HIGH RISK PROJECTS:

AN EXAMINATION OF HOW PERSONAL STRESS IS COMMUNICATED WITHIN

CONSTRUCTION CREWS

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BY

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ABSTRACT

THESIS: High risk projects: An examination of how personal stress is
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       The purpose of this investigation is to gather insights from construction workers regarding their perceptions of the impact personal stress may have on their own behavior, and, in turn, how their behavior can affect the safety and work quality of the entire construction crew. It has been found in this investigation that although personal stress is not always verbally shared with coworkers, it is recognized by colleagues via nonverbal cues. In addition, most construction workers report that they do not receive appropriate social support from their co-workers, despite their need for it.

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CHAPTER 1

THE PROBLEM

Introduction

While stepping behind the fence of a construction site, you soon feel "the wind that blows through steel and concrete carrying the ancient dampness of echoing caves" (Rozan, 1997, p. 1). About a hundred feet up and nothing between you and the high steel workers, you climb to a higher floor and see a crewmember making signs at the crane operator. There is a need for pallets of bricks, sacks of concrete, steel studs and a half-ton of mechanical equipment to be brought up in different areas. Workers from several trades are working next to, below, and above each other. Chad works on the fifth floor, he is losing his temper while putting up a vertical wall and square corners because the previous workers had not plumbed and leveled the framework appropriately. On the second floor, there is Rob, a promising young hockey player, working part time as a laborer. He has practice early in the morning and, often, games at night. He thinks about upcoming qualifications while cutting and adapting the size of several particleboards, striking with an unsharpened chisel. On the eighteenth floor, the superintendent Lukas, worried about his forthcoming retirement, hurries some ironworkers to raise three more I-beams into place; other gangs have to move quickly behind to align the holes, bolt-up, and secure the beams; it is getting dark and slippery.

Aside from the already dangerous working conditions, there is one commonality among those scenarios. These workers are creating even more hazardous environments due to personal stress. Chad must continue the work of someone who did not pay attention. Rob may stab his own hands or someone else's legs, or may slip or fall for not

concentrating. Later, those who will put the particleboards into place may encounter further problems due to improper cuts from Rob's unsharpened chisel. The ironworkers are exposed to a greater chance of falling before and after the tie-off of their harnesses. It may be even more dangerous for those who are positioned in the highest spots (on the vertical beam) in order to connect each incoming horizontal beam. Most ironworkers do their jobs while having to balance on 12-inch top beams each time a story is erected. According to White (1988), often the only safety net for those ironworkers is their own agility and balance.

As is evident from the previous narrative, which is a composite of real events, construction workers in high-risk projects, experience a shared risk and consequently each team-member perceives common stressors. After having spent more than five years in the construction industry, I came to learn that all crewmembers had to maintain a high level of mindfulness because of the interdependence necessary to maintain safety within each team. However, I also learned that personal stress on the part of any member of the construction team had the potential to seriously compromise the safety of other team members.

Personal stressors affect coworkers' ability to concentrate, to make decisions and to perform. In turn, those affected by personal stress generate an even higher stress level within the team, possibly compromising the safety, productivity, and well being of other team members. Consider another example from my time spent on worksites. I had to work with one co-worker who had a gambling addiction. Working with Henri was painful and dangerous. He often dropped tools to the floor below where those from other trades were working. He would not go for lunch and asked to work overtime, but at the same

time he would regularly not show up on Mondays. Even though the boss did not want to hear about team friction or problems, forepersons requested to rotate him to different teams. After all forepersons and the superintendent experienced similar problems with Henri, the boss had to fire him. There may be workers like Henri in many other companies. The consequences of such working patterns may end up in heavy costs because of lost productivity, workers' injuries, or even death.

Silver (1986) states that coordination and cooperation between construction workers must be close and continuous if fatal accidents are to be avoided. Thus, it seems necessary for construction workers to understand how each team member feels in order to anticipate each other's behavior while performing high-risk tasks. Further, team members must communicate to one another their interpersonal support to reduce both work-related and personal stress. In this thesis I will examine the types of stress arising from those situations in which some workers are personally preoccupied.

Although current communication literature provides much information regarding occupational stress in the workplace (e.g., Amason, Allen, & Holmes, 1999; Miller, Ellis, Zook, & Lyles, 1990; Scherer & Brodzinski, 1990; Ulrey & Amason, 2001), no research has been found that investigates, from a communication approach, how: (a) a construction worker's personal stress may affect his or her workplace behaviors, (b) other workers' behavioral responses to their teammates' personal stress can affect construction crews, and (c) support received from colleagues of construction workers contributes to their ability to cope with personal stress. It is my intention, through this investigation, to address this gap in the existing literature. In order to accomplish this task, I will first review the literature on stress, emotional contagion, high reliability teams, and social

support and the construction industry, pointing out the areas in which more research

needs to be conducted. Next, I will explain the methods of investigation I used in the

study. Further, I will present the analysis of my data. Finally, I will draw conclusions and

provide recommendations for improved and safer practices among construction workers

Purpose of the Investigation

My literature review will examine findings that emphasize how human

unreliability can seriously affect the safety practice in construction sites, the mental and

physical health of construction workers, as well as companies' credibility.

Justification for the Investigation

The importance of this study lies in its potential to add a key component to the

past research on stress in the workplace. Insights gained from the proposed study will

guide future construction related research and intervention strategies. In fact, the few

studies that have looked at the cause of injury incident rates in construction workers (e.g.,

Kines, 2001; Prather, Crisera, & Fidell, 1975; Saloniemi & Oksanen, 1998) have not

explored personal stress as a possible factor causing accidents or death. According to

Janssen, Bakker, and Jong (2001), contrary to other occupational fields, neither mental

job demands (e.g., work overload and time pressure) nor job control (e.g., how much

control one has over their own activities at work) had as much of an effect on burnout or

health complaints (e.g., physical or mental exhaustion) within the construction crews, as

did impaired interpersonal relationships.

Therefore, this investigation should also be useful for helping organizational

members recognize patterns displayed by workers enduring personal stress. Being aware

of what impact stress may have on teams will help employers deal appropriately and

effectively with those workers who are suffering from personal preoccupations (e.g., an

employer may provide counselors or mentors to workers in need). In turn, according to

the Laborers' workplace trauma stress response program (2001), assessing and taking

care of personally stressed workers will provide stability for health insurance companies

as well as their contributing employers, helping to prevent unnecessary substance abuse, and injuries. In sum, workers with their minds on their tasks do work better and more safely.

<div align="center">Statement of the Problem</div>

People working in the field of construction are aware that danger is a fact of life on worksites–particularly in non-unionized worksites where there may be few mandated safety regulations or little safety training. In fact, more than 80% of all American construction workers were not unionized in the year 2000 (U. S. Bureau of Labor Statistics, 2003). Goldenhar, Moran, and Colligan, (2001) argue that although safety training has been successful at providing skills to a large number of construction workers, "the fact remains, however, that little is known about the quality and nature of training available to non-union workers and how the level and types of training might relate to safety outcomes" (p. 239).

However, regardless of the appropriate safety skills taught and safety devices available on worksites, it is always the worker him or herself who needs to be constantly engaged in the working process in order to behave consciously and make appropriate decisions. Lima (2000) confirms that when employees endure stress, their reactions tend not to be directed from logic or training. Goldenhar, Moran, and Colligan (2001) support this argument, noting that the worker who endures personal stress may lower his or her personal control over safety risks, show less concern for his or her colleagues, and, in cases such as those encountered by construction workers, put his or her own and others' lives in jeopardy.

In the best of circumstances construction workers are enduring work-related stress. Thus, supportive behaviors are needed from everyone on the work team in order "to make it through" safely and productively. A worker may receive support from colleagues to the extent his or her endured stress is work-related, hence shared in common with the others. However, the support needed to address the worker's personal stress may go unshared, although the affects of such personal stress in the worksite may be grave. Indeed, workers may be preoccupied, less able to concentrate, and therefore more disposed to human errors that compromise their own and others' safety.

Definition of Terms

In order for the reader to comprehend terms used in this study in a way consistent with the authors' intent, it is necessary to operationalize them.

Construction workers: According to the *Occupational Outlook Handbook* (2002-2003) the term "construction worker" refers to men and women who work in the field of construction such as carpenters, ironworkers, high rise workers, masons, bricklayers, or laborers. The activities of the participants in this study include the construction of buildings, shaft excavation, and demolition.

Stressor: Depending on the individual, demands, threats, conflicts, frustrations, overloads, or changes can be defined as stressors (Geller, 2001). According to Agrawal (2001) all stressors require different levels of readjustment, readaptation, or realignment. For example, for most individuals, waiting for a late worker is a less powerful stressor than seeing a co-worker fall from the roof.

Stress: Geller (2001) defines stress as the reaction of our mind and body to stressors.

Work-Related Stress: According to communication scholars, work-related stress results most often when an employee is confronted with two or more role requirements that work against each other and feels uncertain how tasks should be accomplished. They mention also that work load (too much work and/or work that is too difficult) is an additional factor that leads employees to feel stressed and even "burned out." Consequently, due to work related stress, employees may have a low level of job satisfaction and may display a lack of occupational commitment (Miller, Ellis, Zook, and Lyles, 1990).

Personal Stress: In his guideline for managing personal stress, Hartl (1998) defines personal stress, worries, or preoccupations as a response to personal issues, personal problems or personal concerns.

Stress Appraisal: Lazarus (1999) defines the concept of stress appraisal as how a person construes what is happening in different environmental situations. Lazarus explains why different people may cope and behave differently while enduring the same type of stress:

> On the basis of our unique relationship with that environment, we react as individual persons who differ in our most important goals, beliefs and personal resources, these psychological characteristics having been forged from the interaction of different biological origins and developmental experiences (p. 13).

Coping: Pierce, Sarason, and Sarason, (1996) define coping as the style people choose to deal with stressful situations and what they actually do in the context of a stressful encounter. In short, coping refers to the behavioral and cognitive efforts to reduce, master, or tolerate stressful events and the emotions that accompany them.

Lazarus (1999) explains that coping with stress is basically a reappraisal. Depending on how people will appraise a stressor, they will cope or act upon it differently.

Consequences of Personal Stress: When someone appraises some stressors negatively, such as regular arguments with a partner, preoccupations or worries may result (Geller, 2001). According to Dr. Hallowell, an instructor at Harvard Medical School and author of the book "*Worry*," being personally preoccupied is like "a shrill alarm that silences internal discussion" similar to chronic pain (Lauerman, 1999, ¶ 6). At work, personally stressed individuals may feel unable to perform even easy tasks, may perform with less reliability, and/or become unpredictable in the way they behave (Maxon, 1999).

Social Support: Albrecht and Adelman (1987) define social support as "verbal and nonverbal communication between recipients and providers that reduces uncertainty about the situation, the self, the other, or the relationship, and functions to enhance a perception of personal control in one's life experience" (p. 19). Burleson, Albrecht and Sarason (1994) qualify social support as giving comforting messages to the person in need. According to Wright (2002) doing so will increase this person's sense of self-esteem and personal strength.

CHAPTER 2

REVIEW OF LITERATURE

Stress

Stress is a fact in most of our everyday lives. At construction sites, the outcomes of stress endured by construction workers have been overlooked in previous studies, especially in regard to stress caused by factors outside of work.

Hudoklin and Rozman (1996) found that three types of stress should be assessed in order to make predictions about human error. Those types include work-related stress (e.g., workload, time pressure), physical environment related stress (e.g., heat, cold, fog, rain, snow, wind), and social stress (e.g., family, human relations). Both authors noted that although occupational and environmental stresses are measurable, social stress is difficult to assess (Hudoklin & Rozman, 1996).

Consequently, it is understandable that most literature on stress investigates the causes, symptoms, perceptions, and consequences of work-related stress (Munro, Rodwell, & Harding, 1998; Tyson, Pongruengphant, & Aggarwal, 2001). There are great similarities between the conceptualization of work-related stress and personal stress. Indeed, one's emotional and physiological reactions to stress are similar, no matter the context (Leonova, 1998; Lazarus, 1966). However, whereas work-related stress refers to the complex, multidimensional effects of professional life on a working person (Leanova, 1998), such as responsibility, role ambiguity, concern for quality (Beehr, Kinh & King, 1990), personal stress reflects life events occurring outside of work demand (e.g., divorce, death in the family, gambling addiction) requiring adaptive behaviors in the form of social readjustments (Bhagat & Allie, 1989).

Although personal stress arising from daily hassles (e.g., one's dog throwing up on the living room rug, traffic jams, being lonely) may seem far less dramatic to some people than would major life changes (e.g., illness, new job), people think, feel, act, react, perceive, and deal with stress events differently from one another. An event may be disregarded by some individuals, but for someone else, it could cause major stress (Lazarus, 1999).

Depending on how people appraise stressful events, continuous preoccupation may result. Maxon (1999) explains that employees under stress often make more mistakes, become disorganized, and stop caring about their work. For example, the United States Army School of Aviation Medicine (1999) reveals that irritability, increase in worrying, and losses of concentration are some of the emotional responses employees enduring stress may suffer. The United State Army School of Aviation medicine also states that employees' cognitive responses to excessive stress typically reflect poor judgment and poor attention. The physical responses to stress include muscle tension, fatigue, shortness of breath, nervousness, sweaty palms, and high blood pressure. Considering all these factors, one may understand what effects a construction worker who suffers from those symptoms may have on team safety.

The Human Resources department of Arizona State University (1999) proposes a checklist focusing specifically on how stress can affect negatively employees' work performance. Managers can use the list to recognize warning signals of employees who may suffer from personal stress in order to prevent a negative impact on tasks and/or teammates. According to this checklist, symptoms of personal stress are noticeable when a worker tends to take more time than usual to perform easy tasks, shows difficulty

recalling details and instructions, makes mistakes due to inattention and poor judgment, takes unnecessary risks, and recklessly uses equipment. From a physiological perspective, Lorenz & Yaffee (1989) found that individuals who have endured intense personal stress often suffer symptoms such as chronic or severe headaches, gastrointestinal disturbance, asthma, and depression. Moreover, Scannell (1995) explains that a worker who endures stress is less alert and more prone to cause on-the-job incidents and injuries, noting specifically that the stress caused by family strife or other forces outside the workplace greatly contributes to the creation of work hazards. As this literature demonstrates, stress, whether generated on the job or in one's personal life, can have accentuated effects on one's capacity to perform essential job tasks.

<div align="center">Emotional Contagion</div>

People who are stressed endure unpleasant feelings. Such feelings often result in one's conscious or unconscious display of emotions (Lazarus, 1999). Some employees will discuss their personal preoccupations and how they feel, while others "keep everything inside." Scholars have labeled the communication of such emotion "emotional contagion." They believe that emotional contagion can be best conceptualized as to "sharing or taking-on the emotion of another person" (Omdahl & O'Donnell, 1999, p. 1352). According to Hatfield, Cacioppo, & Rapson (1994), "Emotional contagion can manifest as responses that are similar (e.g., as when smiles elicit smiles) or as complementary (e.g., when a fist raised in anger causes a timid person to shrink back in fear)" (p. 5). The same authors deduced that happy people are more receptive to others' emotions; therefore they tend to be contaminated often. On the other hand, unhappy

people or depressed people tend to transmit their emotion to those around them (Hatfield, Cacioppo, & Rapson, 1994).

A number of scholars have demonstrated emotional contagion in interpersonal relationships. For example, that stress experienced by one spouse impacts the emotional state of the other spouse (e.g., Stamp, 2002; Westman & Etzion, 1995). Research by Joiner (1994) revealed that symptoms of depression were found in roommates of college students who went through negative life events. From a physiological perspective, Frodi and her colleagues (1978) reported that when angry or sad children were presented to their parents, their parents' diastolic blood pressure rose and their skin conductance increased. Additionally, Jhabvala (1986) illustrates a mother's hesitance to approach her son because she knows he was angry, although he refused to admit it; the mother can feel the emotion of her son. The previous instances of emotional contagion have been illustrated in interpersonal relationships; however, as Bakker, Schaufeli, Sixma, and Bosveld (2001) proved in their study of burnout, emotional contagion is also strong within work teams.

Even though teammates may not be as close to each other as a mother to her son, Totterdell, Kellett, Teuchmann, and Briner (1998) found that each individual in a nine member accounting team accurately rated their teammates' mood as well as the teams' mood as a whole. The accountants were able to do so with each individual, even though not all personal problems were shared within the team. Additionally, a pilot study (Sciboz, 2002) showed that graduate assistant team members' emotions "infected" their teammates despite the graduate assistants' claims that they felt successful at hiding emotions related to personal stress. The cues that helped the interviewees feel the

personal stress endured by others may have been in fact their counterpart's display of negative mood, which according to Totterdell (2001) is exemplified by decreasing helping behaviors, less efficiency in decision making, low cooperation, and the shift of employees' focus of attention away from their tasks. Thus, we may recognize that it is easy to become "infected" by the worries and stress of others.

Given the literature cited above, it is reasonable to conjecture that, in a similar way, construction workers on a team – people who daily interrelate with one another – could affect other members negatively due to their explicit or implicit communication of personal stress. During the time period crewmembers experience such emotional contagion, some or all the members may fail to pay attention on safety issues, thereby increasing the opportunities for health and life threatening events to occur.

Social Support

Empirical evidence in a variety of contexts shows that the communication of social support can be effective in reducing stress of many kinds; however, only a few studies have examined social support within work teams (Bass & Stein, 1997). Pierce, Lakey, Sarason, and Sarason (1997) argue that when people are suffering from stress, parents, partners, spouses, peers, colleagues, team leaders or employers can be a great source of support, which will encourage adaptive coping strategies.

Troster (2001) showed that mothers of visually impaired children gained effective support from their social network in order to relieve stress related to their children's impairment. However, at the same time Troster found that those families rated the availability of social networks lower than the families who had no children with disabilities. Likewise, Troster notes that working people who offer care to chronically ill

or disabled relatives show extreme instances of personal stress that may be curbed by increased social support. In my own experience on worksites I have noticed how workers who were happy and dependable in their way of behaving had a much bigger network ready to offer help than those who appeared less happy and moody from time to time. Since there is a positive correlation between the availability of social support and relief of stress, Troster suggests that when employees in need do not receive social support from their coworkers, employees should be designated by the management to take care of them.

Allen, McManus, and Russell (1999) discovered the importance of social support in a graduate academic setting, noting that "protégés reported a positive relationship between the degree of mentorship provided and the extent to which they believed that their mentor had helped them to cope with stress" (p. 465). After having interviewed 100 employees, Henderson and Argyle (1985) suggested that a high-intimacy relationship with at least one colleague accompanied by low-intimacy but friendly interactions with others helped reduce one's stress.

Lazarus (1999) claims that what matters most is how social support is communicated. In addition, it has been discovered that social support is more effective when it comes from those who are socially similar in values and characteristics, and who are facing or have faced similar events (Dehle, Larsen, Landers, 2001; Sciboz, 2002; Thoits, 1986).

In conclusion, effective communication of social support appears to have a significant impact on how people cope with stress in a variety of situations. Supportiveness is seen as particularly important in the field of construction, because high

demand tasks may be less stressful if fellow-workers communicate social support to them (Munro, Rodwell & Harding, 1998). Therefore, there is a need to find how construction workers perceive social support from their colleagues in regard to the stress they may endure.

<div align="center">High Reliability Teams</div>

The ability to deal productively with stress is a skill needed in most workplaces. However, it is especially important that those in high risk/high stress work situations manage stress effectively. A number of authors have documented the types of skills developed in such situations. For example, Weick and Roberts (1993) have researched high reliability teams on aircraft carriers. They provided insightful answers to the question of why on airplane carriers a million accidents are waiting to happen, but almost none of them do. Both authors deduced that individual characteristics such as heed (dispositions to behave in a way that expectations of others are taken into account), and mind (integration of feelings, thoughtfulness, and willingness) were necessary in situations in which an error-free environment is the norm. In short, in dangerous work settings, workers have to be careful, conscientious, consistent, critical, and attentive in order to fit with an environment requiring heedfulness from each member (Weick & Roberts, 1993).

According to Kontogiannis and Kossiavelou (1999) team members need to share mental models, which rely on the familiarity with the tasks everyone has to perform. After having observed and interviewed high reliability teams practicing in trauma resuscitation, Xiao and Moss (2001) discovered a set of components necessary to keep a team reliable across time. In trauma resuscitation, each professional has to learn and trust

others' roles. Members have to show responsibility, ensure the awareness of one another (e.g., say out loud what procedure they are performing and question each other while operating), and be adaptive (e.g., be able to jump from one task to another).

Weick (1990) argues that in times of disasters or under high stress situations, "pressure leads people to fall back in what they have learned first and most fully" (p. 123). Therefore, companies should make sure that members of each team "over learn" their skills and ways to do the job before being exposed to high-risk situations. For example, at the time of my apprenticeship, I learned about construction and wood technology. I had to practice on prefabricated structures at the workshop for two years before I could start working on the erection of elements. Similarly, in the case of trauma resuscitation, doctors reveal that new qualified members perform only easy tasks. In order to graduate to a more complicated type of function, the new member must first prove trustworthiness performing easy tasks (Xiao & Moss, 2001).

To ameliorate the effects of high-risk situations, Weick (1990) recommends that teams should have each member perform low complexity tasks while working under heavy stress. Additionally, group leaders should update team members regularly, "anticipating the needs of others and offering unrequested information" (Kontogiannis & Kossiavelou, 1999, p. 108). Weick and Roberts (1993) advise that for more effective team performance, as well as safety to teams working in dangerous situations, work-teams should possess a collective mind as well as practice heedful interrelating among co-workers. Furthermore, Weick and Roberts (1993) suggest that in a heedful interrelating atmosphere each member can "read" their colleagues' intentions quickly. As an aviator in their study explained, "there are group actions that are possible only when

each participant has a representation that includes the actions of others and their relations" (p. 363). When interrelating within a team that deteriorates and becomes more primitive, "there is less comprehension of the implications of unfolding events, slower correction of errors, and more opportunities for small errors to combine and amplify" (Weick & Roberts, 1993, p. 371). As Weick and Roberts remind us, it is crucial to be mindful while operating in teams, "because accidents are not just issues of ignorance and cognition, they are issues of inattention and conduct as well" (p. 373).

A construction worksite reflects the coordinated efforts of many workers, who should also be considered high reliability teams. When cranes move synchronously and workers are operating in unison, the tolerance for human error is very low. However, in contrast to many reliability teams, construction workers from different trades have little time to establish the necessary trust before coordinating their effort and energy in order "to maintain as smooth and rapid a production schedule as possible" (Silver, 1986, p. 172). Helander (1991) mentions that when a new building is erected, the work to be done, the environment, and the composition of crews are continually changing. While working with people who are not well known to each other, the construction workers are repetitively exposed to unforeseen and unaccustomed hazards. We can therefore hypothesize that construction workers enduring personal stress in the types of working conditions found in constructions sites pose a great risk to the "high reliability" of their teams.

<div align="center">Construction Work</div>

Construction is a necessary field that contributes greatly to our society (Applebaum, 1999). In most countries around the world, construction is a highly

influential industry, both in terms of employment and economic output (Helander, 1991).

Construction, with a total of 6.7 million wage and salary workers and 1.6 million self-

employed nongovernmental jobs, is one of the largest industries in the United States

(U.S. Bureau of the Census, 2001). It has been predicted that the number of wage and

salary jobs in the construction industry is expected to grow by about 12% through the

year 2010 (U. S. Bureau of Labor Statistics, 2000).

Work in the construction industry is demanding on multiple levels. According to

the *Occupational Outlook Handbook* (2002-03), trades common to the construction

industry, such as carpentry, require individuals to have great manual dexterity, to have

keen eye-hand coordination, be physically fit, and a good sense of balance while working

at great heights. Construction laborers are involved with tasks demanding attention, such

as eliminating possible hazards on worksites (e.g., lead, asbestos, toxic waste), digging

trenches, and setting braces to support the sides of excavations. Construction workers

should also be familiar with others' tasks. They need to carry heavy objects, stoop, kneel,

crouch, or crawl in awkward positions, even at great heights, outdoors and in all weather

conditions.

It has been well documented that construction workers are exposed to one of the

most dangerous occupations (Goldenhar, Moran, & Colligan, 2001; Bureau of labor

Statistics (BLS), 1996; Center to Protect Workers Rights (CPWR), 1997). Applebaum

(1999) explains that construction workers must develop stamina to persevere through

adverse conditions such as "extreme cold, arm-weary shoveling, leg-weary sloshing

through mud, the chilling effect of high winds, and the back straining lifting of heavy

weights" (p. 30).

The U.S. Department of Labor asserts that "construction workers often work with potentially dangerous tools and equipment amidst a clutter of building materials; some work on temporary scaffolding or at great heights and in bad weather" (2002, p. 21). Consequently, they need to be constantly mindful in order to accomplish their work in the art of the trade as well as make the right decisions on how to set the appropriate safety tools according to the task. Hess (2002) claims that human error is the most common cause of hoist and crane accidents. The author illustrates the following situation:

> The hoist operator thought he heard someone tell him to pick up, and he began to lift the load. Within seconds, Marcus's hand was trapped between the product and the railing, crushing his hand and breaking his fingers. In a second hoist-related accident, the consequences were even more severe. An overhead hoist moving along a monorail failed and dropped its load. The load fell on a plant employee walking directly beneath the hoist, killing the employee instantly and launching an investigation that revealed human error as the cause of the fatal accident. (p. 9)

The construction industry in the United States has one of the highest rates of accidents and deaths among all industries (Goldenhar, Moran, & Colligan, 2001; CPWR, 1997). Furthermore, Murie (2002), the Health, Safety and Environment Director of the International Federation of Building and Woodworkers claims that the biggest danger perceived by construction workers is the fear of accidents, most notably the fear of falling.

Among all fatalities in the construction industry, 32.7% are due to falls (U.S. Bureau of the Census, 2000). Internationally, the construction industry appears also to

suffer from similar problems. As Beaudin (2002) observes: "construction workers [in Quebec] make up four to five percent of the workers in the province, but account for 16% of all deadly fatalities" (p. 6). According to Aldred (2000), in Europe construction workers face the highest risk of injury among all fields. In addition, a survey showed that ten EU countries identified stress as being the most important factor in need for preventive action (Aldred, 2000).

In comparison to other types of business, the field of construction does not require a great investment to create one's own company (Applebaum, 1999). Consequently, the number of contractors increases, which makes this type of business very competitive, with high failure rates (Applebaum, 1999). Thus, in addition to the difficulties involved with the construction workers' tasks, contractors exercise pressure on their workers to complete projects on time or as rapidly as possible. As Applebaum (1999) notes, construction workers are constantly reminded by general contractors, by their own boss or supervisors that the target date must be met. Construction workers are aware of the work-related stress that their teammates are enduring, but not necessarily about their personal stress.

Since the majority of workers on construction sites are men (Applebaum, 1999), it is necessary to comment on the socialization of workers in male dominated organizations. Even today, openness of communication and sharing of emotions between male colleagues or supervisors is taboo in many organizations. According to Gibson and Papa (2000), new workers soon learn what is acceptable, what is normal, and how they should communicate among colleagues. For instance, in Gibson and Papa's study, although factory employees knew their work was hard, they were told that they had to be real men

in order to make it (Gibson & Papa, 2000). Hence, one may understand that worries and preoccupation may not be shared among workers. For example, a respondent in Gibson and Papa's study explained that one day, he had the flu and asked to go home. An older employee came and told him "to tough it out." The younger employee stayed at work, and had a bucket next to him in order to throw up.

Brooks (1998) reveals that interpersonal conflicts with loved ones, rejection, failure experiences, and frustrations with not meeting expectations of life can lead men to feel wounded. However, due to their socialization, men often have difficulty verbalizing their negative experiences (Rabinowitz & Cochran, 2002). According to the same authors, men within a workteam may hesitate to share their personal concerns due to feelings of competitiveness among them.

Finally, Rabinowitz and Cochran (2002) point out that when a man talks about personal issues, his male teammates may feel uncomfortable providing unconditional support, especially when this person is viewed as negative or annoying. This socialization process may be detrimental for members of construction crews who, although they may

stress as a key `factor affecting construction workers' safety (e.g., Janssen, Bakker, & Jong, 2001).

Summary

We should understand from this review of the literature that construction workers who work in teams and perform dangerous tasks do have bad days. In addition to their work stress they – some more than others – endure stress coming from outside the worksite. The literature on emotional contagion suggests that construction workers may explicitly or implicitly communicate their stress to coworkers, thus inadvertently affecting coworkers' job performance and safety. Further, the literature shows that although social support is a key factor in the way workers in different settings deal with work related stress, the level of social support meant to curb personal stress may be lacking in male dominated environments. This may also contribute to a stressed worker's inability to be a productive member of the high reliability teams so crucial given the dangers inherent in the construction industry. Although this literature review demonstrates the importance of the proactive management of personal stress in the construction industry, there is little or no existing literature that focuses on this topic. Therefore this study will address this phenomenon by asking with the following research questions:

RQ1: Do construction workers communicate personal stress to other co-workers?

RQ2: If so, how do they communicate such personal stress?

RQ3: How does the presence of a personally stressed coworker affect other construction workers' perception of safety and work productivity?

RQ4: Do construction workers experiencing personal stress believe their coworkers communicate social support to them?

RQ5: If so, in what ways do construction workers perceive their coworkers communicate social support to them?

RQ6: Is there a relationship between how the team communicates tightness or closeness and the construction worker's perception of colleague support in times of personal stress?

CHAPTER 3

RESEARCH PROCEDURES

Interviews

In order to gain insights regarding how construction workers communicate instances of personal stress they may endure on sites and how they perceive personal stress affecting them and others, this investigation follows qualitative research methods. In particular, data was gathered by interviewing only professionals working in the field of construction. As Kvale (1996) notes, conducting interviews is a valuable way to seek participants' perspectives of complex phenomena. According to Lindlof and Taylor (2002), interviews are the "digging tool" of social science.

Lazarus (1999) postulates that in researching about stress, collecting and analyzing narratives from participants is a more useful approach to understanding than traditional psychological research, because "it is possible to come closer to the natural ways in which [individuals] construct meaning from [their] life experiences" (p. 214). Participants will share their stories. Humans use stories to persuade, reinforce, define and educate (Herndon & Kreps, 2001). Stories act as a meta-code transmitting shared meanings (White, 1981). For example, Gibson and Papa (2000) refer to interviewing as a method that proved to be particularly strong for gathering the rich conversations and stories of workers in attempting to paint a larger picture of their lives. Therefore such a method should provide an understanding of how construction workers themselves make sense of the topic under investigation.

Participant Recruitment

The participants of this investigation were selected from a population that was likely to provide the needed evidence. Merriam and Simpson (1995) state that the selection of participants for investigations such as this is done purposefully, not randomly; that is, a particular group of people, problem, or work environment is selected because they exhibit characteristics of interest to the researcher. The informants interviewed for this project should not be viewed as a representation of all construction workers performing in high risk projects. The selection criteria were simple: the participants had to be working in construction sites, especially at heights, on either the structuring or the roofing parts of buildings. Informants who work on excavations, demolitions, as well as on bridge structures were also accepted.

My first attempt at selecting participants involved sending twenty emails and ten letters to local construction companies. Only one company replied. The respondent acknowledged that, although he was very interested, none of his workers would have the time to participate. At that point in the recruitment process, I attempted a different strategy. I sent a mass email to nearly 200 of my former students (see Appendix A). I hoped that some of them would provide me with names and addresses of friends and/or relatives who are construction workers. A few former students replied to my email, providing me with the addresses of five construction workers I could contact. All five agreed to participate in my study. One of my committee members, Dr. Misiewicz, suggested that I visit apprenticeship centers, where I found four ironworkers. I recruited two other informants by visiting various construction sites. I found the last informant by

browsing the internet, using the search engine known as google.com and typing key words such as "construction worker" and "Indiana."

<div align="center">Interview Protocol</div>

The interview protocol was designed to gather the maximum amount of data in order to answer my research questions. Strauss and Corbin (1998) offer suggestions for the types of questions that may be asked throughout the course of a research study, such as sensitizing questions that ask about process, connection among and between concepts, and practical and structural questions providing direction in the development of a theory.

The interview questions are clustered into groups designed to elicit participants' perception about personal stress. All questions have been generated in accordance with the four constructs discussed in the review of literature: Personal Stress, Emotional Contagion, High Risk Teams, and Social Support. These questions refer to informants' current attitudes and perceptions relative to those constructs, and seek to explain the context of construction workers experiencing personal stress. More specifically, these questions focus on discovering how construction workers communicate their own personal stress to each other, how they respond to others' communication of personal stress, how the team communicates tightness/closeness, and construction workers' perception of colleague support in times of personal stress (See Appendix B).

<div align="center">Interview Procedures</div>

The data were collected via interviews, which followed the tenets of grounded theory procedures (Strauss & Corbin, 1998). The 12 interviews were semi-structured and open-ended, lasting from 45 to 75 minutes. All informants were interviewed in a Midwestern state; half of them work and live in a city and the other half work and live in

suburban and farming areas. Although one of the informants followed the same interview

protocol, he chose to answer the questions via email. Two-thirds of the informants were

non-union workers. The data were transcribed as soon as they were collected as

recommended by Strauss & Corbin (1998). The research was during between March and

April 2003. None of the questions were changed or modified; only probing questions

differed from one interview to another. According to Miles and Huberman (1994), having

fixed interview guides increases the possibility for making detailed comparisons between

the informants' answers.

<center>Data Analysis</center>

The analysis of the data was carried out through a process consistent with

grounded theory (Strauss & Corbin, 1990). Once the audiotapes had been transcribed into

115 single-spaced pages of transcriptions, I carefully and repeatedly combed through

these transcriptions to build a solid understanding of the researched phenomena.

Before I began categorizing, I already had a "start list" of codes based on different

constructs discussed in the review of literature, which were used to design the research questions

(Miles & Huberman, 1994). I then followed by open-coding the data, segmenting and re-

segmenting information into themes (Strauss & Corbin, 1990). I grouped items varying in

length from one sentence to one paragraph according to defined themes (e.g., seeking

answers related to the theme *time pressure*) and labeled them as a common link (e.g., an

extract of the interview from an informant who said "you don't have time to use safety

equipment, time is money. . ." was linked with an extract of the interview from another

informant who supported the phenomena by saying "you may not have the time to

anticipate about proper safety usage. . ."). Strauss and Corbin (1998) suggest that "data

are broken down into discrete incidents, ideas, events, and acts and are given a name that represents or stands for these" (p. 105).

The next step in data analysis is called axial coding, which refers to organizing the information in new ways to explore context, strategies, causal and intervening conditions, and consequences for the phenomenon (e.g., the themes *time pressure, danger* and *safety* have been found to be interdependent) (Strauss & Corbin, 1998). This analysis is termed "axial" due to the coding occurring around the axis of a category by linking related themes at the level of shared properties and dimensions. The goal of axial coding is to systematically develop and relate themes, and integrate them into a final category (e.g., *Danger*, *Safety and Time Pressure* became a final category) (Strauss & Corbin, 1998).

Along with presenting predefined and emerging categories, I have grounded my analysis in the literature explained in chapter three. Phenomena derived from literature provide a source for making systematic comparisons with the data. Moreover, Strauss and Corbin (1998) suggest that not only literature, but also personal experiences enhance sensitivity to make sense out of the data. Both types of sources have used to stimulate questions during the analytic process in order to confirm findings and/or to highlight inconsistencies and gaps in literature.

CHAPTER 4

ANALYSIS

This chapter presents the data collected from interviews with 12 construction

workers. The data have been analyzed and organized according to the logic suggested by

grounded theory (Strauss & Corbin, 1990). From the answers provided by the

interviewees, the data has been distributed into seven final categories. Each category

represents a synthesis of related themes. Stories and/or statements extracted from the data

will illustrate claims made in each category. I have chosen not only to compile

similarities, but also differences in opinions and perspectives provided by the informants

with respect to the content of each category.

Environmental and Social Predispositions Affecting Team Communication

In this section I will discuss two categories of conditions that affect construction

workers' communication about personal stress. As the subtitle suggests, the first category

describes the danger and time pressure that are inherent in most construction sites. The

second category describes the relationship between the amount of perceived danger at a

worksite and the level of conversation in which the workers engage.

Danger, Safety and Time Pressure

As presented in the review of literature, danger, safety and time pressure reflect

an important aspect of worksite culture. In this section, the reader will understand how

those factors interact with one another on a construction site, given contractors'demands

to build a construction within a limited amount of time. As a result, the reader will

discover why personal stress is less likely to be brought up or discussed on construction

sites.

When time pressure gets harsher, the danger increases and the usage of safety
equipment decreases. The relationship between danger, safety, and time pressure can be
best illustrated with the following stories. [1]Chad, 47 years old, who worked for more than
12 years as a high rise structural ironworker shared:

> You start a job that you are already days behind, they ask you to do something,
>
> and tell you [that you] are four days behind and we need you to get it done as
>
> soon as possible, to me they are asking me to, in one sense, to cheat.

Another informant, Dominic, who is 21 and has worked for three years in his uncle's
company as a roofing laborer, told about his experience of continually having to work
under great time pressure. Due to the time frame set up by the boss, [2]he and his
coworkers were forced to take short cuts which hindered them from using safety
equipment, "We took a lot of shortcuts; I mean nobody wore safety glasses, nobody wore
harnesses . . . if you want to be safe, it's all up to you." In addition, Dominic shared a
story about how his uncle took the safety off of a nail gun in order to increase the speed
while working on ceilings, and once by accident, shot a nail into his own leg.

Other informants stressed the importance of feeling safe on sites, yet
acknowledged that the "safety ideal" was difficult to uphold, given time pressure. For
example, Marcus, 33, a structural ironworker who has performed on high rise projects
during the last five years, provided an example of how time pressure affected his decision
making process when using safety equipment:

> Everyday, as soon as I get into the site, I check my surroundings . . . make sure I
>
> will be using the proper protection, before starting to work. . . . [because later]
>
> you may not have the time to anticipate about proper safety usage, because you

have to get the job done, so you may instead of wearing a harness go up there and put a beam together, and try to hurry up, and do it, so, not much time to think about safety.

Jake who has worked for more than two years on middle sized buildings as a wood-framing laborer remarked, "any time you hurry on a roof you put yourself at risk of falling." Chad's statement testifies to the high level of danger associated with high-rise ironworkers' performance where time pressure and anxiety caused by fear of heights can create deadly scenarios:

The ironworkers are always at the top . . . they . . . get up there on six inch beams and walk on top of them. . . . [I]t happens from time to time that ironworkers get "frozen" by a sudden fear, they stop walking, get down and crawl or "coon" on the beams to get to the other side.

Time pressure also seems to be a great issue for Brad, 27 years old, who in contrast to the previous informants, is in the position of a boss:

You don't have time to use them [different types of safety equipment], time is money. . . . but if you want us to . . . we will not be doing it willingly, because things have to get done on timely basis. . . . if you just make a safer environment [work together in a well coordinated way] you don't have to worry about all [that] safety equipment.

From the statements made by the construction workers, we can conclude their acknowledgement of time pressures they endure, which in turn, affect their safety consciousness and create dangerous situations. This leaves us to question why construction workers put their lives in danger and comply with their bosses' expectations.

Jared, 46 years old, who worked as a carpenter for 20 years and as a supervisor for state funded sites for the last eight years, shared his views, which may help us to understand possible reasons why construction workers are willing to endure such high risk without complaining:

> A lot of time we do not need that big of a crew anymore, so maybe you got 15 guys working, and they know that five are gonna go, that may be a lot of personal stress, wondering if they're gonna be laid off, and then they have to find another job or go on unemployment, and the house payment is due, that would cause a lot of stress like any job would do, except that happens a lot more in construction.

As the accounts in this section reflect, the inherently dangerous working conditions on construction sites, combined with the pressures to meet project deadlines in short amounts of time contribute to a work culture that may hinder crewmembers' wishes to discuss personal stress issues.

Light versus Heavy Talks

As the following accounts reveal, the higher above the ground the construction workers perform, the more likely it is that conversation among coworkers is at a superficial level, with virtually no conversation about personal matters. This fairly "light" level of conversation may be a factor in the way construction workers performing at such heights respond to coworkers' personal stress.

Adam, a 30 year old high rise ironworker who specializes in the construction of metal decks on high rise buildings and bridges stated, "[w]e talk like about horse play, you know, during our lunch break, you know nothing serious, eh, we may talk about the news, what is messy on the news, or this guy killing this guy on the East side." In the

same light, another ironworker, Bob, 35 years old, who during the last six years has been

working on bending concrete-reinforcement rods, hanging riggings, and welding

structures on high rise buildings, explained about the topics of conversations he had with

his coworkers, "it might be a girl going down the road or a bird flying by, and then for

fifteen minutes we'll talk about birds." Marcus, an ironworker who also performs at great

that construction workers on such sites talked about the "relationships they are having at home or at the bar, or maybe their toys such as trucks, cars, motorcycles and so forth."

The difference in the way high rise ironworkers and small to middle sized construction workers talk to one another on a daily basis should present clues to the reader about how deep [heavy] or superficial [light] their communication might be during times in which they might share their personal problems and/or offer social support. Additionally, time pressure, in connection with less than optimal safety practices and high levels of danger, are factors which best reflect life on most construction worksites. As evidenced in this section, both categories, "Danger, Safety and Time Pressure" and "Light versus Heavy Conversations" set the stage for the ways in which personal stress is communicated among workers at such sites.

<div align="center">Communication of Personal Stress</div>

The themes in this section seek to address Research Question #1: "Do construction workers communicate personal stress to other coworkers?" and Research Question #2: "If so, how do they communicate their personal stress?" The evidence presented here suggests that although some respondents claim that they do not communicate their personal stress to coworkers, most respondents believe that they do communicate their personal stress. The evidence also reveals the various ways in which respondents report that they communicate stress to their coworkers.

Out of the twelve informants, there were three who claimed that they were able to hide their emotions from their coworkers while enduring personal stress. However, consistent with the literature on emotional contagion, nine informants affirmed that they communicated their personal stress to their coworkers in some form or fashion.

Interestingly, only one out of the nine, Fred, 44 years old, who has been working on high-rise buildings for the last twenty years, explained that he communicated personal stress directly and verbally. He revealed that "a lot of time when I'm preoccupied I'll verbalize it, eh . . . I would get mad and scream sometime you know."

The instances of personal stress endured by the eight other informants are rather indirectly communicated – primarily via nonverbal cues – which are described by Corey, who is 60 years old and has worked 51 years on middle-sized construction and excavation sites. He characterized himself as the type of man that, "shows in [his] voice; it gets a lot stronger, a lot rougher, a lot more forceful."

Interestingly, all twelve informants responded affirmatively to the question about whether other coworkers communicate their own personal preoccupations to others at work. However, only two informants (Marcus and Brad) reported that their colleagues shared their worries in a direct and verbal way. Marcus explained:

> They get grouchy, sometimes they get to work and the first thing they say is "I can't work late because I had a big argument with my wife, me and my wife are getting into a divorce" or so. So, I already know that day is going to be a long day for him.

Similarly, Brad, 27, a young boss of a small construction company, talked about his employees who verbalize their personal stress, "[t]hey usually tell you that they are stressed, and then usually later on it comes out that it is about their wives, their kids or their car's broken down, something like that."

Although two informants reported instances in which their coworkers communicated personal stress in direct and verbal ways, all other informants reported

that their coworkers communicated personal stress in less direct, primarily nonverbal ways. For most of the informants, others' preoccupations are noticeable from the time their personally stressed coworker steps on the site. For instance, Corey, who also owned a small construction company for 15 years, observed that if one of his employees "got problems [he would] notice already in the morning when he comes in. . . . [T]he stress that you are feeling will carry over [into] your work; that is human nature."

According to some respondents, two types of behaviors appeared to characterize how construction workers respond to the personal stress they endure. Interestingly, these behaviors were opposites of each other. Jared summarized those behaviors as being "either extra quiet or extra angry." Many informants described their colleagues' behavior by using word combinations such as "short tempered," "get mad," "being loud for no reasons," or "throw things around." Dominic discussed the behavior his uncle [boss] displays when personal things preoccupy his mind by noting that he "gets very upset and very stressed, he picks things up, he throws them, he lets you know he is stressed, I have seen him picking a chop saw and throw it like 30 feet." Additionally, George saw occurrences of similar behaviors displayed by preoccupied construction workers toward their colleagues. "[T]hey'll start to get on you for stupid reasons, they do not feel like working any longer." Max, 26 years old, who is both boss and employee in a company of four, recalled how sometimes his coworkers "came to work stressed from home life, they were usually more grumpy, kinda short tempered. . . . [Y]ou can notice someone who would get mad, but [this coworker] would not react that way usually."

On the contrary, Bob elaborated on the sense of quietness displayed by his colleagues undergoing personal stress:

It is human nature. I notice changes in people, in their attitudes. People usually

work in routines. When construction workers find a work pattern, they usually

stick with it, and when they deviate, then you know there is something wrong, just

like when you look at little kids, they are loud and then they get quiet, it is

noticeable; it is the same with adults.

Chad provided another example of his coworkers' "quiet response" to personal stress and in so doing, he also revealed that personally stressed workers are less mindful of their tasks. According to him, personally stressed workers "are doing things out of the normal, they are doing things the wrong way, because they are not thinking, they are thinking, but they are not thinking about their job, things are not automatic anymore." When Chad noticed workers performing in an unusual way, he "asked them why they are doing [their work] this way. . . . and they might say: 'don't know,' and when they say: 'don't know,' it's because there is something going on with their lives."

According to the reports of most of these respondents, construction workers do communicate their personal stress. However, in most cases, construction workers choose not to communicate their worries directly. Rather, the communication of personal stress tends to occur in a less direct, often nonverbal manner, which other crewmembers claim to recognize unmistakably. These findings substantiate the literature on emotional contagion (Sciboz, 2002; Totterdell, Kellett, Teuchmann, & Briner, 1998; Totterdell, 2001). Indeed, despite the fact that some workers believe they are successful in hiding any personal stress they might endure when on the site, their colleagues are aware of the changes in their attitudes and behaviors betrayed via nonverbal cues. Further explanations of this phenomenon will be revealed within the next section.

Communication of Construction Workers' Responses to Colleagues' Personal Stress

I have demonstrated earlier that there are construction workers who endure personal stress. Further, I have demonstrated that such personal stress is often communicated to others on the worksite in one form or another. In this section, I will reveal the different ways construction workers communicate their response to others' stress.

When it is time to deal with a personally stressed coworker, humor is often used by crewmembers as a tactic to help alleviate the stress of their coworkers, no matter at which height in the building the crews are performing. For example, George explained that when a colleague seems to be personally preoccupied, the coworkers would put somebody else down to make the stressed colleague laugh ("[h]ey! Look at Bob over there, he gets his pants down and shows his crack to the moon"). By the same token, Adam, who is a high rise worker, shared that in his crew "we don't really chat a lot, we just kinda joke, cut off, especially when one of us has a bad day." Dominic who is a young laborer performing roofing work also provided a similar view, "they would make fun of you if you feel down, they laugh at you, but then they'll laugh with you."

Brad, who is a boss, has to confront from time to time an employee whose personal preoccupations are preventing him from being a productive worker. He shared that "humor is really the only way to keep people [from taking his reproach] personally." On such occasions, Brad approaches the worker and tells him, "[l]ook there, it is taking you three hours to put up the wall, [you need to concentrate]." Brad noted that, "while joking he understands [that I am not mad at him, however] that he needs to pick up the pace a little bit." From a different perspective, when he is preoccupied, Marcus dislikes

his colleagues using their "humor therapy" on him, while saying that "[i]f I have a problem, they need to know that I don't want them to tease me that day."

"Being sent home for a couple days," appears to be another common strategy used to deal with a preoccupied worker when "humor therapy" has failed. Bosses, foremen and even construction workers themselves avoid discussing or being involved with a preoccupied colleague by sending him home. Marcus described such an instance. "[d]epending on how bad the problem is, the foreman may say, "just go home, go take care of your business or problems, come back tomorrow." Another informant, George recalled that his boss said to "take one day off, go home now, take care of your business, come to work tomorrow" when one of his coworkers was under personal stress. From his perspective as a boss, Brad also sees "a trip home" as a way to deal with worried employees. To one of his workers who was badly preoccupied at work because of a fight he had with his wife, Brad said, "just go home, buy her some flowers or something, you'll be alright."

The data from the previous paragraphs illustrate tactics used by construction workers to deal with colleagues who endure personal stress. The following experiences shared by most of the informants will contribute to the understanding of this phenomenon, as well as to answer Research Question # 3: "How does the presence of a personally stressed colleague affect construction workers' perception of safety and work productivity?" Consistent with the review of literature, informants emphasized that when a construction worker performs while enduring stress, the crew will be less safe and the quality of work will decrease. For example, George shared an instance regarding how the

personal stress of a colleague might have negative repercussions on the performance of the team:

> I know that things are not going right, if somebody is personally stressed, that ehm, if I know things are not going right, you know, that makes me mad, because I like work to be done, good quality, and if somebody is having a bad day and is stressed, they don't really care about their work, it's going to be crappy, it's gonna affect, you know, our boss and our company as a whole, you know.

Other informants also articulated their beliefs that being personally stressed increases the possibilities of hazards, which makes the site less safe for the whole crew. Chad stated that a preoccupied coworker on a site "is asking for accidents." In Brad's opinion, "a worried coworker can cause another person to be very severely injured, if not killed." A personally preoccupied colleague is basically perceived by other crewmembers as very dangerous. From his own experience, Marcus explained:

> If I know someone is having a bad day, you know, I would not have that person as a work partner that day, no, no, no. I'll say to the foreman 'I am not gonna work with that guy today, because he is gonna hurt me.'

Finally, Corey compared a personally stressed coworker with "the weakest link of the chain" who's "gonna mess up the whole job, mess up the whole company, someone may get hurt on the job." There is great evidence that personal stress is contagious. It seems that as soon as a coworker behaves or communicates slightly differently than usual, construction workers will react to such instances. In case humor does not seem bring the personally stressed worker to his "normal self," he will be sent home to make sure that the work quality and team safety will not be affected.

The Communication of Social Support

In the following section I will address Research Question # 4: "Do construction workers experiencing personal stress believe their coworkers communicate social support to them?" and Research Question # 5: "If so, in what ways do construction workers perceive their coworkers communicate social support to them?"

As he revealed how he and other construction workers communicated social support to their coworkers who were experiencing personal stress, Brad was highly amused. Not only did he respond that he himself did not communicate his own personal stress to his coworkers, he also demonstrated how taboo it is for a man to show his preoccupations for any personal problem he might have. As Brad laughingly responded, "if there is something that upsets me in my personal life, you may tell them about it or something and they are like, 'so? Deal with it, who cares?!'"

Asking his coworkers for help regarding personal stress also appeared to be unpleasant for Fred. This high rise ironworker formulated his thoughts as follows: "If it is job related, then you know I have no problem to voice my opinion; if it is a personal thing, then I've got enough friends and family I can talk to."

As the following accounts reveal however, many informants perceive that social support is available on the construction site. However, they inadvertently divulge that such support tends to be fairly superficial. For example, Adam remembered the time he had personal problems:

> I'll tell you what, I went through a divorce last year, and everybody at the
> company and iron school supported me. We are brother ironworkers, we all stick

together, I told them, and even if they didn't want to hear about it, I told them, so

you know, everybody was pretty supportive about it.

Further, Adam described how his fellow ironworkers communicate support to one

another when they endure personal stress, emphasizing the importance of positive

thinking by saying, "we share our ups and downs, we get our positive outlook on

everything, I mean we don't ever try to think about negative stuff, there is no reason for

it." Indirectly, although the account is positively framed, Adam reveals the coworkers'

desire to avoid discussions of unpleasant topics.

Marcus, who is a high-rise structural ironworker, revealed that while the

communication of social support among high-rise workers exists, it does not alleviate

stress:

As far as with my coworkers, we don't find conclusions to the problems, like my

kids' being bad, we're gonna talk about it, but that is not gonna resolve it . . . then

we get back to work, but that does not really relieve my stress.

When asked, what was the most effective support he received from his colleagues

when enduring personal stress, Bob answered, "when my wife lost our baby. . . . they

[colleague- high rise workers] told me, 'you'll be alright.'" As these accounts illustrate,

no matter how serious the source of personal preoccupations is, colleagues seem to "cast

out" others' preoccupations by communicating quick messages such as "you will be

alright" or "come on, you are stronger than that!" In addition to reporting that social

support for personally stressed colleagues on the worksite is often communicated via

"quick messages," informants also reveal that social support is communicated in "less

nurturing" ways, including teasing. For example, Bob explained:

It [communication of support] might not be in that normal person's way, I mean, rod busters are kind of an odd breed, well you would not get the same support you are getting from your mom or your wife. . . . you would still get support from them [coworkers], but it would not be direct, you would still get, if you like better words, make fun of or whatever, but, that is just part of it, they may leave you alone let you get rest, it is not a support that someone up the street would understand. . . . it is due to being manly, we just don't come out and give the guy a hug, you know what I mean?

Employed as a state building inspector for eight years, and having worked with both high rise workers and with workers performing on small to middle sized buildings, Chad has acquired enough experience to be able to differentiate between the construction workers with regard to their ways of communicating support. According to Chad, the chance of receiving support for personal stress from colleague high-rise ironworkers is low. "They [high-rise ironworkers] call you, you may have heard that word, they call you 'candy ass.' 'You, candy ass, you do not need any help, you need to get a new job.' They call you derogatory names." On the other hand, Chad stated that crew members who work on small to middle sized buildings are likely to provide more social support, "[i]f they are your really good friends, they may want to take you to the tavern to help to drink away your blues, or they figure what might be a way to get away whatever you are feeling."

Jared's professional background consisted of working on small and middle sized constructions. In his opinion "construction workers on the outside appear to be hardcore, rough guys, you know, for the most part they are caring and sensitive individuals . . .

most workers, if they understand it, you've got a problem or are going through a rough time, they will try to help if they can."

Similar to previous discussion, the data in this section suggest that the less danger is involved on sites, the more likely construction workers will be to empathize with a personally stressed coworker and be willing to communicate social support to him. However, the data also show that such support does not go further than helping the individual to forget his personal stress for a few hours, providing him with a "positive outlook," or "teasing him."

Literature on social support reveals that when someone is enduring personal troubles, an important part of communicating social support is to take the time "to convey an understanding for what another is feeling" (Wright, 2002, p. 197). However, data presented here suggest that high-rise workers appear to be superficial in their delivery of social support to their colleagues. As I discussed previously, particular conditions of the construction site, including time pressure, safety issues and danger, as well as particular forms of masculine socialization (which I will elaborate upon a later section) help explain the apparent deficiency on social support among construction workers. Nonetheless, it seems that even short statements of social support may be perceived as effective by construction workers because they may perceive the source of such statements as credible (either because the source of social support was similar to them, and/or because the source had endured a similar personal crisis).

Team Tightness / Socio-Emotional Closeness

In this section, data reflecting informants' perceptions about how well they are "connected" within their crews will be discussed. The interview questions related to team

tightness were based on the review of literature, which explained the phenomenon of highly coordinated teams. However, some of the informants interpreted the questions about team tightness as asking about the socio-emotional closeness of construction workers within a crew. Nevertheless, insights related to the informants' conceptualization of team tightness are useful for helping us to address Research Question # 6: "Is there a relationship between how the team communicates tightness/closeness and the construction workers' perception of colleague support in times of personal stress?"

While describing the socio-emotional closeness within crews, informants used the metaphor of "family," often extending the metaphor by comparing coworkers to "brothers." For instance, Corey, who mainly worked on small to middle sized buildings, stated that within his team, "you care about others as you would members in a family." Marcus, who works on high rise construction sites, noted "[me], being an ironworker, I figured that we are all in a brotherhood." Dominic expressed his view on the environment in which he used to work in the following way:

> It is more like a family atmosphere, it was like a big family, I was like the younger brother, it's like you pick on your younger brother. If I had that look on my face that I was stressed, that I was upset, they did it more, because it's like, I guess when your little brother goes up and cries, you go pick on him or you do it more.

Bob also relied on the family metaphor to reveal the emotional connection and solidarity he felt within his team:

You find yourself saying the same things, you know, someone like your brothers, when someone yell[s] at your brothers, you don't like them. . . . no one yells at us, the ironworkers, our gang.

Although he did not use the family metaphor, Adam nevertheless pointed out the emotional closeness that he believed exists within his work group, observing, "I think the group of guys I work with, they would probably [give me the shirt off their backs], just as I would give the shirt off my back for any of them, so I mean we are that close."

Each informant stressed the necessity of connection and trust within the crew while performing different tasks, whether on high rise or small to middle sized constructions. For instance, Fred said that, "you kind of bond with them, because you have to trust them, they have to trust you," especially when the tasks are complicated and need to be performed on the side of high-rise structures. In addition, George explained that while tearing down a building, "we have to be highly connected, because you have to rely a lot of time on everybody to be doing different things, `cause a lot of stuff we do is not a 'one man' processes, it requires two or three guys."

Furthermore, Bob who is a high rise worker used the description of "pack monkeys' social behavior" to demonstrate the established coordination and interdependence within the crew he is working in:

You do stuff and you know what that guy is gonna do, you don't have to tell, you just know, like pack monkeys. You know what the head monkey is gonna do, and look down that line what your job is, and you do not have to tell them every time. You've never seen monkeys in the jungle? You don't have to tell them what to do, they know what is expected and they do it.

Chad who worked for many years on high rise as well as small to middle sized buildings, elaborated on different degrees of tightness established within a crew among construction trades. Chad's observations are consistent with the existing literature on high reliability teams:

> The closeness of the coworkers usually went with an amount of danger, the high rise workers being the closest, they usually know that if one screws up, it can mean their death, or others' death, and this is real strange, ironworkers were very close, but in between carpenters [who work at lower levels of the buildings] a lot of times were not that close, ehh, and a lot of finish trades on the inside, they were not that close, part of that was because they rotate out so quickly. . . . eeeh, the ironworkers [high rise workers] who stayed together longer usually had the best bond together.

In fact, all interviewed high rise ironworkers explicitly drew attention to the years (at least three) spent together working within the same group and to their strong commitment they have to the group. For example, high rise worker Adam reflected on the amount of time he spent with his work crew during the last three years, which was "from 6:00 in the morning to 2:30 in the afternoon, so you know of course we are around eight hours a day, five to six days a week, you know when work is real heavy, like it's gonna be this year, I mean, [we're] gonna be together seven days a week, ten hours a day at times." Fred, who is a high rise worker and also works long hours within the same crew since the last three years, affirmed that within his team, "you are on a somewhat friendship basis, and eh, I'd like to think that anyone that is your friend is more likely to help you keep safe [especially when we have to work under tough conditions]. Similarly,

Marcus, who is a structural high rise worker, said that "when I am with my coworkers I feel as close as I would in a team of friends, eh, we watch out for [each other], depending where we are working, [we tell each other to] watch out for holes, openings, and things like that, we pretty much take care of each other."

According to some participants, the commitment and solidarity experienced among high rise construction workers contrast strongly with that found among those working in less dangerous trades (performing at lesser heights). For examples, as the reader might recall from the first section, Jared, who was a carpenter for 20 years prior to becoming a superintendent, pointed to the problem of *transit workers* who would not stay long enough within a same crew to build rapport with other members. Regarding the occurrence of this phenomenon, Jared claimed that "not even one third that you worked with on the last job will you be working with now." In the same light, Corey, who used to have 17 employees working for him on small to middle sized constructions, mentioned a waiting list of 124 construction workers whom he could call any time if needed.

However, despite the "quick turnover" of workers on small to middle sized construction sites, Jared observed that "close to ground level" workers often performed more routine jobs. In Jared's view, these working conditions made it more likely that the construction workers could chat with each other, learn more about each other's personal lives, and therefore provide each other with more social support in times of personal stress. George said that when he and his partner Rick are fixing plywood on floors "you know, we mess around, [we] kinda have fun at work." George further explained that the members of his team would not only laugh, but even cry together, "I mean hey, if it

comes down to it, we'll probably cry together." Dominic who similar to George and Jared worked on middle sized types of buildings shared:

> We were very close, like every Friday night we go play cards together, so we had our bounds, we had connections, and it was really, we knew like everybody, because in the workplace you talk about everything, we talk about family life, we talk about friends, we talk about problems.

In sum, when the danger level as well as the height of the construction goes up, the construction workers are more likely to identify themselves as tightly coupled with the others in group with which they are working. On the other hand, despite working conditions that allow construction workers to "get to know each other" personally, the relatively short tenure of construction workers in less dangerous trades, coupled with less need to be vigilant about safety issues, may contribute to less tight teams on small to middle sized construction sites. However, when considering the findings from the previous section reflecting that when more danger is involved, less social support is communicated, an inverse relationship between team tightness and the social support communicated for those who are experiencing personal stress within a team can be observed. In fact, the closer construction workers *perceive* to be with their colleagues, both in terms of team tightness and socio-emotional closeness, the less support is delivered.

One may understand this phenomenon by looking at the type of tasks and working conditions high rise workers experience contrary to workers performing closer to the ground. Don, an instructor for apprentice ironworkers, explained that at great heights not only there is more danger involved, but also many duties require special skills and tight

cooperation between workers. In short, working at great heights is so intense and demands so much concentration, that there is no time left for the communication of social support to personally stressed coworkers (only task related communication is possible).

In order to understand more clearly the reported relationship between how construction workers communicate tightness/closeness and their perception of colleague support in times of personal stress, we need to look not only at the extreme working conditions they endure, but also at the entrenched "machismo phenomenon" within construction workers' culture.

<div align="center">Machismo / Peer Pressure</div>

The *machismo phenomenon* reflects a particular "set of culturally embedded standards of appropriate masculine behaviors" (Wester & Vogel, 2002, p. 371). According to these authors "machos" have been indoctrinated into a "strict code of masculinity," by having internalized characteristics such as physical strength, independence, achievement, suppression of emotions, aggression, and avoidance of feminine characteristics (2002). This conceptualization of machismo seems to contribute to the understanding how some construction workers communicate their own personal stress, as well as how they deliver social support to others within their work teams.

For example Chad, who inspected high-rise ironworkers' performances for years, and therefore had the chance to observe the way they communicated toward one another, confirmed that hyper macho behavior is simply an accepted part of ironworkers' culture:

> I used to work on the steel, structure steel, high rise; I may never give a guy trust, because he is just careless, he is one of the ironworkers, who is out there to be macho, the guy with his Harley and his tattoos and so forth, and [some of them

are] out there for that reason, but you can't fire everybody for that, you put up with them."

In addition, macho behaviors have been pointed out as one of the reasons fatalities occur on worksites. In fact, out of the six accidents reported by the informants, three were related to construction workers acting in such ways, including the following two fatalities described by Chad. The first victim was a young high rise ironworker who after having been challenged by his foreman to climb an unprotected corner column without using a harness or ladder "fell 27 floors down to the dirt." Chad further noted that the high rise worker "did not die right away either, it was not pretty; he was 27 years old and had three kids." While commenting on this case, Chad's words were, "he did it to himself. . . . the problem is the attitude that there is in such constructions: 'it's a manly job, [that] only men should be doing; and on occasion they will try to prove to themselves how far they can go.'" The other victim whose death Chad witnessed was "an old man, an engineer, a civil engineer, with the same attitude" who instead of waiting for a ladder or having the carpenters build an appropriate scaffolding hurried up on a building to perform some tasks. As Chad recalled, "he falls backwards, falls 20 feet on the back of his head on concrete, he lived for about twelve hours, he was within a year and a half of retirement." Similar to his opinion expressed with respect to the first fatality, Chad commented:

> It is the attitude, they want to prove their manhood, they are more concerned to show they are being manly, or being part of the group, that's why a lot of people, they want to be part of the group, two out of three fatalities are that way, where the individuals want to prove, they want to be part of that manly group in order to receive some reaffirmation, to be reaffirmed that they are men and therefore take

the risk to do something dangerous, dangerous or stupid, you can call it the way

you want.

The third accident related to machismo issues was reported by Adam. An

apprentice, who was learning the job within Adam's work team and who was under the

supervision of his foreman, fell 41 feet because he was not tied off appropriately. From

his point of view as a high rise worker, Adam made a comment which differs from those

made by Chad and presented above:

I would not put the blame on the foreman, or anybody on the job because we are

all grown up men, we know that it is a dangerous job, and, there's one foreman on

the job and you've got a crew of ten guys, I mean you can't go up and down the

bridge saying every five minutes, you need to do this, you need to tie off, we

don't need someone to baby-sit us.

Rather than critiquing the "macho" attitude on the worksites, Adam explicitly

shows that he possesses this attitude, at least to some extent. For Adam, even

though the apprentice might have been working for the first time on a high elevated

bridge, he should have been "old enough" to take care of himself.

In addition, Chad commented on the routine of hazing that takes place on great

height construction sites, noting that "with any new rookie [apprentice], they [high rise

workers] initiate hazing, they give them a very hard time, they do that to the apprentices."

Similarly, Marcus recalled hearing at the ironworker school that other apprentices were

forced to walk on beams without any harness. In his interview, Marcus also addressed the

hazing among apprentices themselves, "[i]n the classroom, I heard, 'I challenged that guy

to climb up that beam,' or like getting down first to the ground by sliding down the columns or something like that."

While reflecting on his own experience of being challenged by his coworkers when he first started to work on high-rise sites, Adam justified his response to the way his colleagues acted toward him:

The first time I did that [connect structural I beams at great heights without harness] I was very skeptical about doing it, but I'm not gonna say that anybody has ever made me do anything, because you have the choice; you have the choice and if you don't feel safe, then you don't do it.

While Adam represents those *who have the choice*, Brad, as a boss of a small construction company, belongs to those *who often participate in forcing this choice*. Brad shared:

We'll give a hard time to someone who is afraid to get up there. This is more or less to give them a hard time, but we don't expect them to do it, we will not force them, if they are up there, afraid, start freaking out, getting scared, then they need to get down. . . . It's not like they feel, if they don't do it, they won't have any job any more.

After having explained about the way he acted upon newcomers, Brad continued in the following manner:

If they are not able to make it, within a month they are usually gone, you don't have to be worried about it. They'll fire themselves more or less. You don't have to let them do or lay them off. They pretty much realize that is not for them.

Similar to low income workers living within the same neighborhood (Philipsen, 1975) and according to these accounts, new workers or apprentices often follow unwritten rules of teams mainly constituted of male members and bend to the will of their teammates in order to be accepted by other team members. For example George, a 21-year-old demolition worker, shared, "[i]f you are not cracking on somebody, then you don't fit in." If the new workers do not keep the established traditions and do not connect to other team members the expected way, they may not stay. The same informant explained that "usually if they don't connect, they won't last very long; if they're not connected, they work a couple months and then leave."

Group members who respect those socially constructed rules – whether they are convinced of their suitability or simply because obedience to such rules is the price of belonging – appear to develop a strong group sense. From Chad's perspective, among all construction trades, high-rise ironworkers tend to demonstrate the highest degree of group sense because of the danger of the work being involved. Moreover, the heights provide many opportunities for risky maneuvers or behaviors, which are defined as being manly and are highly reaffirmed by the group members.

At this point we may comprehend the logic of the finding from the previous section "Team Tightness/Socio-Emotional Closeness," that the closer construction workers perceive they are with their colleagues, the less support is delivered toward a personally stressed coworker, because the perception of *being close* goes hand in hand with the rules established within a group of males, where the most important attribute is *being manly*. A personally preoccupied construction worker, who asks for social support, is perceived as weak and not manly. He does not fit into a manly group whose members

may indeed "give their shirt off their back" for any of their colleagues as long as no personal emotions disturb the way they have been socialized.

The above explanations correspond with those given by Rabinowitz and Cochran (2002) as presented in the review of literature. The authors stated that due to their socialization, male group members feel uncomfortable being exposed to personal feelings or emotions of a preoccupied coworker. The scholars explained that worried men would hesitate to share what heavily presses on their minds for the same reason. The matter of challenging the newcomers to reaffirm their male side has also been addressed by Gibson and Papa (2000). However, while Gibson and Papa approached *challenging* as a strategy to make the new workers deal with difficult tasks, the current study shows that *challenging* is often a strategy used by construction workers to test newcomers and/or initiate them into their group.

<center>Desire for Social Support</center>

So far, I have shown how: (a) construction workers communicate the personal stress they might endure to their coworkers, (b) construction workers deal with personally preoccupied coworkers, and (c) factors that impede construction workers' discussions about personal stress. It is now essential to look at the need construction workers might have for social support whenever they are personally stressed. In this section, I am going to present the views informants have expressed with respect to this issue.

When asked how important it is for them to communicate their own personal worries to their coworkers, three informants did not directly address the question. Among these informants was Brad, who answered that:

If someone says something, we are not going to be mad if someone feels weak,
when someone says something, at the minute it is over with, they are talking shit
and cracking about something else, it's basically how it is.

From this excerpt, we notice that Brad sees a worker enduring personal stress as
weak. In addition, it seems that it would become a problem for him, if this worker does
not get quickly on the right track after the administration of "humor therapy." While
responding to the same question, Adam also avoided giving a direct answer. Even though
he had earlier explicitly elaborated on his colleagues' "willingness" to provide him with
social support, he confided that he was not always eager to communicate his problems to
his coworkers. Additionally, he signaled his desire to avoid the worksite if a personal
problem occurred. As he noted, "if [a personal problem] is bothering me that bad, I'll go
talk to the foreman or superintendent, I would explain the situation, 'you know my mind
is not into it,' take a few days off, because I don't want to get hurt." Similarly, Marcus let
us know his opinion while evading the question by stating, "if I have a problem, they
need to know that I don't want them to tease me that day."

Of the remaining nine informants, only one, George, indicated that
communicating personal stress to colleagues was unimportant, noting, "I am more a
keeping inside person, I am strong enough to deal with it myself." The other eight
interviewees emphasized the need to talk to their coworkers when they felt personally
stressed. For instance, Dominic stated that it was, "[v]ery important! I like to get things
out of my chest." Similarly, Bob observed that communicating to coworkers about
personal stress was "[p]retty important, I am a pretty open person." In his on-line
interview, Jake also indicated that such discussion was "[v]ery important. Talking about

[personal stress] is part of the cure for this stress." In order to prevent a personally preoccupied worker from affecting his own safety, the safety of others, as well as the work productivity of the group, Corey claimed that he urged preoccupied workers to share their worries, noting, "he'd better talk things out."

Some informants described the type of support they would prefer when on the site. For example, Corey highlighted the importance of "not feeling being left alone" by his colleagues, when he had to work while knowing that his wife had cancer. For Chad, the most useful type of support from his coworkers included personal interaction ("a one-on-one conversation") and a sense that any intervening coworker was genuinely concerned about his stress (e.g., that they "truly meant" what they said during such a communicative interaction). Fred reflected this emphasis on sincerity, noting that coworkers were supportive "as long as they are genuine and caring about you." Jared, a superintendent who stated that he would approach a depressed worker, shared that "[t]hey do appreciate that as an employee if you show that concern. It helps them that someone did notice that they're pretty well stressed and talked to them about it." In fact, the words such as *talking* and/or *conversation* have been found to be used most often when informants described the kind of support they would like their coworkers to offer them. For instance, "just through [having] a normal conversation," Dominic claimed he could clear his mind of personal worries and be able again to focus on his work. As he noted:

> I have something on my chest, I'll probably work half as fast, and half as good, but if I take those five-six minutes [to talk about it to someone], I am then 100 percent to get my job done, and ready to go."

Similarly, Bob said that "talking relieves stress." Jared emphasized, "a lot of time just talking about whatever gives you a stressful situation, will make [that situation] a lot less [stressful]." Moreover, throughout his interview, Jared repeatedly stated that, "just talking about what is creating your stress oftentimes is very helpful to eliminate it. Blowing of some steam, sort of, you know, pouring your heart out."

In accordance with the findings of Dehle, Larsen, Landers (2001), Sciboz (2002), and Thoits (1986), some of the informants pointed out that social support in the face of personal stress is particularly helpful if the recipient of that support perceived that the coworker providing the support has not only endured a similar stress, but also occupies a similar status or rank. An example of this was provided by Max, who when asked about the most preferable form of social support responded, "if they [colleagues] share the same experience, it will help a lot." Jared provided another example, stating that the person offering social support "may share similar experiences, which is almost like a therapy session." Similar to Max, who appreciates receiving support from his colleague carpenter, Jared expressed that it is meaningful to him to receive support from his colleague, who is also a supervisor.

Although the evidence presented in the previous sections showed low occurrences of the communication of personal stress and social support among construction workers, the data from the current section demonstrates that there is nonetheless a perception among construction workers that social support is important to construction workers who are experiencing personal stress. Further, some of the informants stressed the importance of "talking things out" with their coworkers when they felt personally stressed.

In this section, I have demonstrated that many construction workers communicate a desire for social support to help them deal with their personal stress. Further, I have shown that some construction workers understand the benefits of being able to share their personal stress with their teammates. However, given the findings reported earlier in this analysis, one can understand the tensions construction workers may experience between their need to communicate about personal stress and the dangerous, hyper-masculine culture in which they work.

I have addressed my research questions throughout the preceding analysis. Specifically, I have discussed particular conditions present on construction sites that may affect construction workers' communication about personal stress. I have also discussed how construction workers communicate their own personal stress to each other, and in turn, how they respond to others' communication of personal stress. I have analyzed how construction workers communicate social support and explored the relationship between how the team communicates tightness/closeness and construction workers' perception of colleague support in times of personal stress. I have also examined how the "machismo phenomenon" so prevalent on construction sites often affects construction workers' communication about personal stress. Finally, I have discussed construction workers' expressed desire for social support when enduring personal stress. In the following chapter, I will present a summary and discussion of these findings, offer some recommendations for helping construction workers get the opportunity to talk about personal stress, demonstrate how my research has contributed to the literature, discuss the limitations of my research, and articulate some future directions for this research.

CHAPTER 5

DISCUSSION AND RECOMMENDATIONS

My motivation for writing this thesis has been to provide to those who work in and manage construction sites, as well as those in academia, with insights from a communication perspective on how construction workers communicate their personal problems to one another and how this affects other workers' perception of safety and work productivity at the work site.

As my research progressed, it became clear that the analysis of the communication practices taking place within a mostly homogenous group of professionals performing dangerous tasks can be extrapolated to help us better understand the communication of personal stress in other aspects of work life.

I relied on concepts consistent with grounded theory to design a study about the perception and communication of personal stress among construction workers. First, I reviewed literature relevant to the topic I was investigating. Second, I designed an interview meant to elicit informants' responses about the communication of personal stress at construction sites. Third, I conducted in-depth interviews with twelve construction workers who worked either on high-rise or small to middle sized building sites. Fourth, I analyzed the data and drew connections between the existing literature and categories in order to answer the research questions.

Implications of my Findings

In this chapter I will discuss some practical recommendations that stem from the research, limitations and contributions of the research and finally, directions that future research may take. As the analysis of the data reveals, the construction workers admitted

being personally stressed from time to time when on worksites. Moreover, personal preoccupations tend to be communicated indirectly and often nonverbally. Thus, when personal stress is subtly noticed by construction workers, emotional contagion, as extensively described in the review of literature, takes place. Due to extreme working conditions, the presence of a personally preoccupied coworker does not only cause a decrease in the quality of work, but is also perceived by other coworkers as dangerous. In order to keep the crew safe, as well as the work quality from being affected, bosses and foremen often choose to isolate the preoccupied person from the rest of the crew by sending him home for one or two days.

Furthermore, the results of the current study show that when crewmembers are working at great heights on tasks requiring high professionalism, the sharing of personal problems and the displaying of emotions are not only unwelcome among high-rise ironworkers, but also strongly discouraged. Showing personal emotions is taboo. Thus, a worker asking for help with regard to his personal preoccupations may be perceived as deviant and treated as worthless.

On the other hand, on small to middle sized building construction sites where conditions tend to be less dangerous and less specific training is required, coworkers often offer more understanding toward personally stressed coworkers. However, the communicated support does not address the problem itself, but rather aims at making the preoccupied person forget his worries for a while. Joking is another strategy used by construction workers to approach a personally stressed colleague, regardless of the height of the building at which the workers are performing.

The high-rise ironworkers, who typically do not provide much social support to personally stressed colleagues, proved to be the most tightly connected teams among other construction trades. Consistent with the literature on high reliability teams, this "connection" is seemingly due to the complexity and dangerous nature of the tasks, which require great cooperation from each crewmember. While seeking more explanations for this phenomenon, I focused on communicative practices taking place within work groups of high-rise ironworkers as well as among construction workers performing at lesser heights. I found that professional high-rise ironworkers are more conditioned by particular socialization rules, which they seem to appreciate and work to cultivate. The traditional definition of "being manly" is refined to a higher degree by them. Along with competitiveness, hazing, and challenging others to perform dangerous maneuvers, high-rise workers have tight restrictions on the topics they discuss. Personal preoccupations high-rise ironworkers may endure have to be suppressed in order for them to fit with the team's expectations and not to be seen by others as "less manly."

<div align="center">Discussion</div>

It seems reasonable to relate the findings explained in the second section of the results chapter, "Communication of Personal Stress," to the findings from the first section "Environmental and Social Predispositions Affecting Team Communication." This will allow us to understand some of the hidden forces or agendas behind the construction workers' communication about personal stress. As illustrated earlier, the permanent presence of work-related stressors such as danger and time pressures "sets the stage" for a work environment in which personal stressors are minimized. As with many businesses, owners and managers of construction companies stake their reputations on their ability to

complete quality work for their clients in a timely and safe manner. However, as the informants in this study revealed, these goals are often difficult to achieve in practice.

As demonstrated earlier, construction workers report that they routinely let safety issues take a back seat to time pressures. When work must be completed as such a fast pace, there is simply not much surplus time to communicate social support to a personally preoccupied worker. This can explain why foremen often send personally stressed employees home for a couple of days.

Coworkers of a personally preoccupied colleague are also largely uninterested in providing much social support for them. The lack of social support may be viewed as a method of keeping the worksite safer by avoiding the spread of emotional contagion on the worksite. In so doing construction workers (especially those working at great heights) may also be contributing to their boss's interests. By discouraging their peers to disclose their personal stress, they prevent them from disrupting the established order and discipline on the work site, thus ensuring that buildings continue to be constructed as quickly and efficiently as possible. However, one might also argue that the communication of these socialized behaviors is detrimental to the interests of all organizational stakeholders in at least two ways. First, such socialization may encourage workers to be careless with safety (e.g., walking on a high beam with no harness) so that they can "prove their bravery" to fellow workers. The compensation provided for a construction worker who experiences accidental injury or death could easily put a construction company out of business. Second, such socialization encourages construction workers to attempt to suppress their stress, which may lead to physical and emotional harm for the workers themselves, and their fellow coworkers.

These insights correspond to recent understandings of organizations as sites of disciplinary micropractices. Postmodern organizational communication theorists (Barker, 1993; Tompkins & Cheney, 1985) explicitly address the metamorphoses organizations have undergone in the postbureaucratic era. In contrast to the hierarchical, bureaucratic organizations where control and power was thought to be exercised from the top by managers keeping the workers under constant surveillance, the control/power in the postbureaucratic organizations is thought to be produced at many levels, in part by means of the self-surveillance of work teams. According to those theories, the communication practices to which members of an organization (e.g., construction workers) are exposed and which they continually reproduce (e.g., communicating "manliness" by failing to provide a nurturing type of social support) while being in the workplace, define the members' perception of what constitute appropriate attitudes and behaviors in that workplace.

Obviously, construction workers performing at great heights must focus on their work, and therefore cannot afford to expend much mental energy providing social support to personally preoccupied coworkers. I suggest however, that another reason these construction workers may be less predisposed to providing social support to their colleagues than are their counterparts in small to middle sized construction sites, is that they have been exposed to the culture of construction work for a longer period of time. Informants' accounts, as well as my own experience, suggest that those working at great heights have spent years in training and in apprenticeship with other "high rise" workers. Additionally, many of these workers spend years on the same crew. Therefore, it is likely

that these workers have internalized the "keep your problems to yourself" discourse of this community more strongly.

<div align="center">Recommendations</div>

Despite the fact that construction workers' socialization does not encourage much provision of social support for construction workers dealing with personal stress, two thirds of the respondents emphasized the importance of talking to their coworkers about their personal stress.

In order to meet the construction workers' need for social support in times of personal stress, I offer the following recommendations as possibilities for construction company owners and forepersons to consider.

First, perhaps counseling-like services could be set up by company owners, available off-site, so that any construction worker availing himself or herself of such services can be assured of confidentiality. Since social similarities between the giver and receiver of social support are an important factor for social support to be perceived as effective, individuals providing counseling to construction workers in need of such support should possess a similar work background. This similar background would help the counselor gain an understanding of personal needs and issues construction workers may have. Whenever foreperson or superintendent pinpoints a personally stressed worker, the latter will be encouraged by that foreperson to visit such a counselor. The counselor will be able to provide some of necessary tools for the preoccupied worker to deal effectively with his or her personal stress, and therefore integrate back to work.

In order to acquire practical skills in providing proactive management of personal stress, such counselors should receive basic training in counseling available in many

educational institutions. Older construction workers who are close to their retirement or even retired may be effective counselors because they possess the wisdom and a rich knowledge about human behavior as well as an understanding in communication.

The credibility of my recommendation is enhanced by an existing practice in a culture, which has characteristics similar to, those found on construction sites: The United States Military. In fact, the effects a personally stressed soldier may have on his or her entire unit have been recognized by US Military specialists. Captain Bobby Sidell, Ph.D. in clinical psychology, reported for NPR that "things like rocky relationships and children's school problems cause soldiers more anguish than the stresses of actual combat" (Knox, 2003, p. 16). In recognition of this fact, the US Military has established a stress control unit at Ft. Hood, Texas trained to minimize the soldiers' "stress on the home front" (Knox, 2003, p. 16) and to keep them mentally fit. Similar to my recommendations, U.S.-Military counselors have been trained as soldiers first and mental health specialists second. Knox (2003) commented that "a stressed-out private is more likely to confide in another private than an officer" (p. 15). The goal of the "stress control unit" is to provide the kind of personal social support that military personal need, but otherwise might not receive, rather than professional counseling services, (only few of the Army's stress control specialists have advanced training in mental health). Similarly, the goal of counselors serving people in the field of construction is to provide personally preoccupied workers with basic tools to deal appropriately and effectively with their stress. Additionally, such a service may prevent stressed workers from missing work due to not having received the appropriate social support. Lastly, even in case that the worker is sent home, on his way he could stop by the counselor, who would provide him with an

effective plan of action for reducing possibilities of destructive behaviors and the negative repercussions often wrought by such behaviors. In the long term, workers who have been helped may become more prepared to listen to others in need and therefore, better able to provide social support to other colleagues.

My second recommendation would be institute training sessions a few times each year in which awareness of personal stress would be addressed and the necessary communication skills for providing social support to personally stressed coworkers would be taught.

The services I recommended might be costly; however, in the long term they may benefit workers enduring personal stress and eventually may help to change the culture of construction worksites so that coworkers on these sites change their attitude toward preoccupied colleagues, become better listeners, and begin to take the time to communicate more effective social support.

Contributions of Study

Although the organizational literature is replete with studies that address stress in the workplace, few authors have focused specifically on personal stress, and in particular, the communication of personal stress. Instead, authors have concentrated on strictly work-related stressors such as role stress, workload, workplace trauma stress, and mental demand. Further, there have been no studies focusing exclusively on personal stress in the construction industry. Given the dire circumstances that may result if a construction worker is personally stressed, having empirical evidence of how construction workers communicate about personal stress and revealing the factors that underlie such communication may help workplace practitioners (e.g., forepersons, construction

company owners) become more aware of the issues involved and reflect more carefully on the needs of the workers on these sites.

Literature reveals that most research on stress, and particularly stress in the workplace, has used quantitative methods. Such studies (e.g., Erera-Weatherly, 1996; Wright, 1993) did not have any specific focus on the effects that personal stress may have on employees as well as on team safety and productivity. As Frey, Botan, and Kreps (2000) acknowledge, qualitative research, in particular interviews, allow the researcher to see under the surface of a culture and find out what people think and feel about specific communication events in ways that other forms of research cannot do. In the case of this study, I have been able to "dig deeply" into the discourse community of construction workers, seeing not only the "what" of personal stress on the worksites, but also the "why" and the "how." In my view, this enriches scholarly understanding of how these organizational members use communication to construct and reconstruct their organizational realities. Given these insights, we can more carefully and thoughtfully arrive at methods for addressing personal stress on the worksite more effectively and appropriately.

Limitations of Study

Although this study makes significant contributions to organizational communication literature, it has several limitations. First, the data were obtained from a relatively small group of construction workers. Although the informants shared valuable insights into how the communication of social support takes place on construction sites, it is far from enough to make generalizations about this phenomenon. The insights of many more informants are needed in order to construct a fuller picture of how construction

workers communicate personal stressing this culture. Simply put, we cannot design effective intervention plans for those experiencing personal stress without evidence.

Another limitation included a number of unclear questions in the interview protocol (see Appendix B). For example, the question "[h]ow would you define stress?" should be eliminated in future studies. Although answers to this question brought interesting insights helping to understand more about construction work, they did not bring meaningful information regarding answering the research questions. The question about "[h]ow close are the workers within their team?" should be clarified, because while answering the question, interviewees either referred to the friendship they have with some of their colleagues or the coordination needed to perform on sites.

An additional limitation involves the feasibility of my recommendations. I have anticipated building intervention strategies while reflecting on my findings. However, since the communication patterns on construction work sites are strongly affected by rigid factors such as time pressure, steady danger, and masculine socialization, it is not easy to find potential interventions. Although my recommendations might be effective (given that they were implemented by a unit in the United States military, a culture that shares some common features with construction work culture), the U.S. military's willingness to invest money is likely to differ greatly from that of many construction company owners and managers. Additionally, military bases are generally much larger places than are construction worksites. Soldiers may be selected for counseling services with few, if any of his or her fellow soldiers realizing that the counseling is taking place. On the other hand, peer surveillance at a construction site is likely to be quite high, and

construction workers may not agree to talk to a counselor due to the fact that they will be seen as weak by doing so.

<div align="center">Future Directions of Study</div>

This study focused on the communication established among construction workers with regard to their perception of the effect personal stress may have on them and/or on their crews. Although construction workers recognize that others, as well as themselves have been affected by personal stress from time to time when in the workplace, it appears that personal stress is often unshared and, if shared, little or no support is provided. Even though time pressure, working conditions and hyper-masculine cultural values appear to impede the communication of personal stress and support, more research should be conducted to reinforce that validity of claims made in this study. Indeed, this qualitative study can be used as springboard from which other scholars can develop both qualitative and quantitative instruments for a more wide-ranging assessment of construction workers' communication of personal stress on construction worksites. Future studies should also address the communication of personal stress in other high pressure and possibly dangerous working contexts, such as hospitals, transportation industries, and factories. Finally, given that so many women have entered workplaces that have been considered largely masculine (including some construction sites), future studies could investigate the part that gender role socialization plays in the way women communicate about personal stress, as well how women's presence can influence how women and men communicate about personal stress in such worksites.

APPENDIX A

Recruitment

(EMAIL MESSAGE)

Dear former students,

I will finish my studies in July. This semester, I am not taking any classes. Rather, I am in the process of designing my Masters Thesis. Specifically, I want to look at construction workers' perceptions of stress.

My interest in the project stems from my experience. I am well-acquainted with life on construction sites. I possess a certification in wood framing and construction, and have more than five years of experience working at construction sites in Switzerland.

If, by any chance, you would know a construction worker living around Indianapolis or Muncie; whom I could contact to interview, I would appreciate it very much.

I feel that I am asking a great favor. I want to thank you for your time in reading this letter.

I look forward to hearing from you. Also I wish to all of you success in anything you plan to do and in your future.

Respectfully yours,

Daniel Sciboz

211 E. North St. Apt. 1
Muncie, IN 47305

Phone: (765-287-0598)
Email: dsciboz@orgcom.org

APPENDIX B

Interview Protocol

I acknowledge that I have submitted this interview protocol to Ball Stat University's Intuitional Review Board and will follow the procedures approved by that board.

I am interested in learning more about the communication among construction workers while working under difficult conditions. Please, whenever a question generates familiarity with a situation, including thoughts or feelings you experienced, I would appreciate your responses. Please answer as honestly as you can. There are no rights or wrong answers. Your answers and insights to this interview will be held in the strictest confidence. You may end this interview anytime.

1. How would you define stress?

2. Are there times at work when you feel stressed?
• Could you give me an example?
• Do you remember any stories about it?

3. What factors do you believe affect your safety at work?
• Could you give me an example?

4. When at work, what kinds of things typically cause you stress?
• Could you give me an example?
• Tell me some stories about such causes.

5. When at work, can coworkers tell when you are experiencing stress?
• (if so) How can they tell?
• (If not) why don't you think others can tell?

6. Do you notice when a colleague at work is feeling stressed?
• How can you tell?
• Do you have any examples?
• Do you remember any stories?

7. If you notice that a colleague is feeling stressed, can you tell what the cause of that stress might be?
• How can you tell?
• Do you have any examples?
• Do you remember any stories?

8. How do you know when you can trust your coworkers?
• Do you have any examples?

9. Do you have the feeling that everyone in your team is somehow connected to each other?
• How can you tell?

10. How close are the workers within your team?
- How can you tell
- Do you have any examples?

11. On the worksite, what are things you can talk about with your coworkers?
- Could you give me an example?

12. What are things you cannot talk about?
- Could you give me an example?

13. Do you receive support from your colleagues for personal stresses that you might have?
- If yes, does that support affect your work?
- If no, does the lack of support affect your work?

14. If yes, describe the kinds of support you found to be the most effective to relieve your personal stress?

15. Do you believe that, in order for you to feel secure and to prevent injuries on your job, you need to receive support from your:
- coworkers
- superintendent
- Why? Why not?

16. When you can tell a colleague is stressed, how does this knowledge affect you?
- Explain
- Tell me about some instance it happened.

17. (if respondent has not yet addressed personal stress) Can you tell when a colleague is experiencing personal stress?
- How does this knowledge affect you?
- Do you have any examples?

18. Do you believe that while a colleague has endured personal stress, his or her behavior may have affected:
- His or her own safety
- The safety of the work team
- Why? Why not? Would you give me an example?

19. Do you believe that the personal stress you have endured may have affected:
- Your own safety
- The safety of the work team
- Why? Why not? Would you give me an example?

20. Could you ask for help (personal stress) from your coworkers at any time? If yes: how do you ask for help?

• Can you tell me how easy or how hard it is to ask for help?

21. Do you have at least one colleague you can talk to whenever you need?
• Could you give me an example?

22. When you are experiencing personal stress, how important is it for you to talk it over with your coworkers?

23. What type of personal stresses would you typically share with your coworkers?
• Could you give me an example of such an instance?

24. What type of personal stresses would you typically not share with your coworkers?
• Why not?

APPENDIX C

Informed Consent Form

An Examination of How Personal Stress Affects Construction Crews

The purpose of this research project is to examine how personal stress endured by construction workers affects construction crews. For this project, the interview questions will focus on how construction workers feel and perceive different situations.
The lengths of the interview will take you approximately 60 minutes.

So all of the data will remain completely anonymous, your name will not be recorded. The foreseeable risks or ill effects from participating in this study are minimal. There is a small possibility that answering some of the questions on the questionnaires may evoke some feelings of anxiety. Should you experience any feelings of anxiety, there are counseling services available to you through the Counseling and Psychological Services Center in Lucina Hall, 285-1736.

One benefit you may gain from your participation in this study may be a better understanding of stress on worksites.

Your participation in this study is completely voluntary and you are free to withdraw from the study at anytime for any reason without penalty or prejudice from the investigator. Please feel free to ask any questions of the investigator before signing the Informed Consent form and beginning the study, and at any time during the study.

For one's rights as a research subject, the following persons may be contacted: Ms. Sandra Smith, Coordinator of Research Compliance, Office of Academic Research and Sponsored Programs, Ball State University, Muncie, IN 47306, (765) 285-5070.

****
I, _____, agree to participate in this research project entitled, "An Examination of How Personal Stress Affects Construction Crews" I have had the study explained to me and my questions have been answered to my satisfaction. I have read the description of this project and give my consent to participate. I understand that I will receive a copy of this Consent form to keep for future reference.

_____   _____
Participant's Signature   Date

Principal Investigator: Faculty Supervisor:
Daniel Sciboz, Office 117 A   Dr. Laura O'Hara, Office AC 112B
Ball State University   Ball State University
Communication Studies   Communication Studies
Muncie, IN 47306   Muncie, IN 47306
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NOTE

[1]Pseudonyms are used for all participants

[2] Because all participants are males, the pronoun "he" is used throughout the analysis

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