), and the lower extremities (26%). The head (18%) and the neck (18%) were also common. The injury severity and pain ratings were normally distributed. Interestingly, over 40% of the sample had also experienced an occupational injury themselves. See Table 5 for means and standard deviations of pertinent demographic variables.

Table 5

Study 2 Means and Standard Deviations of Descriptive Statistics

Variable	N	Range	M	SD
Age	200	21-65	38	10.68
Relationship Length	201	6months – 10+years	3.71	1.15
Personal Occupational Injury			<i>Percentage</i>	
Yes	77		38.7	
No	122		61.3	
Gender			<i>Percentage</i>	
Male	56		27.9	
Female	145		72.1	

Correlation Analysis

Prior to testing the mediation model, correlations between study variables were assessed. See Table 6 for means, standard deviations, and correlations between study variables. The injury measure was significantly correlated with the two mediator variables; felt stigma and financial difficulties. Furthermore, the individual mediator variables were significantly correlated with certain outcome variables.

Table 6

Study 2 Correlations and Descriptive Statistics of Variables

Variables	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Injury	2.99	1.08	-													
2. Finance	3.29	1.14	.34**	-												
3. Stigma	2.24	1.31	.32**	.39**	-											
4. GHQ	4.49	0.93	-.07	-.43**	-.32**	-										
5. Objective Burden	3.33	0.88	.13	.17*	-.13	-.19**	-									
6. Relationship Quality	3.78	0.89	.02	-.26**	-.24**	.46**	-.13	-								
7. Relationship Satisfaction	4.78	1.15	.08	-.16*	-.02	.40**	-.16*	.72**	-							
8. Romantic partner Support	3.88	0.98	.20**	-.02	.07	.39**	-.10	.56**	.57**	-						
9. Friend/Relative Support	3.66	0.98	.13	.07	.18*	.14	-.12	.19**	.31**	.46**	-					
10. Resilience	3.17	0.54	.15*	-.06	.03	.39**	-.04	.32**	.38**	.44**	.34**	-				
11. Gender	1.72	0.45	.01	.06	-.23*	-.03	.12	.01	-.01	-.03	-.20	-.01	-			
12. Age	37.96	10.68	.03	-.08	-.14*	.02	.12	.12	.07	.01	-.03	-.01	-.13	-		
13. Relationship Length	3.71	1.15	-.01	-.10	-.19**	.20**	.12	.18*	.07	.08	.03	.20	.00	.33**	-	
14. Partner Injury	1.61	0.49	-.04	-.04	-.18*	.05	.05	-.03	-.05	-.18*	-.12	-.09	.22**	.06	.18*	-

Note: GHQ = General Health Questionnaire, Gender: 0 = male, 1 = female

* $p < .05$.

** $p < .01$

Mediation Analysis

The results of the regression analyses used to test the mediation hypotheses are in Table 7. Partner workplace injury severity was significantly related to financial difficulties ($b = .356$, CI [.214, .497]) and felt stigma ($b = .392$, CI [.238, .545]). Subsequently, after controlling for age, gender, and relationship length, logistic regression analyses showed that financial difficulties predicted both decreased relationship quality ($b = -.204$, CI [-.306, -.102]) and decreased relationship satisfaction ($b = -.217$, CI [-.365, -.068]), and stigma predicted decreased general health ($b = -.238$, CI [-.344, -.132]), thereby supporting hypotheses 1a and 1b, and 2a. However, stigma was not found to predict objective burden ($b = -.091$, CI [-.196, .014]), thereby failing to support hypothesis 2b.

Of interest, following the regression analyses, after controlling for age, gender, relationship length, and presence of a personal occupational injury, objective burden was directly related to the vicarious experience of their partner's occupational injury ($b = .137$, CI [.017, .257]), suggesting objective burden may represent an overall measure for stress following the experience of a partner's occupational injury.

Table 7

Study 2 Mediation Analysis

Path	Estimate	SE	p	95% CI Lower, Upper
Injury → Finance	.36	.07	<.001*	.21, .50
Finance → Relationship Quality	-.20	.05	<.001*	-.31, -.10
Finance → Relationship Satisfaction	-.22	.08	.004*	-.37, -.07
Injury → Stigma	.39	.08	<.001*	.24, .55
Stigma → Health	-.24	.05	<.001*	-.34, -.13
Stigma → Objective Burden	-.09	.05	.087	-.20, .01
Injury → Objective Burden	.14	.06	.025*	.02, .26

Note: Controlling for age, gender, relationship length, and experience of personal occupational injury.

5,000 bootstrap resamples used to generate 95% confidence intervals.

* = Statistically Significant

Moderation Analysis

The results of the conditional process analysis assessing moderated mediation can be found in Table 8. The results of these analyses were mixed. The finance X romantic partner support interaction ($b = .160$, CI [.054, .266]; see Figure 10) was found to predict relationship satisfaction, supporting hypothesis 3a. However, the finance X friends/relatives support interaction ($b = .119$, CI [-.011, .019]) was not found to predict relationship satisfaction, thus failing to support hypothesis 3b. Furthermore, the finance X romantic partner support interaction ($b = -.006$, CI [-.080, .067]) and the finance X friends/relatives support interaction ($b = -.030$, CI [-.122, .061]) did not predict relationship quality, thus failing to support hypotheses 4a and 4b.

Finally, the stigma X resilience interaction was not found to predict general health ($b = -.013$, CI $[-.125, .100]$), thus failing to support hypotheses 5a and 5b. Given stigma did not predict objective burden, the stigma X resilience interaction was not assessed as a predictor of objective burden.

Table 8

Study 2 Moderated Mediation Analysis

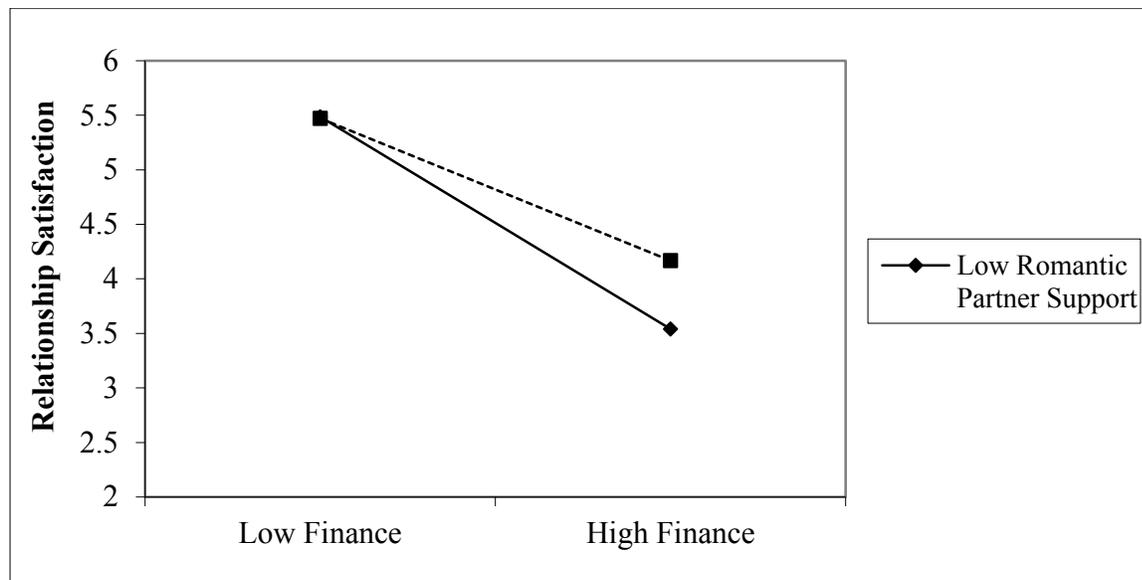
Path	Estimate	SE	p	95% CI Lower, Upper
Finance → Relationship	-.15	.16	.342	-.46, .16
Quality				
Finance x Romantic Partner Support	-.01	.04	.864	-.08, .07
Finance → Relationship	-.10	.18	.602	-.45, .26
Quality				
Finance x Friend/Relative Support	-.03	.05	.515	-.12, .06
Finance → Relationship	-.81	.23	<.001*	-1.26, -.37
Satisfaction				
Finance x Romantic Partner Support	.16	.05	.003*	.05, .27
Finance → Relationship	-.66	.26	.011*	-1.17, -.15
Satisfaction				
Finance x Friend/Relative Support	.12	.07	.072	-.01, .02
Stigma → Health	-.35	.30	.239	-.93, .23
Stigma x Resilience	-.01	.06	.827	-.13, .10

Note: Controlling for age, gender, relationship length, and experience of personal occupational injury.

5,000 bootstrap resamples used to generate 95% confidence intervals.

* = Statistically Significant

Figure 10. *Romantic partner support as a moderator in the relationship between financial difficulties and relationship satisfaction.*



Note: Finance = Financial difficulties. Controlling for gender, age, relationship length, and experience of personal occupational injury. 5,000 bootstrap resamples used to generate 95% confidence intervals.

Discussion

The goal of this study was to provide a better understanding of the widespread effects of occupational injuries by examining the effect on romantic partners of injured individuals. This study proposed and tested hypotheses designed to address a current gap in the literature surrounding how occupational injuries indirectly affect those closest to the injured individual, namely their romantic partner, as well as factors that mitigate this relationship. Using a broader, more in depth measure of occupational injuries, the relationship between occupational injury severity and general health, objective burden, relationship satisfaction, and relationship quality in romantic partners of injured individuals was assessed. Mediators and moderators in the relationship between occupational injury severity and romantic partner outcomes were assessed.

Overall, the results from Study 2 have the potential to expand our understanding of the indirect consequences of workplace injuries on those who are often closest to injured individuals

Broader Assessment of Workplace Injuries

The injury severity measure used in Study 1 (McEvoy et al., 2015) was adapted to survey the romantic partners of individuals who have experienced a workplace injury in order to get a more complete understanding, from the partner's perspective, of the injury. The results from Study 2 suggest acceptable reliability for this measure, even with a different population, and support the use of this measure when measuring occupational injuries from the romantic partners' perspective. While dyadic data would have been ideal, so that data from both partners could be compared to assess reliability of injured individuals' perspective compared to their partners perspective on their injury, the high reliability of this measure, as well as the strong relationships found in Study 2, which follow a similar trajectory to the responses of the injured individuals surveyed in Study 1, suggests romantic partners can understand their partners' injury. However, it is important that future research assess whether romantic partners' perceptions of their partner's injuries are accurate. Furthermore, future research should attempt to collect dyadic data, as it will lead to a better understanding of the shared effects of occupational injuries on a romantic couple.

Financial Difficulties

Research suggests financial difficulties (along with infidelity) are among the most common reasons cited for divorce in both America (Amato & Rogers, 1997), and Canada (Goldhart, 2015). The results of the current study support this finding, whereby individuals who experience financial difficulties following the vicarious experience of an occupational injury are more likely to experience decreased relationship satisfaction and decreased relationship quality,

two measures of success in romantic relationships. The results of this study were in line with the theoretical stressor-stress-strain model adapted to romantic partners of injured individuals, presented in Figure 9, where the partner's injury was a stressor for the participant, which was related to the experience of stress in the form of financial difficulties, ultimately leading to strain in the form of negative relationship outcomes. However, although income was controlled for in the present study, income was only measured at the family level, therefore, individual income differences could play an important role that should be accounted for in future studies. For example, although many injured individuals receive workers' compensation, this financial assistance is often not enough, and the money may eventually run out. Therefore, the romantic partner may need to take on additional financial burden, which may differentially influence their experience of the occupational injury compared to the injured partner. Furthermore, blame attributions could play a role in this dynamic, where romantic partners who are now taking on additional financial burdens and who blame their partner or the organization for the injury may experience more negative outcomes associated with the injury, compared to partners who do not blame anyone for the injury. Future research will need to address blame attributions as a factor in this model. Regardless, the results of this study suggest financial difficulties negatively affect the romantic partners of injured individuals, and therefore certain organizational or federal programs should be put into place to lessen this burden. While it may not be feasible for organizations or the federal government to increase workers' compensation, improving the process of receiving workers' compensation, as well as providing information sessions on the process of applying for workers' compensation may reduce some of the negative effects associated with financial difficulties following the experience of a workplace injury. Furthermore, providing family assistance programs, such as grocery, family caregiving, or bill-

paying assistance, in which organizations provide lower priced options, or provide low-interest loans to lessen financial strain, may also be useful, specifically for the romantic partners of injured individuals who often have to take on more financial burden.

In addition to the mediation hypotheses presented above, moderation hypotheses were tested, where it was hypothesized that romantic partner support and friend/relative support would moderate the relationship between financial difficulties and relationship outcomes. The results of this study only supported romantic partner support as a moderator in the relationship between financial difficulties and relationship satisfaction, where romantic partner support increased relationship satisfaction only in those who reported high financial difficulties, suggesting spousal support is mitigating the negative effects associated with financial difficulties (see Figure 10). Given friend/relative support did not moderate either relationship, perhaps this form of social support is not relevant to either financial difficulties or relationship outcomes. Although research suggests friend and relative support are both related to decreased distress (Procidano & Heller, 1983), and improved relationship outcomes (Sprecher & Felmlee, 1992), research on financial difficulties suggests emotional and tangible support, the most common forms available from family and friends, are not effective in buffering the negative effects of financial stress (Krause, 1987). Furthermore, individuals may feel embarrassed of their financial difficulties (Sutton & Callahan, 1987), preventing them from asking their friends and relatives for help. Given these findings, the failure to find evidence for friend/relative support as a moderator in the relationship between financial difficulties and relationship outcomes is in line with previous research. Comparatively, romantic partner support moderated the relationship between financial difficulties and relationship satisfaction (see Figure 10), but not relationship quality. This may be due to the nature of the two questionnaires. The relationship assessment scale (Hendrick,

1988), measuring relationship quality, is a more objective measure in which participants are asked to rate their individual experience with the relationship on more quantifiable items, such as how many problems exist in the relationship and to what extent the relationship meets expectations, whereas the couples satisfaction index (Fincham & Bradbury, 1983) asks participants to consider their partner, rather than their individual experience, on more abstract items, such as how rewarding the relationship is and how warm and comfortable the relationship is. Therefore, the differences between the measures (i.e., objective versus abstract questions, individual versus partnership orientation) may have led participants to answer the questions differently. Future research on romantic partner social support, and various areas of social support, will be important in understanding what role social support can play in buffering the effects of occupational injuries on the romantic partners of injured individuals. Given romantic partner support did buffer the negative effects of financial difficulties on a relationship outcome, employee educational sessions following injury may be useful in helping injured employees understand the impact their injury may have on their romantic partner, as well as ways in which they can support their romantic partner and help reduce any negative effects.

Felt Stigma

Using theory from the stressor-stress-strain model (Barling et al., 1987) adapted to vicariously experiencing a stressor (i.e., romantic partner's occupational injury), I hypothesized romantic partners would experience stress in the form of felt stigma, and subsequently strain in the form of negative health and well-being outcomes, (i.e., decreased general health and increased objective burden). The results of this study partially supported this hypothesis, where felt stigma mediated the relationship between partner occupational injuries and decreased health;

however, felt stigma was not found to be a mediator between partner occupational injuries and objective burden.

Therefore, the results from Study 2 follow a similar trajectory as was supported in Study 1, where the experience of an occupational injury, either directly or vicariously, is significantly related to the experience of felt stigma, which is negatively related to health and well-being. Interestingly, after controlling for age, gender, relationship length, and personal experience with an occupational injury, partner occupational injuries were directly related to objective burden, rather than through stigma, suggesting partner occupational injuries may directly affect several areas of the romantic partners' lives, including finances, energy, social activities, health, relationships with others, and personal freedom.

Combined, these results suggest the romantic partners of injured individuals experience similar widespread effects following an occupational injury to their injured partner. Therefore, this often-ignored population would significantly benefit from family programs designed to lessen the negative effects of occupational injuries. Because romantic partners of injured individuals most likely feel stigmatized outside of their partner's workplace, as they tend not to physically be at their partner's place of work, employee-specific programs designed to decrease co-workers' enacted stigma would not be useful. Therefore, programs designed to provide support and coping techniques for romantic partners of injured individuals may aid in lessening the negative effects of felt stigma following the vicarious experience of an occupational injury.

In addition to the mediation model, resilience was tested as a moderator in the relationship between felt stigma and decreased general health. However, unlike injured individuals, resilience did not buffer the effects of felt stigma in the romantic partners of injured individuals. While resilience in general is often associated with improved outcomes following

the experience of a traumatic event (Stewart et al., 1997; Werner, 2000), in the case of vicarious occupational injuries, perhaps the experience is too far removed as these individuals did not experience the injury themselves and therefore cannot utilize internal protective factors (e.g., grit, adaptability) or family/community level protective factors (e.g., social support) related to the traumatic event. Newly emerging research suggests vicarious resilience, resilience in those who hear of negative events without directly experiencing, may be a separate construct compared to direct resilience, resilience in those who have directly experienced trauma (Hernández, Gangsei, & Engstrom, 2007). Therefore, the common methods of measuring individual resilience may not be adequate to assess vicarious resilience. Future research will be important in assessing the role of vicarious resilience in the relationship between occupational injuries and negative outcomes. Furthermore, future research should examine the various types of vicarious experiences of occupational injuries when assessing vicarious resilience. For example, co-workers who have seen the injury occur may experience the injury differently from a co-worker who heard of the accident, and who may differ from a family, friend or romantic partner who heard about the injury. With various individuals who can vicariously experience a negative event, such as an occupational injury, in differing ways, future research will be important in disentangling the different vicarious experiences of these various individuals.

Summary of Study 2

While there exists extensive research on the crossover effects of work stress on family members, research has tended not to focus on the indirect outcomes of occupational injuries on family members. Therefore, Study 2 was a first step at beginning to address this gap in the literature. Future work should continue to focus on how family members are affected by the vicarious experience of an occupational injury. In particular, collecting longitudinal and dyadic

data will be important in providing support for the results of this study as well as to gain a more in depth understanding of the mediation model and the shared experiences between romantic partners following an occupational injury. Further discussion on future directions for research is provided below.

General Discussion

The purpose of this research was to gain a better understanding of the effects of occupational injuries on injured individuals as well as on those closest to them, namely their romantic partners. Furthermore, these studies aimed to use a broader, more nuanced measure of occupational injuries when assessing the widespread effects on both injured individuals and their romantic partners. The models presented in Figures 2 and 3 were both partially supported, suggesting the theoretical stressor-stress-strain model is a representative model of the experience of an occupational injury for both injured individuals and the romantic partners of individuals who have been injured at work. This theoretical model suggests individuals who have directly or vicariously experienced a stressor (i.e., the occupational injury), subsequently experience stress (i.e., financial difficulties, felt stigma, and finding meaning in life, in the case of injured individuals), and in turn, the experience of strain (i.e., decreased health and well-being, decreased relationship satisfaction/quality, increased negative work attitudes and beliefs). Therefore, this model can be used in future studies examining other outcomes in individuals who have experienced an occupational injury, as well as examining the effects of occupational injuries on other individuals exposed to injuries, including parents, children, co-workers, or leaders of injured individuals. However, this model is not exhaustive, and therefore does not include the full array of stress or strain variables individuals may experience following an occupational injury. Other forms of stress future research could address may include emotional

stress and burden, while other forms of strain may include mental health, life satisfaction, job satisfaction, and turnover intentions.

Direct Effects of Workplace Injuries

The purpose of Study 1 was to extend our understanding of the direct effects of occupational injuries on individuals who have been injured at work. Previously, research tended to focus on organizational outcomes related to individuals who have been injured at work (e.g., lost productivity, costs; Barling et al., 2003; Laisné et al., 2012), however, as supported by the results of Study 1, the effects of occupational injuries on the injured individual are significant and widespread. The stressor-stress-strain model suggests individuals experience significant stress following their occupational injury (i.e., financial difficulties, felt stigma), which in turn is related to significant strain (i.e., decreased health and well-being, increased stress, increased cynicism towards work and increased Marxist-related beliefs). However, in assessing the widespread effects of workplace injuries, I wanted to examine the potential for non-negative effects following a negative experience. The results of this study suggest individuals who are able to find meaning following the experience of a workplace injury, are more likely to exhibit positive workplace beliefs. Furthermore, supervisor and co-worker social support, as well as resilience were found to mitigate the negative effects of financial difficulties and felt stigma, respectively, following the experience of an occupational injury. Therefore, these findings suggest positive outcomes can occur, given the proper situation, even following a negative experience, such as a workplace injury. Future research should examine how these findings can be utilized in order to create organizational policies and programs designed to promote positive outcomes in individuals who have experienced an occupational injury.

Vicarious Trauma

The purpose of Study 2 was to address a gap in the literature regarding vicarious experiences of occupational injuries. While romantic partners of injured individuals represent only one aspect of vicarious experiences of occupational injuries, examining those closest to an injured individual, their romantic partner, was a logical first step towards achieving a better understanding of the widespread effects of occupational injuries. There are a variety of other individuals who may be exposed to an individual's occupational injury, including parents, children, friends, co-workers, and supervisors. Each of these groups requires attention in order to gain a complete understanding of the widespread effects of occupational injuries. Furthermore, Study 2 examined only one health outcome and two relationship outcomes. Therefore, future research should address other important areas that may be negatively (or positively) affected by the vicarious experience of an occupational injury. For example, research on secondary traumatic stress (SPS) suggests individuals suffering from the vicarious experience of trauma may have negative health effects (e.g., feeling sick), social/relationship effects (e.g., being irritable and aggressive), occupational effects (e.g., avoiding work, being aggressive towards co-workers), and psychological effects (e.g., difficulty sleeping, depression, anxiety; Baetz, 2016). Future research should examine the overall experience of those exposed vicariously to occupational injuries in order to understand the widespread effects of these injuries. Longitudinal and dyadic designs will be important in understanding the process of vicarious experiences with injuries. For example, time (e.g., how long ago an injury occurred) may play an important role in the outcomes associated with the vicarious experience of an occupational injury, something only longitudinal data can truly examine.

Societal Norms and Gender Differences

Although gender was controlled for in the above analysis, gender may potentially be an important factor in the relationships between occupational injuries and stresses/strain in both injured individuals and their romantic partners. Given that there are many dual-earning couples, there will often be two separate work perceptions influencing the work-family interface (Frisco & Williams, 2003; Perry-Jenkins, Repetti, & Crouter, 2000). Furthermore, research suggests possible gender differences may exist with regards to the effects of work stress on home life. For example, increased distress at work has been related to decreased marital quality ratings in women specifically (Barnett, Brennan, Raudenbush, Pleck, & Marshall, 1995). Alternatively, some research suggests that in certain areas, no gender differences exist. For example, for both men and women in dual-earning couples, positive home experiences buffer the effects of negative work experiences (Barnett, 1994). Furthermore, coping ability mediates the relationship between role strain and marriage quality, regardless of gender (Perrone & Worthington, 2001). However, much of this research dates back over 15 years and therefore, these results may be influenced by previous gender stereotypes. For example, research suggests that men are more likely to bring home their work stress (Bolger et al., 1989). However, during this time, men were also more likely to be the primary breadwinners and thus may have been the only individual working in their household (Sokoloff, 2014). Therefore, the wives of these men are more likely to experience the negative effects of their husbands' stress in the home since they are more likely to be the primary caretaker of the home. Given the disagreement on gender roles and work-family conflict within the field, future research should focus on disentangling the differing workplace experiences of males versus females as well as answering the question of whether there are different effects of workplace injuries on males versus females. Given the

predominantly male sample in the injured worker study (Study 1), and the predominantly female sample in the romantic partner study (Study 2), I was not able to address this question in the present research, apart from controlling for gender in the mediation and moderated mediation analyses presented above. Furthermore, these studies included only heterosexual couples, thereby excluding any same sex couples. Future research should address how same sex couples may be affected by the experience of an occupational injury.

Limitations

Although this research has the potential to greatly expand our understanding of the effects of workplace injuries, there are several limitations associated with this research that should be acknowledged. Firstly, the sample was obtained using Qualtrics, and therefore the sample was not completely selected at random and may have unique characteristics. Those who have been injured or who are in a romantic relationship with an individual who has been injured at work and decide to participate in Qualtrics studies may be different from those who did not wish to participate or from those who are not aware of Qualtrics studies (e.g., individuals without computer knowledge or access to a computer). Therefore, these studies may not generalize to all individuals injured at work and to all romantic partners of individuals who have been injured at work. However, there are benefits to sampling via Qualtrics, as well. Participants recruited through Qualtrics are likely to be more variable compared to those who would be recruited via workplace safety or workers' compensation organizations. For example, individuals who are registered with workplace safety or workers' compensation organizations may be more proactive, more involved, or be more likely to feel they have been wronged by their employer (Kelly & Kelly, 1994), and therefore may have a biased perspective compared to those who are not involved with these organizations.

A second limitation is that I was unable to get matched partner data through Qualtrics, where an individual who has been injured at work and their respective romantic partner are matched anonymously using a unique numerical code. While this was originally thought to be possible, following two soft launches, in which the surveys were launched and data was collected from 30 romantic partners each time, I discovered the romantic partners of individuals who have been injured at work were often not interested in forwarding an online survey to their partner who had experienced an injury, and the partners who had experienced an injury who did receive the online survey from their romantic partners did not respond to the forwarded survey. Although dyadic partner data would have been preferable, data from 200 individuals who have experienced an occupational injury and 200 romantic partners of individuals who have experienced an occupational injury is sufficient to analyze my research hypotheses and the results of these studies still extend our understanding of the effect of occupational injuries on both those who have experienced these injuries as well as those who are in romantic partnerships with those who have experienced occupational injuries.

Third, all measures in these studies are self-report and therefore run the risk of mono-method bias. However, testing for mediation and moderation helps to overcome this limitation, since participants are not likely to be conscious of the complex relationships being tested. Finally, these studies were correlational and therefore causation cannot be inferred. However, these studies remain an important first step toward understanding the relationship between occupational injuries and individual outcomes in those who have experienced an occupational injury as well as romantic relationship outcomes in those who are in a romantic relationship with an individual who has experienced an occupational injury.

Whereas occupational health and safety and the work-family interface are significantly researched areas, research on the relationship between occupational injuries and both individual workplace outcomes and individual and romantic partner outcomes remains in its infancy. Therefore, the theoretical models guiding this research are speculative and may not fully explain the complex relationships between workplace injury severity and negative and positive outcomes in injured individuals and romantic partners of injured individuals. However, as these are the first studies of their kind, these theories provide a useful framework for future studies exploring the widespread effects of occupational injuries. Though this research importantly advances the understanding of various effects of occupational injuries on both injured employees and their romantic partners, and provides insight as to certain mitigating factors in the relationship between occupational injuries and negative outcomes in both injured workers and their romantic partners, future research using different methodologies and matched dyadic data will be important in continuing this line of work, as well as extending the model presented in these studies to include various other potential mediator (e.g., negative emotions, disability, role change) and outcome variables (e.g., life satisfaction, job satisfaction, intimacy).

Conclusion

Health and safety have been, and continue to be, widely researched topics in the organizational psychology literature. However, even with an increased focus on injury prevention, occupational injuries continue to occur at an alarming rate. Gaining a better understanding of occupational injuries and their effects on those who have been injured deserves attention in an effort to provide these individuals with the resources they require to reduce or eliminate these negative effects. The purpose of this research was to extend our understanding of the effects of occupational injuries by examining outcomes and mitigating factors for individuals

who have experienced an occupational injury, as well as for the romantic partners of individuals injured at work. The results of these studies suggest occupational injuries are associated stigma, financial difficulties, and meaning in life, which are subsequently associated with strain outcomes, including workplace outcomes, health outcomes and relationship outcomes. The results of this study further suggest there are certain factors, including resilience and social support, which may influence the effects of occupational injuries among both injured individuals as well as their romantic partners. Taken together, these findings suggest that it is important to continue focusing on mitigating the outcomes associated with workplace injuries; organizational and governmental programs should strive to reduce the burden of occupational injuries on injured individuals and their loved ones. Occupational injuries remain a fairly common occurrence and the effects of occupational injuries appear to be much more widespread than previous research has suggested. At the same time, the results of these studies support the potential for reducing the negative effects of occupational injuries among individuals who have directly or vicariously experienced an occupational injury. Although reducing injuries altogether is the ideal scenario, given appropriate organizational, governmental and community support programs, the experience of an occupational injury can be improved to some extent. As illustrated in a quote by Helen Keller, *“Although the world is full of suffering, it is full also of the overcoming of it.”* (1903).

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Appendix A

Example of Announcement for Recruiting Participants on Qualtrics' Website

Share Perspectives.
Shape Products.
Earn Rewards.

Respondent's Name

You have a new survey:
General Opinion Survey

START SURVEY

You are invited to participate in a general opinion survey! If you experience problems with this survey, please reference project #116126 when contacting us.

Copy and paste the following link into your browser if the above button doesn't work:

Your survey here

Average time to complete
X
Minutes

Reward earned upon completion
\$ X

Earn sweepstakes entries for every survey taken

- \$100 Daily Sweeps
- \$250 Weekly Sweeps
- \$1,000 Monthly Sweeps

Any questions? [Contact Us](#) and please reference project number 116126.
[Click here](#) to login to your dashboard to see all paid opportunities.

Appendix B

Informed Consent Form for Individuals who have Experienced an Occupational injury

The purpose of an informed consent is to ensure that you understand the purpose of the study and the nature of your involvement. The informed consent must provide sufficient information such that you have the opportunity to determine whether you wish to participate in the study. The informed consent is also an understanding that you may withdraw at any point in the study without any penalty.

Present study: An Analysis of the Effects of Occupational Injuries

Research personnel: The following people are involved in this research project, and may be contacted at any time if you have questions or concerns: Amanda McEvoy (MA student in the Department of Psychology; email: amanda.mcevoy@carleton.ca, phone: 613-520-2600, ext. 2702) and Dr. Kathryne Dupré (faculty supervisor in the Department of Psychology; email: kathryne.dupre@carleton.ca, phone: 613-520-2600, ext. 6026) at Carleton University (Ottawa, Canada)

Contact in case of concerns: Should you have any ethical concerns about this research, please contact Dr. Shelley Brown (email: shelley.brown@carleton.ca; Chair, Carleton University Research Ethics Board-B (CUREB) 613-520-2600 ext.1505), or the Carleton University Research Office at ethics@carleton.ca.

Purpose: The purpose of this study is to understand the effects of occupational injuries on those who have been injured. The results of this research have the potential to extend our understanding of the relationship between work and family life, as well as the widespread effects of injuries at work.

Task requirements: You will first be asked to respond to questions about the most recent injury you experienced at work, such as the nature of the injury. Following, you will be asked to respond to questions about your experiences, beliefs and attitudes, after experiencing this injury at work. Finally, you will be asked to complete basic demographic information (e.g. age, gender).

Duration and Locale: The online survey takes approximately 20 minutes to complete.

Potential risk/discomfort: There is mild to moderate psychological risk when participating in this study. Some questions may be personal or bring to mind negative emotions. Keep in mind that you may skip questions or discontinue the survey at any time without any penalties. In the unlikely event that you do experience negative emotions, a crisis help line phone number is provided in the debriefing form. All participation is completely voluntary and anonymous.

Anonymity/confidentiality: The data collected in this experiment are anonymous; we will not ask you to list any identifying information. In potential publications of this research, only aggregated data (means and correlations) will be reported. Anonymous data might be shared with

trusted colleagues or posted on online free data depositories. Anonymous electronic data files will be retained on secure, password-protected computers indefinitely. We collect data through the software Qualtrics, which uses servers with multiple layers of security to protect the privacy of the data (e.g., encrypted websites and pass-word protected storage). Please note that Qualtrics is hosted by a server located in the USA and as such is subject to the United States Patriot Act (see http://en.wikipedia.org/wiki/Patriot_Act). All data will be deleted from the Qualtrics server upon completion of the study and will be retained only on secure, password-protected computers.

Right to withdraw: Your participation in this study is entirely voluntary. At any point during the study, you have the right leave certain questions unanswered, or to withdraw from the study without penalty. If you choose to withdraw, you will still be compensated - please continue clicking through to the end of the survey in order to see the debriefing form.

External funding: Dr. Kathyne Dupré holds a SSHRC grant that supports the research being conducted in this study.

This study has been cleared by the Carleton University Research Ethics Board-B (Protocol #16-019). Date ethics clearance for the study will expire: 31/08/2016

I have read the above form and understand the conditions of my participation. My participation in this study is voluntary, and I understand that if at any time I wish to leave the study, I may do so without having to give an explanation and with no penalty whatsoever. Furthermore, I am also aware that the data gathered in this study is confidential and anonymous with respect to my personal identity.

Click "I Agree" to indicate that you understand the information above and would like to participate in this study or "I Disagree" if you do not want to do the survey.

I agree _____ I disagree _____

Appendix C
Injured Individual Survey

In this research, we are aiming to better understand workplace injuries. The following questions ask about your workplace injury. If you have experienced a workplace injury more than once, please think about your most recent physical workplace injury when responding to the following questions:

How long ago did the workplace injury occur? (Select one)

- Less than 3 months 3-6 months 6-9 months
 9-12 months more than 12 months

What type of physical injury did you experience (select as many that apply):

- Fracture/Break
 Dislocation
 Back Strain
 Strain/sprain (other, excluding back)
 Open wound
 Bruising
 Blistering
 Crushing
 Burn/scald
 Eye injury
 Head injury
 Whiplash
 Chemical exposure
 Electrical
 Radiation
 Other: _____

Please indicate the body parts that were affected by your most recent workplace injury?

- Head
 Face
 Neck
 Thorax (chest area)
 Abdomen
 Spine
 Upper extremities
 Lower extremities
 Epidermis (skin)

How severe would you describe the injury you sustained?

- 1 Minor 2 Moderate 3 Serious 4 Severe 5 Critical/Life-threatening

How strong is the pain associated with your workplace injury?

1) Mild 2) Discomforting 3) Distressing 4) Horrible 5) Excruciating

Did the injury result in physical or mental disability that prevented you from doing your job for any amount of time?

No ___

1-6 days ___

1-3 weeks ___

1-3 months ___

More than 3 months ___

Did the injury result in physical or mental disability that prevented you from engaging in family or leisure activities that you enjoy for any amount of time?

No ___

1-6 days ___

1-3 weeks ___

1-3 months ___

More than 3 months ___

Are you presently working? ___ Yes ___ No**How long were you off work following your injury?**

___ 1 day ___ several days

___ 1-2 weeks ___ 3 + weeks

___ 1+ months

If you are working, how often do you continue to miss part of a workday because of your injury?

___ None ___ 1-3 days/week

___ 1-3 days per month ___ 1-3 days per year

___ more than 3 days per year

Have you modified your work duties or role at all in order to accommodate your injury?

___ major reduction ___ mild reduction ___ no reduction ___ increase

___ can't work

Was your most recent injury physically visible to others when clothed for any amount of time?

No ___

1-6 days ___

1-3 weeks ___

1-3 months ___

More than 3 months ___

Was most recent injury physically visible to others when unclothed for any amount of time?

No ___

1-6 days ___

1-3 weeks ___

1-3 months ___

More than 3 months ___

Think of your most recent workplace injury while answering the following questions. Please indicate how often you felt or thought a certain way, following your most recent workplace injury, on a scale from 0 (never) to 4 (Very often). *reverse coded

Following your workplace injury...

1. How often have you been upset because of something that happened unexpectedly?
2. How often have you felt that you were unable to control the important things in your life?
3. How often have you felt nervous and stressed?
4. How often have you felt confident about your ability to handle your personal problems?*
5. How often have you felt that things were going your way?*
6. How often have you felt that you could not cope with all the things that you had to do?
7. How often have you been able to control irritations in your life?*
8. How often have you felt that you were on top of things?*
9. How often have you been angered because of things that were outside of your control?
10. How often have you felt difficulties were piling up so high that you could not overcome them?

Please rate the following from 1 (never) to 5 (most of the time)

Have you ever felt that because of your most recent workplace injury

1. People treat you differently?
2. People are uncomfortable with you?
3. People treat you as inferior?
4. People prefer to avoid you?

Please answer the following questions using the scale 1 (little) to 5 (a lot)

1. How difficult is it for you to live on your total household income right now?
2. In the next two months, how much do you anticipate that you or your family will experience actual hardships such as inadequate housing, food or medical attention?
3. In the next two months, how much do you anticipate having to reduce your standard of living to the bare necessities of life?

Please answer the following questions using the scale 1 (Never) to 5 (Always) with your SUPERVISOR in mind.

1. How much can your supervisor be relied on when things get tough at work?
2. How much is your supervisor willing to listen to your work-related problems?
3. How much is your supervisor helpful to you in getting your job done?
4. How much is your supervisor willing to listen to your personal problems?
5. How easy is it to talk to your supervisor?

Please answer the following questions using the scale 1 (Never) to 5 (Always) with your COWORKERS in mind.

1. How much can your coworkers be relied on when things get tough at work?
2. How much are your coworkers willing to listen to your work-related problems?
3. How much are your coworkers helpful to you in getting your job done?
4. How much are your coworkers willing to listen to your personal problems?
5. How easy is it to talk to your coworkers?

Please answer the following questions using the scale 1 (Not true at all) to 4 (True nearly all the time)

1. I am able to adapt to change
2. I can deal with whatever comes
3. I try to see the humorous side of problems
4. Coping with stress can strengthen me
5. I tend to bounce back after illness or hardship
6. I can achieve goals despite obstacles
7. I can stay focused under pressure
8. I am not easily discouraged by failure
9. I think of myself as strong person
10. I can handle unpleasant feelings

Please rate the following from 1 (Absolutely Untrue) to 7 (Absolutely True) *reverse coded

1. I understand my life's meaning
2. I am looking for something that makes my life feel meaningful
3. I am always looking to find my life's purpose
4. My life has a clear sense of purpose
5. I have a good sense of what makes my life meaningful
6. I have discovered a satisfying life purpose
7. I am always searching for something that makes my life feel significant
8. I am seeking a purpose or mission for my life
9. My life has no clear purpose*
10. I am searching for meaning in life

The following statements ask about your personal well-being and your health in general. For the following questions please select the answer that best describes you.

Following your occupational injury, have you?

Not At All	Rarely	Once In A While	Some Of The Time	Fairly Often	Often	All Of The Time
1	2	3	4	5	6	7

1. been able to concentrate on whatever you're doing? (Reverse Scored)
2. lost much sleep from worry?
3. felt that you're playing a useful part in things? (Reverse Scored)
4. felt capable of making decisions about things? (Reverse Scored)
5. felt under strain?
 - felt that you couldn't overcome your difficulties?
 - been able to enjoy your normal day-to-day activities? (Reverse Scored)
 - been able to face up to your problems? (Reverse Scored)
 - been feeling unhappy and/or depressed?
 - been losing confidence in yourself?
 - been thinking of yourself as a worthless person?
 - been feeling reasonably happy, all things considered? (Reverse Scored)

Please rate the following from 1 (strongly disagree) to 4 (strongly agree)

1. Work can be made meaningful
2. One's job should give him a chance to try out new ideas
3. The workplace can be humanized
4. Work should allow for the use of human capabilities
5. Work can be a means for self-expression
6. Work should enable one to learn new things
7. Work can be organized to allow for human fulfillment
8. The job should be a source of new experiences
9. The free enterprise system mainly benefits the rich and powerful
10. The rich do not make much of a contribution to society
11. The working classes should have more say in running society
12. Workers do not get their fair share of the economic rewards of society
13. Factories would be better run if workers had more of a say in management
14. The work of the labouring classes is exploited by the rich for their own benefit
15. Workers should be more active in making decisions about products, financing, and capital investment
16. Wealthy people do not carry their fair share of the burdens of life in this country
17. Management does not understand the needs of the worker
18. Workers should be represented on the board of directors of companies
19. The most important work in America is done by the labouring classes

20. Survival of the group is very important in an organization
21. Working with a group is better than working alone
22. It is best to have a job as part of an organization where all work together even if you don't get individual credit
23. One should take an active part in all group affairs
24. The group is the most important entity in any organization
25. One's contribution to the group is the most important thing about his work

Please rate the following from 1 (strongly disagree) to 4 (strongly agree).

1. To me, working is nothing more than making a living.
2. People who take their work home with them probably don't have a very interesting home life.
3. There's no such thing as a company that cares about its employees.
4. Most people today are stuck in dead-end, go-nowhere jobs.
5. Workers are entitled to "call in sick" when they don't feel like working.
6. I believe in working only as hard as I have to.
7. If a person can get away with it, he/she should try to work just a little slower than the boss expects him/her to.
8. The best job a worker can get is one which permits him/her to do almost nothing during the working day.
9. Very often I forget work I am supposed to do.
10. If I had the chance, I would go through life without ever having to work.

The following are demographic questions; we ask these so that we can have some basic information about the people who have taken part in this research.

What gender do you identify with? ___ male ___ female ___ other

How old are you? _____ years

Please select your highest level of education:

- ___ No high school
- ___ Some high school
- ___ High school
- ___ College
- ___ Undergraduate degree
- ___ Graduate school

What is your current relationship status?

1. In a romantic relationship, but not living with partner.
2. Living with a romantic partner.
3. Married and living with my partner.

How long have you been in your romantic relationship?

1. Less than 6 months
2. Between 6 months and 1 year
3. Between 1-3 years
4. Between 3-5 years
5. 5+ years

How long have you been working at your current job?

1. Less than 6 months
2. Between 6 months and 1 year
3. Between 1-3 years
4. Between 3-5 years
5. 5+ years

How many years work experience did you have before you began your current job? _____years

How long have you been working with your current workplace supervisor/manager?

1. Less than 6 months
2. Between 6 months and 1 year
3. Between 1-3 years
4. Between 3-5 years
5. 5+ years

In a typical week, how many hours a week do you work at your current job?

1. Less than 20 hours
2. 20-30 hours
3. 30-40 hours
4. 40-50 hours
5. 50+ hours

How often are you in contact with your current workplace supervisor/manager each week (in person or electronically)?

1. less than once a week
2. Once a week
3. 2-3 times a week
4. 4-5 times a week
5. 6+ times a week

Including yourself, how many employees is your current workplace supervisor/manager responsible for supervising or managing?

1. 1 (just yourself)
2. 2-5
3. 6-10

4. ___ 11-50
5. ___ more than 50

What is your job title? _____

What is your industry?

1. Agriculture
2. Construction
3. Manufacturing
4. Transportation
5. Retail
6. Finance
7. Business
8. Professional Services
9. Entertainment
10. Public Administration
11. Government

What is your household income?

1. ___ Less than \$35,000
2. ___ \$36,000 – \$50,000
3. ___ \$51,000 – \$75,000
4. ___ \$76,000 – \$90,000
5. ___ \$91,000 – \$120,000

Thank you for taking part in our survey. We truly appreciate your time.

Appendix D

Debriefing Form for Individuals who have Experienced an Occupational Injury

Debriefing for the Study: An Analysis of the Effects of Occupational Injuries**What are we trying to learn in this research?**

The purpose of this research is to examine the outcomes of physical occupational injuries on those who have been injured. Previous research has tended to focus on the antecedents and the prevention of occupational injuries. However, even with improved safety procedures, occupational injuries continue to occur, and our understanding of the effects of occupational injuries is limited.

Why is this important to scientists or the general public?

The results of this research can have implications for both theory and research on the work-family interface, and workplace safety. Furthermore, this research can be used for interventions designed to better help employees who have been injured at work and to enhance work-life/family balance.

What are our hypotheses and predictions?

We are predicting that occupational injuries will be related to workplace attitudes and beliefs. More specifically, based on previous research, we expect that when occupational injuries are less serious, and therefore the experience of occupational injuries are less negative, outcomes for individuals who have been injured at work will be better: there will be better feelings of general well-being, more effective workplace beliefs and less cynicism towards work. Further, we expect that resilience, perceived stigma, financial difficulties, perceived social support, and finding meaning in life may influence these relationships. There are implications that might result from this study. There is very little research that examines the impact of injuries and safety at work on individuals who have experienced an occupational injury. The results of this research have the potential to extend our understanding of the relationship between work and family life, as well as the widespread effects of injuries at work.

Where can I learn more?

If you are interested in learning more about the research that led up to this question, you may find the following websites interesting and helpful:

<http://healthpsych.com/articles/ccia.html>

<http://www.ccohs.ca/>

<http://www.labour.gov.on.ca/english/hs/index.php>

http://www.wsib.on.ca/cs/idcplg?IdcService=GET_FILE&dDocName=WSIB060397&RevisionSelectionMethod=LatestReleased.

Is there anything I can do if I found this experiment to be upsetting?

We do not anticipate any negative emotions as result of this study. However, if you are feeling negative emotions, you can contact the Crises Help Line 1-800-233-4357. You may also find a list of local helplines through the following website: www.befrienders.org.

What if I have questions later?

If you have any remaining concerns, questions, or comments about the experiment, please feel free to contact Amanda McEvoy (MA student in the Department of Psychology; email: amanda.mcevoy@carleton.ca, phone: 613-520-2600, ext. 2702) or Dr. Kathryne Dupré (faculty supervisor in the Department of Psychology; email: kathryne.dupre@carleton.ca, phone: 613-520-2600, ext. 1542). Should you have any ethical concerns about this research, please contact Dr. Shelley Brown (Chair, Carleton University Psychology Research Ethics Board-B, shelley.brown@carleton.ca 613-520-2600 ext.1505), or the Carleton University Research Office at ethics@carleton.ca. This study has been cleared by the Carleton University Research Ethics Board-B (Protocol #16-019).

If you are interested in keeping this debriefing form for your records, please print this page (ctrl + p).

Thank you for participating in this research!

Please click the next button.

Appendix E

Informed Consent Form for Romantic Partners

The purpose of an informed consent is to ensure that you understand the purpose of the study and the nature of your involvement. The informed consent must provide sufficient information such that you have the opportunity to determine whether you wish to participate in the study. The informed consent is also an understanding that you may withdraw at any point in the study without any penalty.

Present study: An Analysis of the Effects of Occupational Injuries

Research personnel: The following people are involved in this research project, and may be contacted at any time if you have questions or concerns: Amanda McEvoy (MA student in the Department of Psychology; email: amanda.mcevoy@carleton.ca, phone: 613-520-2600, ext. 2702) and Dr. Kathryne Dupré (faculty supervisor in the Department of Psychology; email: kathryne.dupre@carleton.ca, phone: 613-520-2600, ext. 6026) at Carleton University (Ottawa, Canada)

Contact in case of concerns: Should you have any ethical concerns about this research, please contact Dr. Shelley Brown (email: shelley.brown@carleton.ca; Chair, Carleton University Research Ethics Board-B (CUREB) 613-520-2600 ext.1505), or the Carleton University Research Office at ethics@carleton.ca.

Purpose: The purpose of this study is to understand the effects of occupational injuries on romantic partners of individuals who have experienced an occupational injury. The results of this research have the potential to extend our understanding of the relationship between work and family life, as well as the widespread effects of injuries at work.

Task requirements: You will first be asked to respond to questions about your partner's occupational injury, such as the nature of the injury. You will then be asked to respond to questions about your experiences, beliefs and attitudes, after your partner experienced her/his occupational injury. Finally, you will be asked to complete basic demographic information (e.g. age, gender).

Duration and Locale: The online survey takes approximately 20 minutes to complete.

Potential risk/discomfort: There is mild psychological risk when participating in this study. Some questions may be personal or bring to mind negative emotions. Keep in mind that you may skip questions or discontinue the survey at any time without any penalties. In the unlikely event that you do experience negative emotions, a help line phone number is provided in the debriefing form. All participation is completely voluntary and anonymous.

Anonymity/confidentiality: The data collected in this experiment are anonymous; we will not ask you to list any identifying information. In potential publications of this research, only aggregated data (means and correlations) will be reported. Anonymous data might be shared with trusted colleagues or posted on online free data depositories. Anonymous electronic data files

will be retained on secure, password-protected computers indefinitely. We collect data through the software Qualtrics, which uses servers with multiple layers of security to protect the privacy of the data (e.g., encrypted websites and pass-word protected storage). Please note that Qualtrics is hosted by a server located in the USA and as such is subject to the United States Patriot Act (see http://en.wikipedia.org/wiki/Patriot_Act). All data will be deleted from the Qualtrics server upon completion of the study and will be retained only on secure, password-protected computers.

Right to withdraw: Your participation in this study is entirely voluntary. At any point during the study, you have the right leave certain questions unanswered, or to withdraw from the study without penalty. If you choose to withdraw, you will still be compensated - please continue clicking through to the end of the survey in order to see the debriefing form.

External funding: Dr. Kathyne Dupré holds a SSHRC grant that supports the research being conducted in this study.

This study has been cleared by the Carleton University Research Ethics Board-B (Protocol #16-019). Date ethics clearance for the study will expire: 31/08/2016

I have read the above form and understand the conditions of my participation. My participation in this study is voluntary, and I understand that if at any time I wish to leave the study, I may do so without having to give an explanation and with no penalty whatsoever. Furthermore, I am also aware that the data gathered in this study is confidential and anonymous with respect to my personal identity.

Click "I Agree" to indicate that you understand the information above and would like to participate in this study or "I Disagree" if you do not want to do the survey.

I agree _____ I disagree _____

Appendix F
Romantic Partner Survey

We would like to better understand workplace injuries. The following questions will ask about your partner's workplace injury. Please think about your partner's most recent physical workplace injury when responding to the following questions:

How long ago did your partner's workplace injury occur? (Select one)

- Less than 3 months 3-6 months 6-9 months
 9-12 months more than 12 months

What type of workplace injury did your partner sustain (select as many that apply):

- Fracture/Break
 Dislocation
 Back Strain
 Strain/sprain (other, excluding back)
 Open wound
 Bruising
 Blistering
 Crushing
 Burn/scald
 Eye injury
 Head injury
 Whiplash
 Chemical exposure
 Electrical
 Radiation
 Other: _____

Please indicate the body parts that were affected by your partner's workplace injury?

- Head
 Face
 Neck
 Thorax (chest area)
 Abdomen
 Spine
 Upper extremities
 Lower extremities
 Epidermis (skin)

How severe would you describe the injury your partner sustained?

1 Minor 2 Moderate 3 Serious 4 Severe 5 Critical/Life-threatening

How strong was your partner's pain following the workplace injury?

1) Mild 2) Discomforting 3) Distressing 4) Horrible 5) Excruciating

Did your partner's workplace injury result in physical or mental disability that prevented him/her from doing their job for any amount of time?

No ___
 1-6 days ___
 1-3 weeks ___
 1-3 months ___
 More than 3 months ___

Did your partner's workplace injury result in physical or mental disability that prevented him/her from engaging in family or leisure activities that they enjoy for any amount of time?

No ___
 1-6 days ___
 1-3 weeks ___
 1-3 months ___
 More than 3 months ___

How long was your partner off work following his/her injury

___ 1 day ___ several days
 ___ 1-2 weeks ___ 3 + weeks
 ___ 1+ months

If your partner is working, how often does he/she continue to miss part of a workday because of his/her injury?

___ None ___ 1-3 days/week
 ___ 1-3 days per month ___ 1-3 days per year
 ___ more than 3 days per year

Has your partner had to modify his/her work duties or role at all in order to accommodate his/her injury?

___ major reduction ___ mild reduction ___ no reduction ___ increase
 ___ can't work

Was your partner's most recent injury physically visible to others when clothed for any amount of time?

No ___
 1-6 days ___
 1-3 weeks ___
 1-3 months ___
 More than 3 months ___

Was your partner's most recent injury physically visible to others when unclothed for any amount of time?

No ___

1-6 days ___

1-3 weeks ___

1-3 months ___

More than 3 months ___

Think of your partner's most recent workplace injury while answering the following questions. Using the following 1 (a lot more (better)) to 5 (a lot less (worse)) scale, please indicate to what degree each statement was affected by your experience with your partner's workplace injury.

1. Amount of time you have to yourself
2. Amount of privacy you have
3. Amount of money you have available to meet expenses
4. Amount of personal freedom you have
5. Amount of energy you have
6. Amount of time you spend in recreational and/or social activities
7. Amount of vacation activities and trips you take
8. Your relationships with other family members
9. Your health

Please rate the following from 1 (never) to 5 (most of the time)

Have you ever felt that because of your romantic partner's workplace injury

1. People treat you differently?
2. People are uncomfortable with you?
3. People treat you as inferior?
4. People prefer to avoid you?

Please answer the following questions using the scale 1 (little) to 5 (a lot)

1. How difficult is it for you to live on your total household income right now?
2. In the next two months, how much do you anticipate that you or your family will experience actual hardships such as inadequate housing, food or medical attention?
3. In the next two months, how much do you anticipate having to reduce your standard of living to the bare necessities of life?

Please answer the following questions using the scale 1 (Never) to 5 (Always) with your ROMANTIC PARTNER in mind.

1. How much can your romantic partner be relied on when things get tough at work?
2. How much is your romantic partner willing to listen to your work-related problems?
3. How much is your romantic partner helpful to you in getting your job done?
4. How much is your romantic partner willing to listen to your personal problems?
5. How easy is it to talk to your romantic partner?

Please answer the following questions using the scale 1 (Never) to 5 (Always) with your FRIENDS/RELATIVES in mind.

1. How much can your friends/relatives be relied on when things get tough at work?
2. How much are your friends/relatives willing to listen to your work-related problems?
3. How much are your friends/relatives helpful to you in getting your job done?
4. How much are your friends/relatives willing to listen to your personal problems?
5. How easy is it to talk to your friends/relatives?

Please answer the following questions using the scale 1 (Not true at all) to 4 (True nearly all the time)

1. I am able to adapt to change
1. I can deal with whatever comes
2. I try to see the humorous side of problems
3. Coping with stress can strengthen me
4. I tend to bounce back after illness or hardship
5. I can achieve goals despite obstacles
6. I can stay focused under pressure
7. I am not easily discouraged by failure
8. I think of myself as strong person
9. I can handle unpleasant feelings

Think of your romantic partner while answering the following questions. Using the following 1 (not at all) to 7 (a lot) scale, please indicate to what degree each statement reflects your own feelings.

1. My partner gives me a better idea on what's important in life
2. My partner makes me feel as though I am fulfilling my spousal duties
3. My partner helps me learn about my inner strengths
4. I am aware of my personal limitations because of my partner
5. My partner helps me find satisfaction from doing what's right
6. My partner helps me learn new things
7. I experience personal growth because of my partner
8. I am more self-confident because of my partner

The following statements ask about your personal well-being and your health in general. For the following questions please select the answer that best describes you.

Following your romantic partner/spouses occupational injury, have you?

Not At All	Rarely	Once In A While	Some Of The Time	Fairly Often	Often	All Of The Time
1	2	3	4	5	6	7

- ___ 1. been able to concentrate on whatever you're doing? (Reverse Scored)
- ___ 2. lost much sleep from worry?
- ___ 3. felt that you're playing a useful part in things? (Reverse Scored)
- ___ 4. felt capable of making decisions about things? (Reverse Scored)
- ___ 5. felt under strain?
- ___ 6. felt that you couldn't overcome your difficulties?
- ___ 7. been able to enjoy your normal day-to-day activities? (Reverse Scored)
- ___ 8. been able to face up to your problems? (Reverse Scored)
- ___ 9. been feeling unhappy and/or depressed?
- ___ 10. been losing confidence in yourself?
- ___ 11. been thinking of yourself as a worthless person?
- ___ 12. been feeling reasonably happy, all things considered? (Reverse Scored)

Please answer the following questions using the scale from 1 (low satisfaction) to 5 (high satisfaction) *reverse coded

1. How well does your partner meet your needs?
2. In general, how satisfied are you with your relationship?
3. How good is your relationship compared to most?
4. How often do you wish you hadn't gotten into this relationship?*
5. To what extent has your relationship met your original expectations?
6. How much do you love your partner?
7. How many problems are there in your relationship?*

The following questions refer to your relationship with your romantic partner. Please think about your relationship with your romantic partner when responding to the following questions.

Please respond to the following statements using the scale 1 (strongly disagree) to 7 (strongly agree)

1. My relationship with my romantic partner is close.
2. When we are apart, I miss my romantic partner a great deal.
3. My romantic partner and I disclose important personal things to each other.
4. My romantic partner and I have a strong connection.
5. My romantic partner and I want to spend time together.
6. I'm sure of my relationship with my romantic partner.
7. My romantic partner is a priority in my life.
8. My romantic partner and I do a lot of things together.
9. When I have free time I choose to spend it alone with my romantic partner.
10. I think about my romantic partner a lot.
11. My relationship with my romantic partner is important in my life.
12. I consider my romantic partner when making important decisions.

1. Please indicate the degree of happiness, all things considered, of your relationship.

Extremely Unhappy	Fairly Unhappy	A Little Unhappy	Happy	Very Happy	Extremely Happy	Perfect
0	1	2	3	4	5	6

Most people have disagreements in their relationships. Please indicate below the approximate extent of agreement or disagreement between you and your partner for each item on the following list.

	All the Time	Most of the Time	More often than Not	Occasionally	Rarely	Never
2. I have a warm and comfortable relationship with my partner	5	4	3	2	1	0
3. How rewarding is your relationship with your partner?						
4. In general, how satisfied are you with your relationship?						

The following are demographic questions so that we can have some basic information about you.

What gender do you identify with? male female other

How old are you? _____ years

Please select your highest level of education?

- Some high school
- High school
- College
- Undergraduate degree
- Graduate school

What is your current relationship status?

1. Living with a romantic partner
2. Married
3. Other

How long have you been in your romantic relationship?

1. Less than 6 months
2. Between 6 months and 1 year
3. Between 1-3 years
4. Between 3-5 years
5. 5+ years

If you are currently working, how long have you been working at your current job?

1. Less than 6 months
2. Between 6 months and 1 year
3. Between 1-3 years
4. Between 3-5 years
5. 5+ years

How many years work experience did you have before you began your current job? _____ years

If you are currently working, how long have you been working with your current workplace supervisor/manager?

1. Less than 6 months
2. Between 6 months and 1 year
3. Between 1-3 years
4. Between 3-5 years
5. 5+ years

In a typical week, how many hours a week do you work at your current job?

1. ___ Less than 20 hours
2. ___ 20-30 hours
3. ___ 30-40 hours
4. ___ 40-50 hours
5. ___ 50+ hours

What is your job title? _____

What is your industry?

1. Agriculture
2. Construction
3. Manufacturing
4. Transportation
5. Retail
6. Finance
7. Business
8. Professional Services
9. Entertainment
10. Public Administration
11. Government

What is your household income?

1. ___ Less than \$35,000
2. ___ \$36,000 – \$50,000
3. ___ \$51,000 – \$75,000
4. ___ \$76,000 – \$90,000
5. ___ \$91,000 – \$120,000

Have you ever been injured while working? Yes No

Thank you for taking part in our survey. We truly appreciate your time.

Appendix G

Debriefing Form for Romantic Partners

Debriefing for the Study: An Analysis of the Effects of Occupational Injuries

What are we trying to learn in this research?

The purpose of this research is to examine the outcomes of physical occupational injuries on romantic partners of individuals who have been injured at work. Previous research has tended to focus on the antecedents and the prevention of occupational injuries. However, even with improved safety procedures, occupational injuries continue to occur, and our understanding of the effects of occupational injuries is limited.

Why is this important to scientists or the general public?

The results of this research have implications for both theory and research on the work-family interface, and workplace safety. Furthermore, this research can be used for interventions designed to better help employees who have been injured at work and to enhance work-life/family balance.

What are our hypotheses and predictions?

We are predicting that occupational injuries will be related to health and well-being, as well as romantic partner relationship characteristics. More specifically, based on previous research, we expect that when occupational injuries are less serious, and therefore the experience of occupational injuries are less negative, outcomes for romantic partners of injured individuals will be better: there will be better feelings of psychological well-being, higher satisfaction with romantic relationships, and higher reports of relationship quality. Further, we expect that resilience, perceived stigma, financial difficulties, and perceived social support may influence these relationships. There are implications that might result from this study. There is very little research that examines the impact of injuries and safety at work on romantic partners of individuals who have experienced an occupational injury. The results of this research have the potential to extend our understanding of the relationship between work and family life, as well as the widespread effects of injuries at work.

Where can I learn more?

If you are interested in learning more about the research that led up to this question, you may find the following websites interesting and helpful:

<http://healthpsych.com/articles/ccia.html>

<http://www.ccohs.ca/>

<http://www.labour.gov.on.ca/english/hs/index.php>

http://www.wsib.on.ca/cs/idcplg?IdcService=GET_FILE&dDocName=WSIB060397&RevisionSelectionMethod=LatestReleased.

Is there anything I can do if I found this experiment to be upsetting?

We do not anticipate any negative emotions as result of this study. However, if you are feeling negative emotions, you may contact the Crises Help Line 1-800-233-4357. You may also find a list of local helplines through the following website: www.befrienders.org.

What if I have questions later?

If you have any remaining concerns, questions, or comments about the experiment, please feel free to contact Amanda McEvoy (MA student in the Department of Psychology; email: amanda.mcevoy@carleton.ca, phone: 613-520-2600, ext. 2702) or Dr. Kathryne Dupré (faculty supervisor in the Department of Psychology; email: kathryne.dupre@carleton.ca, phone: 613-520-2600, ext. 1542). Should you have any ethical concerns about this research, please contact Dr. Shelley Brown (Chair, Carleton University Psychology Research Ethics Board-B, shelley.brown@carleton.ca 613-520-2600 ext.1505), or the Carleton University Research Office at ethics@carleton.ca. This study has been cleared by the Carleton University Research Ethics Board-B (Protocol #16-019).

If you are interested in keeping this debriefing form for your records, please print this page (ctrl + p).

Thank you for participating in this research!

Please click the next button to submit your survey.