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LOCUS OF CONTROL, GENDER, AND SOCIAL SUPPORT AS STRESS MODERATORS IN INDUSTRIAL INJURY AND ADAPTATION TO DISABILITY

By

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ABSTRACT

LOCUS OF CONTROL, GENDER, AND SOCIAL SUPPORT AS STRESS MODERATORS IN INDUSTRIAL INJURY AND ADAPTATION TO DISABILITY

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The purpose of this study was to investigate from a multi-dimensional perspective, the relationship between stress and adjustment. Specifically, locus of control orientation (personality variable), gender (biological variable), and social support (social situation variable) were measured to determine direct and interaction effects in a group of industrially injured workers. The theoretical base for this study was drawn from rehabilitation, community, and personality psychology. Subjects for this study were 56 men and women who were currently receiving worker's disability compensation benefits. All subjects were volunteers 18 years of age or older, who had sustained a work-related injury, and had been disabled for at least six months, but no longer than twenty-four months. Data were collected through the use of questionnaires during a rehabilitation evaluation. A correlational design examined all variables of interest in the study. The findings are discussed in terms of their implications regarding injured workers and adjustment to disability. Results indicated that workers in this study were (a) moderately coping with their disabilities, (b) external in their locus of control orientation, and (c) minimally depressed.

There were no gender differences established on any of the variables.

However, gender was the only variable that had an interactive or modifier effect on the outcome variable of depression. Females were less depressed than males under high stress, while males experienced less depression under low stress. There was no main effect of gender with either of the outcome variables in this study. In addition, there was a statistically significant interaction effect of the variables with each other in regard to depression. Specifically there was a STRESS X GENDER X LOCUS OF CONTROL interaction, as well as a STRESS X GENDER X LOCUS OF CONTROL X SOCIAL SUPPORT interaction.

Locus of control had a statistically significant main effect for both coping and depression, indicating that internal subjects experienced higher coping and less depression regardless of the level of stress.

A statistically significant main effect was demonstrated for social support on coping. Specifically, subjects with high social support were able to cope under stress more effectively than subjects who had low social support.

Future research must address this complex stress process more intensely in order to delineate and clarify issues relating to methodology and research design.

DEDICATED

TO

GINA AND W.E.B.

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Chapter I

Introduction

Stress research and studies examining adaptation to stress (i.e., general adaptation syndrome studies) have proven to be quite popular during the past several decades. Pioneering work by Selye (1956) initially focused on stress response. He has described three stages which the body passes through in fighting to maintain/retain its natural inclination to homeostasis or harmony. These stages constitute what is known as the General Adaptation Syndrome (GAS) and are listed below:

Stage I: Alarm Reaction (ARS). The ARS occurs when the body/individual initially perceives a threat/stress is imminent. At this stage, widespread circulatory and digestive changes occur, as well as increased adrenal and pituitary gland secretions.

Stage II: Stage of Resistance (RESS). At the RESS, the body increasingly makes adjustments to the continuing threat/stressor, as production of secretions of the adrenal and pituitary gland rises above its normal level. Further, the body may exact a price for this adaptation by the onset of stress-related diseases such as high blood pressure, depression, ulcers, headaches, etc. (i.e., diseases of adaptation).

Stage III: State of Exhaustion (EXHS). At this final stage, the body has finally grown incapable of responding to the demands of the stressor/threat in a healthy manner. Consequently, at this stage the pituitary and adrenal glands have been strained beyond their limits. Rates of secretion that had increased at the RESS stage can no longer be maintained. So serious is this stage that the body's inability to fight has led to fatigue and exhaustion. The end result can be death itself.

Subsequent research has extended the base of knowledge relative to

these phenomena. Emphasis has been given to the manner in which life events produce dysfunctional behavior and/or emotional disorder in individuals. While most researchers agree there is a casual link between recent life events and illness symptomatology, outcome studies tend to show weak results. Correlation studies have suffered much of the same fate. It is thought that the reason for this lack of robust findings is due to the presence of other factors which may interact in this process, as well as the cumulative effect of individualistic responses. While Selye's theory (1973) has focused on biological adaptation to stress, Lazarus, Cohen, Folkman, Kanner, and Schaefer's (1980) theory of stress has tended to focus on the psychological. Lazarus et al., (1980) contend that psychological stress is dependent on the degree to which individuals can successfully interact with their environment. Lazarus proposes that the more successfully the person can transact with the environment, the more the stress can be moderated and less stress will be felt.

Lazarus and colleagues (1980) have also offered that the link between stresses and disease should be examined by way of a tri-level analysis: the physiological level (as proposed by Selye), the psychological, and the social. It is assumed that a response pattern is initiated on the part of individuals when a stressful life event occurs. Responses to that event may then be moderated by preexisting personal dispositions and social experiences as well as certain socioeconomic status variables. These moderators or variables that affect the way individuals perceive and respond to stressful life events can significantly enhance and explain the stress illness process.

Caldwell, Pearson, and Chin (1984) suggested that three classes of variables have been shown to moderate the effect of stressful life events or adaptation to that event. They are as follows:

1. Personality variables such as autonomy/internality and/or

passivity/externality.

2. Social factors, such as social support.
3. Biologic/genetic variables, such as age or sex.

Disability As a Stressful Life Event

According to Mitzel (1982), disability is a chronic or long-term condition that results from an injury or disease. A broader definition suggested by Parmeggiani (1983) is that disability is any restriction or lack (resulting from impairment) of ability to perform an activity in the manner considered normal for a human being. Expression may be in the form of depression, sleep disturbances, substance abuse disorders, as well as physical manifestations. From whatever causative agent, and regardless as to expression, disability can be viewed as a stressful life event (Mitzel, 1982).

Peterson and Seligman (1983) suggested that beyond the physical expression of suffering and loss of wages, the disabled adult may also show profound impairments extending as far as the psychological realm. While they contend that these impairments are not necessarily pathological, Peterson and Seligman (1983) asserted that such psychological impairments may leave the disabled adult feeling that the situation (injury) is well beyond their ability to cope. One can question the degree to which such feelings of passivity and lack of control are a situational reaction to the event, or a generalized personality response that may hinder positive adaptation (i.e., successful utilization of individual skills and capacities to transcend the stressful life event) (Mechanic, 1976).

Seligman (1975) in describing his theory of "learned helplessness" postulated that people who cannot control the aversive events in their lives become depressed. In fact, Seligman believes that the symptoms of depression are themselves the symptoms of learned helplessness. He goes on

to clarify that it is not the trauma as such that produces dysfunctional behavior, but not having control over trauma

Behan and Hirshfield (1966) and Hirshfield and Behan (1963) asserted that many of the most perplexing and resistant examples of chronic disability within the context of industrial accidents leading to human injury were actually the late stages in a sequential process. These researchers have cited four key features of this process.

1. The accident process is preceded by the development of tension and stress, which can lead to feelings of inadequacy and depression.

2. Dependency/denial can then occur. This is an essential component to the accident process; it incorporates the individual's sensitivity to perceptions of increased tension and stress, while experiencing reduced support and approval from family members and/or social support networks previously expected to be supportive and approving.

3. The individual adapts a previously unacceptable role equated with weakness and failure into an acceptable role as a disabled person.

4. The individual's continued role as a disabled person is crystallized and stabilized, thus becoming a means of coping with life. This role is energized by the individual's personality characteristics and reinforced by social and family support networks.

Weinstein (1978) later extended "the accident process" suggested by Behan and Hirshfield (1963) and Hirshfield and Behan (1966). He outlined five major stages.

1. Crisis build up. Tension and stress precede the accident event leading to feelings of inadequacy and depression. This stress is the result of a combination of a vulnerable character and specific job and/or family related tension.

2. Explanatory event(s). Job related injury, illness, or other problems (difficult working environment, incompatibility) are seen as "explanation and sanction for decline in competence and increased dysphoria". (p. 96)

3. Stabilization of the disability. Diagnosis, treatment, and failure to find a cure add to the explanatory events.

4. Crystallization of disability. There is a decreased expectation of improvement, increased dependency on family and agencies with increased defensiveness and anger when pushed.

5. Chronic incompetence. There is a loss of all expectation of recovery and a new role as honorably disabled is adopted (Weinstein, 1978).

The occurrence of a disability in industrial settings is a common and costly phenomenum. According to Wickersham (1983), Worker's Disability Compensation benefits paid in 1979 totaled 11.9 billion dollars in the U.S.A. In 1981, as a result of work injuries, there were 95 million lost hours per week or 2.3% of the workweek lost, at a cost of 70 billion dollars. Thirty-one million individuals were limited in daily activities because of chronic physical or mental disabilities resulting from work related injuries, (Wickersham, 1983).

The Social Security Disability Insurance Program is the largest insurance program in the country. In 1981, for instance, 17 billion dollars were expended to 2.8 million disabled adult beneficiaries. These adult beneficiaries had been assessed as having functional limitations from impairments so severe as to hinder them from sustaining substantial gainful work activity and/or activities of daily living.

Berkowitz (1985) estimated that 121.6 billion dollars were expended in 1982 to cover cash disability payments, (Social Security Disability, long term disability, private disability insurance, veteran's pensions) medical care costs, and direct services (vocational rehabilitation, veteran's programs, and other

government sponsored programs). Berkowitz (1985) indicated that there are gaps in this information and therefore the actual costs are substantially higher. These costs do not reflect the cost that disability has on the family of the individual or the cost in production to the company.

Adaptation to Stress

Locus of Control as a Moderating Variable

According to Mechanic (1976), adaptation/adjustment to a stressful life event depends on whether the event itself presents a challenge mild enough to leave the person with coping resources relative to that individual's skills and capabilities. To determine such skills and abilities, Mechanic (1976) suggested that perceptual data be obtained.

Locus of control perceptions have been investigated in several studies related to stressful life events. The locus of control concept emerged from the work of Rotter (1966) and his Internal-External Locus of Control (I/E) Scale. This concept refers to the extent that individuals believe they have control over their lives as compared to those individuals who perceive that their lives are determined by forces outside themselves. Those individuals responding to the I/E Scale in such a manner as to indicate that they have control over their lives/life events are classified as being internal while those expressing a lack of control over their lives/life events are classified as being external.

Locus of Control is also said to be descriptive of the degree to which individuals subscribe to the American individualistic orientation and/or the master of their fate perspectives (internal control). It is also thought to describe individuals who perceive themselves as "victims" of outside influences such as fate, luck, or chance (external control) (Hamlin, 1982).

Locus of Control has also been found to be related significantly to certain measurable concepts (such as stress) and its effect on adaptation to the

stressful life event. For example, Mechanic (1976) conducted a study to examine the influence of locus of control orientations on individual responses to events considered aversive. It was hypothesized that locus of control was a stress moderator.

Results indicated that when participants felt they could exercise some control over aversive events, the impact of stressors was decreased. Accordingly, "externals" were found to be less able to adapt/adjust to stress in a healthy manner. Thus the hypothesis was supported. A later study by Anderson (1977) used 90 entrepreneurs as subjects. The purpose of the research was to examine the relationship among several variables. Two variables were found to be of particular relevance. For example, correlations were calculated on stress and locus of control (using Rotter's Locus of Control Scale). Results showed a correlation (r= .61) at the .001 level of significance between external locus of control and stress. The subjects who scored high on the "external" dimension, experienced greater stress. Anderson also found that "externals" used more maladaptive or defensive types of coping behavior as compared to internals.

A later study by Sandler and Lakey (1982) investigated stress moderating effects of locus of control beliefs, perceptions of control over negative events, and social supports. Results indicated that locus of control beliefs moderate the effects of stressors (i.e., the more internal an individual, the lesser the degree of anxiety.). Additionally, internals also appeared to have functioned with a smaller amount of social support than externals.

While scholars have basically neglected the study of locus of control and the industrially disabled worker, Rosenbaum and Raz (1977) found some interesting results in an all-male, 70 person, Jewish sample. Of these, 26 suffered from locomotor disabilities while 44 other subjects were non-disabled.

The researchers had the Minnesota Multiphasic Personality Inventory's Denial and Depression Subscale and the Locus of Control Survey adapted and translated into Hebrew (the study took place in Israel).

Findings showed that:

1. The more serious the injury, the more the denial of that injury by the disabled subjects.

2. The disabled subjects reported significantly more symptoms of depression than the non-disabled subjects.

3. The more the subjects were found to be external, the more they believed that individual responses were not capable of changing the environment (although the means were still in the normal range).

4. External ratings on the Locus of Control measure may have been due to loss of reinforcers for internal type behavior and an increasing amount of punishers in the environment. According to the researchers, the environment/social order may have supported dependency behavior.

There have been other studies examining locus of control and the disabled. Kundu (1983) developed a prediction model for vocational rehabilitation clients using locus of control, work motivation, work history and demographic variables. Although locus of control did not prove to be significantly related to work motivation, there was a significant relationship between locus of control and obtaining employment. Internal subjects obtained employment significantly earlier than external subjects.

Moreau (1983) investigated three different groups of disabled community college students (deaf, blind and orthopedically impaired) to able-bodied students. Her findings showed that physically disabled students were significantly more external in their locus of control orientation than the able-bodied control groups. Overton (1987) examined locus of control as a

dispositional characteristic of physically disabled athletes. She found subjects to be more external than a group of able-bodied subjects. Furthermore, there were no gender differences in this sample on the locus of control measure.

There is extensive research examining the locus of control construct. Kundu (1983) suggests that over 3,000 studies now exist in the literature utilizing this variable. Not only has this construct proven to be significant as a predictor variable but also as a moderator variable in the stress-adjustment process.

Adaptation to Stress

Social Support as a Moderating Variable

Much attention has been paid to the degree to which the existence of social support can moderate the effects of stressful life events. With a breakdown of the family unit and its social support system, a proliferation of publicly supported and privately financed services have focused on replacing that support with professionals from various disciplines.

There is wide disagreement in the literature about the definition of what constitutes social support. The literature on social support does not present a unitary concept. House (1985) suggested that social support involves a flow of one or more of four things between people:

1. Emotional concern (empathy, concern, caring).
2. Instrumental aid (giving money, assistance).
3. Information (advice, suggestions, directions).
4. Appraisal (feedback or social comparison relevant to a person's self evaluation).

Regardless of definition, however, a consistent relationship has been found between individual physical and/or psychological health and social support. These findings tend to be most pronounced when compared to

individuals who are socially isolated and have had a breakdown in physical and/or psychological functioning.

Gottleib (1981, 1985) has hypothesized that individuals experiencing difficulties that impair functioning, initially turn to a personal community. This personal community can be likened to a primary social support group. The individual experiencing the trouble tends to go to such a community to get feedback and/or practical assistance to remedy the distressing situation. This personal community or primary group may have already detected that something was amiss with the individual with/without admission or verbal introduction (of the stressful life event). In either case, should the situation warrant it, a wider social support system may be mobilized to help the individual cope with the cause of the stress.

Widely recognized among health and mental health scholars and professionals is the reality that, in general, those clients in need of such assistance delay treatment or defer help seeking behavior based on the following variables:

1. lack of motivation;
2. tendency to externalize problems;
3. services are seen as too expensive, too professional, too bureaucratic, etc.;
4. self-reliance beliefs;
5. the stigma attached to the use of psychiatric services (Gottleib, 1985).

Generally, however, individuals tend not to feel the same degree of hesitancy regarding the utilization of social support when there is a felt need. This reality fits well with the recognition that the first helpers experienced by most individuals were intimates from the family or friendship circle. Even with the breakdown of the extended family and the advent of the geographically

mobile individual (which tends to put miles between families and friends), in times of stress most individuals still turn to their social support system for aid, advice, and counsel (Crotty & Kulys, 1985).

Social support research has generally heralded the efficiency and effectiveness of such support in mitigating the effects of stress/stressful life events on individuals' physical and mental health. Cobb (1976) stated that among persons exposed to high stress, those with social supports of various kinds (friends, spouses, or community relationships) have much lower levels of symptomatology, compared with those lacking social supports. This relationship, Cobb (1976) further stated, is due in part to the fact that the supporting persons offer reassurance and acceptance of the stressed person and convey information which leads the subject to believe that he is esteemed and valued.

Research by Myers, Linenthal, and Pepper (1975) has demonstrated a main effect for social support. Even under low stress, persons without social support show elevated rates of symptomatology, suggesting that the condition of low social support is itself a source of stress. Wills and Langner (1980) suggested that the combination of predictability and reassurance makes social support a potent insulator against stressful conditions.

Dean and Lin (1977) examined the nature and significance of social support systems and attempted to clarify methodological and theoretical problems. In addition to suggesting possible approaches to measurement and design concepts, that would better delineate and clarify these sources, they contend that increased knowledge about the stress-buffering functions of social support has important implications for primary prevention.

Adaptation to Stress

Gender as a Moderating Variable

Verbrugge (1985) in her review of gender and health indicated that sex differences in health are principally the outcome of differential risks acquired from roles, stress, life styles, and preventative health practices among men and women in our society. Several studies dealing with gender and stressful life events suggest that under similar circumstances males and females react and adjust differently to stressful life events. Bloom and Caldwell (1981) examined sex differences in personal adjustment surrounding the time of marital separation. They concluded that during the preseparation period, women reported substantially poorer psychological adjustment than men. In contrast, during the postseparation period, men reported substantially poorer adjustment than women.

Levenson, Hirschfield, Hirschfield, and Dzubay (1983) examined recent life events and the occurrence of industrial injuries with regard to gender differences. Their study on pre/post changes among White, Protestant, blue collar male and female workers involved in industrial injuries uncovered some interesting information.

During the pre-injury period, males and females had experienced significant changes in life events and a higher degree of overall stress such that life change adjustments were at the major crisis level.

Females had shown an increase in stressful life events two years prior to the injury. Meanwhile, males experienced an increase in stressful life events one year prior to the injury. During this same period (i.e., the one year pre-injury period) while male stress was increasing, female stress was stable. During the post-injury period, females experienced more spousal separation

and more deaths of close friends. The female response was to express more independent behavior (such as achieving more education, making job changes, etc.). However, this may have been confounded with the need for additional income due to spousal separation.

Meanwhile, these life events were predictive of diseases of adaptation (such as depression) in that these changes demand a psychological adaptation/adjustment. Study males reported increased hospitalization rates and more income than the study females. Study females earned only 60% of the wages reported by males. Also, low income status on the part of the study females meant that at the post-injury period of one year they had been disproportionately exposed to stressful life changes due to financial hardships.

This finding has also been supported by Krause (1985). For example, Krause offers that social support networks, income status, and gender are moderators of stressful life events to the extent that they produce statistically significant interaction effects.

A finding in the study by Levenson and colleagues (1983) that males showed more dependent behavior than females is contrary to that of Mechanic (1976). Using an unspecified sample of college students seeking assistance for psychological distress, Mechanic examined the degree of that distress and sociocultural variables. It was found that:

1. women show a longer duration of illness and more disability when compared to men;

2. women are more willing to report illness-related symptoms, admit to problems, and complain more openly than men;

3. men tend to deal more heavily in denial of illness symptomatology and have less physician contact than women;

4. men use less medication than women (with particular regard to

psychoactive drugs);

5. men tend to express distress in terms of aggressiveness, violence, smoking, and alcohol or drug abuse.

Mechanic (1976) contended that these findings support the notion that Western culture permits women to display illness and dependent behavior more than men. Men, Mechanic (1976) asserted, are expected to act and be more stoic and complain to a lesser degree than women. He also offers that because of gender specific social roles, women may be better able to accept illness at a lesser social cost and seek more solace than their gender counterparts. In summary, these findings also tend to hold for females and males regardless of age, marital status, or parental status.

Interaction of Moderator Variables

Research literature consistently suggests that stress buffering variables may prove to be of great importance in the disability process. Yet research suggests that these variables are interactive. Previous studies have emphasized examining each variable separately (Krause & Stryker, 1984, Lefcourt, 1981). Only recently has there been interest in exploring the possible interaction of these variables with each other.

Caldwell, Pearson and Chin (1984) examined social support, gender, and locus of control within a college population. They found that gender was an important variable. Moreover, gender and locus of control orientation dramatically influenced social support and stress. They did not find an interaction between locus of control and stress while accounting for adjustment.

In a study by Etzion (1984), work support was shown to be a stress buffering variable, but men and women used different sources (i.e. friends, family, etc). Etzion suggested that special attention should be given to the target population, the sources of support, and gender differences.

Clarification of what constitutes a stress moderator, stress mediator, stress buffer, and interaction of variables was discussed by Wheaton (1985). He reviewed stress research and suggested models for examining stress buffering functions. In his review, Wheaton stated that stress buffering involves the interaction between some potential source of stress and some factor in coping so as to define the conditions under which stress does and does not have an impact. He goes on to explain that the total casual effect of stress buffering is the sum of direct and indirect effects of stress through intervening variables.

The issue of a stress moderator is further clarified by Wheaton. A resource that modifies the effect of stress (interactive version) points to a condition, or set of conditions, under which stress has substantially less impact. A variable that mediates (suppresses) the effect of stress (additive version) is generally mobilized by an increase in stress and as a result dampens its overall causal impact (p. 354).

Wheaton (1985) suggested that certain variables may very well have dual buffering effects, that is, not only moderate, but also suppress the effects of stress on adaptation. He goes on to indicate that both are important and should be examined simultaneously to have a complete model.

It is important to examine the main effects of variables as they may or may not impact upon stress, but it is also paramount that close scrutiny be given to interaction of variables with each other as it may have a more powerful effect on the total model. An interaction is important because it qualifies the interpretation of main effects. It allows the researcher to specify the conditions under which the variables have an effect. It may enable improved prediction of the outcomes of exposure to stressors and it may further our understanding of the process by which people adapt to stress.

Purpose of the Study

According to Tuck (1983) the majority of available literature on industrially injured workers does not describe the complicated psychosocial dynamics which accompany this stressful life event. Further scientific research is needed to investigate this population and to provide effective intervention strategies.

While a great deal of research on locus of control orientation, adaptation/maladaption to stress, social support and gender differences has been reported, there has been a limited amount of scholarly research regarding the degree to which these variables can buffer the effect of stress/disability on the mental health of the industrially injured worker.

Consequently, the purpose of this study was to examine these variables as they do or do not moderate the industrially injured worker's adaptation to their disability, as well as their interaction with each other. It was proposed that this study would add to the scholarly base of knowledge in this area. It was expected that the results would be of interest to industrial researchers, rehabilitation counselors, and mental health professionals concerned with primary or secondary prevention of chronic disability, as well as government agencies dealing with this population.

Research Hypotheses

When a researcher is examining four variables with several possible dimensions (e.g., social support: source or satisfaction) as well as two outcome variables, one can imagine the possible combinations that could be formulated. Therefore, this researcher has chosen to test those hypotheses that (a) appear to be supported by the literature, and (b) are of interest to the researcher.

Based on the work of Rosenbaum and Raz (1977), Mechanic (1976), Anderson (1977), as well as Sandler and Lakey (1982), there is substantial evidence to

show that individuals who have external locus of control orientations will have greater experienced stress and will have higher levels of depression with more inability to cope, as opposed to internals, who will have lower experienced stress with lower levels of depression and higher coping ability. It was hypothesized that there is a moderating effect of locus of control orientation with stress level in the context of depression and inability to cope. Specifically an individual who is internal (as measured by the Rotter Scale) will have lower experienced stress (as measured by the Schedule of Recent Events) with lower depression (as measured by the Beck Depression Scale), and have a higher coping score (as measured by the Coping with Disability Inventory). This researcher examined by means of multiple regression the relationship of stress level, locus of control orientation and adjustment outcomes. It was further hypothesized that there is a significant main effect of locus of control orientation on the outcome variables as well as for stress level, and a significant interaction effect between locus of control orientation and stress in the context of the outcome variables (level of depression and level of coping).

The following equation illustrates the main effect and interaction of these variables:

Equation #1 $D=a+b_1 S+b_2 LOC+b_3 (SxLOC)$

where D=score on the Beck Depression Scale

a=constant

S=stress as measured by the score on the SRE

LOC=score on the Rotter Scale

Equation #2 $C=a+b_1 S+b_2 LOC+b_3 (SxLOC)$

where C=score on the Coping with Disability Inventory (CDI)

Locus of Control Hypotheses

Hypothesis 1. Externality will be directly related to stress level.

Hypothesis 2. Externality will be inversely related to coping level.

Hypothesis 3. Externality will be directly related to depression.

Hypothesis 4. Locus of control moderates the effects of stress on depression and coping.

The literature supporting the position that social support is a moderator of stress in the context of depression and coping is complicated in that one can examine the functional dimension of social support (i.e., sources of support) or the structural dimension (i.e., size, satisfaction). This researcher examined several studies that support the functional dimension of social support in moderating the effects of stress within the context of depression and coping. Etzion (1984) found that social support was a moderator of stress and that more importantly different sources of support were shown to be more significant than others. Caldwell et al. (1984) found similar findings.

It was hypothesized that individuals who have high social support will experience less stress and therefore will have less depression and higher coping ability. Social support has a main effect as well as a significant interaction effect with the stress level in the context of coping and depression. Similar equations as previously shown demonstrate the main effect and interaction of a variable with stress on depression and coping.

Social Support Hypotheses

Hypothesis 5. Social support will be inversely related to stress level.

Hypothesis 6. Social support will be directly related to coping level.

Hypothesis 7. Social support will be inversely related to depression.

Hypothesis 8. Social support moderates the effects of stress on depression and coping.

Research examining gender and stress indicates that under similar circumstances males and females react and adjust differently to stressful life events. Studies by Levenson, Hirshfield, Hirshfield, and Dzubay (1983), Bloom and Caldwell (1981), and Krause (1985) as well as Etzion (1984) support the position that gender is a moderator of stress in the context of depression and coping.

Based on the aforementioned research, this researcher hypothesized that females will have higher levels of stress two years prior to their injury, but have less depression and higher coping ability in the present. Men will experience higher stress one year prior to their injury, and have higher depression and lower coping ability in the present. There will be an interaction effect of gender with stress in the context of depression and coping.

Again, equations demonstrating this relationship are similar to those previously shown for locus of control and stress with regard to depression and coping.

Gender Hypotheses

Hypothesis 9. Females will experience higher levels of stress two years prior to their injury as compared to males.

Hypothesis 10. Males will experience higher levels of stress one year prior to their injury as compared to females.

Hypothesis 11. Females will experience less depression than males at the time of the study.

Hypothesis 12. Females will have higher coping than males at the time of the study.

Hypothesis 13. Gender moderates the effects of stress on depression and coping.

Hypothesis 14. Females will have more social support in total than

males.

There is substantial research to indicate that there is a significant interaction of the moderator variables with each other. The interaction of gender, social support and stress has been demonstrated in at least three studies: Caldwell et al. (1984), Etzion (1984) and Krause (1985).

This researcher proposed that these phenomena may be due to gender differences in the socialization process found in our culture. Specifically, the position promoted by Gilligan (1982) would indicate that males and females must deal differently with the issues of autonomy and separation. These issues first come into play with the primary care-giver, usually the mother. While males must renounce their identification with the mother in order to identify with maleness, females do not. They can cultivate the nurturing qualities of the mother. As a result females see themselves in relationships or connected to others as opposed to males who have had to become autonomous and separate to claim their male identity. Obviously this is an oversimplification of the development process, but one can begin to see that relationships for males and females are different at a very early age and continue to flavor the individual's ability to develop relationships over the life span. This dual model of development leads the male towards independence/autonomy and the female towards interdependence/attachment. Work by Kahn and Antonucci (1980) as well as Tesch (1983) reviewed the concepts of role, social support, and friendship over the life span examining this aspect of development.

With this theoretical background, this researcher proposed that there are gender differences with a significant interaction effect regarding social support and stress as it affects coping ability and depression.

Interaction Hypothesis

Hypothesis 15. Locus of control, social support and gender have a significant interaction effect when predicting coping and depression.

Restatement of Research Hypotheses

Hypothesis 1. Externality will be directly related to stress level.

Hypothesis 2. Externality will be inversely related to coping level.

Hypothesis 3. Externality will be directly related to depression.

Hypothesis 4. Locus of control moderates the effects of stress on depression and coping.

Hypothesis 5. Social support will be inversely related to stress level.

Hypothesis 6. Social support will be directly related to coping level.

Hypothesis 7. Social support will be inversely related to depression.

Hypothesis 8. Social support moderates the effects of stress on depression and coping.

Hypothesis 9. Females will experience higher levels of stress two years prior to their injury as compared to males.

Hypothesis 10. Males will experience higher levels of stress one year prior to their injury as compared to females.

Hypothesis 11. Females will experience less depression than males at the time of the study.

Hypothesis 12. Females will have higher coping than males at the time of the study.

Hypothesis 13. Gender moderates the effects of stress on depression and coping.

Hypothesis 14. Females will have more social support in total than males.

Hypothesis 15. Locus of control, social support and gender have a

significant interaction effect when predicting coping and depression.

Research Model

It is apparent that there is a relationship between stressful life events and adverse changes in health. The question to be examined is what are the dynamics of this process and what factors play important roles. According to Gentry and Kobasa (1984) issues of examining stress and illness can no longer be examined in simple, unidimensional terms, but must take into consideration a second set of psychosocial factors - those that serve to buffer or cushion the impact of stress.

Dohrenwend and Dohrenwend (1981) describe several hypotheses that could account for the life-stress process. The vulnerability hypothesis (See Figure 1) indicates that preexisting personal dispositions and social conditions of an individual moderate stressful life events which can then lead to adverse effects.

The research model used in this study will add a third dimension: biological factors, specifically gender (See Figure 2). Specifically, a stressful life event (industrial injury/disability) is moderated by: 1. biological factors (i.e., sex); 2. personal disposition (i.e. internal/external locus of control); 3. social situation (i.e., social support) which leads to adverse health changes (i.e., adaptation/depression).

Overview

This chapter addressed the need for a multidimensional stress research model that encompassed psychosocial factors as well as biological in examining the industrial disability process. The benefit of such a model is to better understand the complex experience which injured workers encounter as they they adjust and cope with their disabilities. A review of the literature including research on locus of control, social support, and gender revealed that

Figure 1

Vulnerability Hypothesis

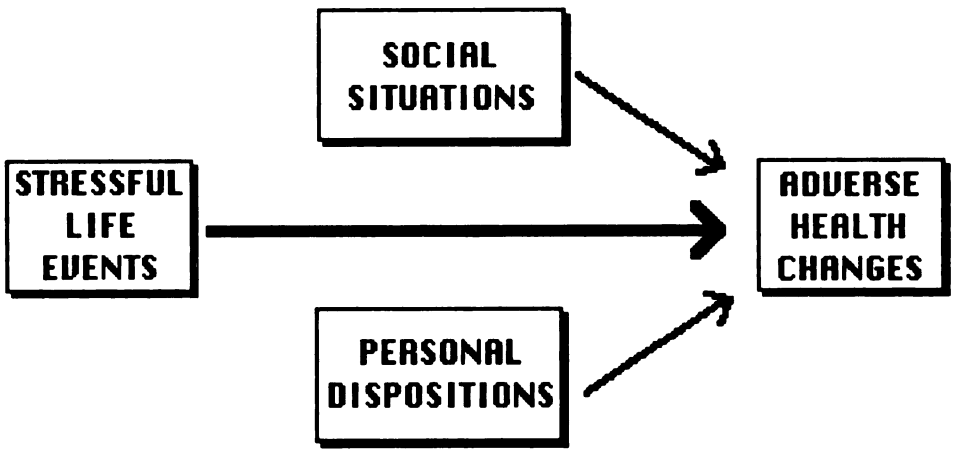
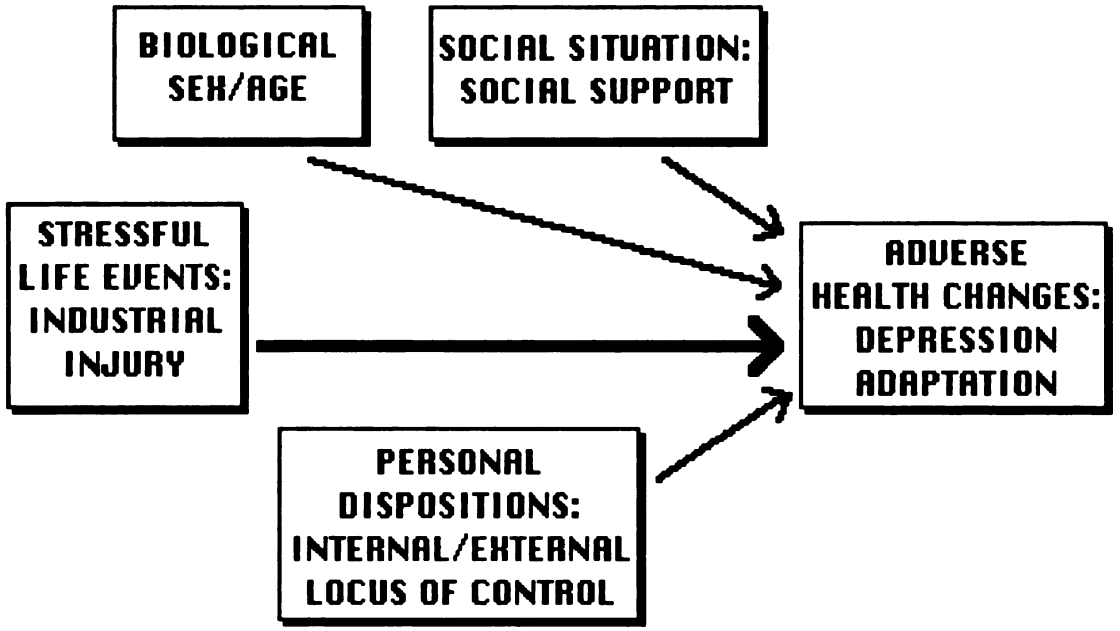


Figure 2

Modified Vulnerability Hypothesis



these variables can play an important role in the stress-adjustment/coping process. In Chapter II methodology is presented. Included in this chapter is a discussion of the subjects in this study, sampling, as well as a review of the instrumentation and procedures utilized. Chapter III examines the statistical results of the research including sample characteristics on the variables of importance in the study. A discussion of the results, limitations of the study, as well the conclusions and implications for future research compromise the contents of Chapter IV.

Chapter II

Methodology

Introduction

The previous chapter explored the need for a stress model to examine industrial injury as a stressful life event. Variables that have an impact on the stress-adjustment process were examined. Theory and research on internal-external locus of control, social support and gender have been reviewed.

In this chapter a description of the subjects is given, along with the sampling procedures. Site and interview environment, instrumentation and data collection procedures then follow.

Subjects

Subjects for this study were 56 individuals (37 males and 19 females) who had experienced a work-related injury within the past 6-24 months, and were receiving voluntary Michigan Worker's Disability Compensation administered by Yeager and Company. The participants in this study ranged from 19 to 69 years of age. The average being 43 years of age ($X=45$, $S.D.=12.89$).

Most members of this study were married (59%). Twenty-seven percent were divorced or widowed, while fourteen percent were single and had never married. (See Figure 3)

The average education level for this group was 12.3 years while the range extended from 6th grade to Master's level. (See Table 1). In terms of employment, 34% worked in the skilled trades prior to injury, 18% were factory workers, 14% worked for the government (municipalities), 10% were employed as service workers. (See Table 2).

Ninety-six percent of the subjects were American born. Forty-two

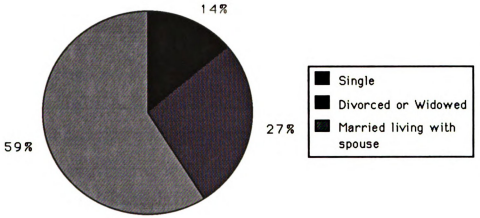


Figure 3. Marital status of industrially injured workers participating in the study

Table 1

Education of industrially injured workers in the study

n=56

Education (Highest level attained)	Frequency	Percent
6	1	1.8
7	1	1.8
8	3	5.4
9	3	5.4
10	3	5.4
11	2	3.6
12	22	39.3
13	6	10.7
14	5	8.9
15	3	5.4
16	3	5.4
17	3	5.4
18	1	1.8
	56	100.0

Table 2

Occupational distribution of industrially injured workers in the study

Occupation	Frequency	Percent
Factory Worker	10	17.9
Clerical Worker	1	1.8
Managerial	3	5.4
Service Worker	6	10.7
Skilled Trade	19	33.9
Government Worker	8	14.3
Other	9	16.1
	56	100.0

subjects were White, 12 Black and 2 Hispanic (See Figure 4).

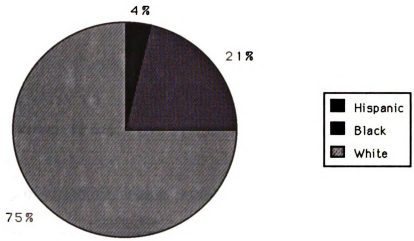


Figure 4. Race distribution of industrially injured workers in the study.

The most frequent income bracket at the time of the study was $0-$4,999. This reflects income not including disability amounts. Twelve and one-half percent had income in the $20,000 to $24,999 bracket (See Table 3).

Sampling Procedures

The pool of subjects for this study was referred by Yeager and Company, as administrator to self-insured employers in the State of Michigan for Worker's Compensation Disability Insurance. Yeager and Company indicated a willingness to cooperate with the principal investigator specifically, and the research team in general, during the course of the study.

Claims personnel were briefed on the nature and purpose of the study and instructed to refer subjects to the researcher as part of an initial rehabilitation evaluation. The subjects were selected based on the following criteria:

1) they met the requirements established for disability status and were

Table 3

Income Levels of industrially injured workers in the study

Income Level	Frequency	Percent
$0-4,999	26	46.4
$5,000-9,999	6	10.7
$10,000-14,999	3	5.4
$15,000-19,999	5	8.9
$20,000-24,999	7	12.5
$30,000-34,999	4	7.1
$35,000 and above	5	8.9
	56	100.0

disabled within the last 6-24 months due to a work-related injury;

2) were currently disabled due to a work-related injury and were receiving disability benefits or payments through their employers via Yeager & Company;

3) were mobile enough to report to the interview site;

4) appeared not to be experiencing memory problems regarding previously occurring dates and events, etc. and verify the same;

5) were willing to participate in the study and complete all study tasks as affirmed by signing a Consent to Participate Form (See Appendix A).

Site/Setting

The setting for this research study was The Genesis Group in Southfield, Michigan. The Genesis Group is a rehabilitation facility which specializes in the rehabilitation of industrially injured and closed head injured clients. The Southfield office has ample facilities conducive to the maintenance of privacy and confidentiality within an interview situation, thus making it ideal for a study of this nature.

The interviewing commenced on June 1, 1987. By September of the same year it became apparent to the researcher that referrals were slowing. The researcher met with the referral source to discuss the situation. It was revealed that there would be difficulty in referring as large a subject pool as originally proposed (100). Yeager agreed to allow the researcher to request referrals from the Grand Rapids and Saginaw offices. Additional subjects were obtained. The total secured was 56. Due to a variety of factors including time, cost/benefit, travel, and availability of subjects, no further attempts were made after December 31, 1987.

Apparatus/Interview

An interview area with two rooms conducive to the interviewing of potential subjects in an environment suggestive of privacy and confidentiality was utilized. Each of the two interview areas contained at least two chairs (one each for the interviewer and the client/subject). In addition, the interview area also contained a desk for the subject to record questionnaire item responses and a telephone.

The room was well lighted and maintained a temperature that was seasonally comfortable. A supply of sharpened pencils with erasers was also readily available to the subject. In addition, it should be noted that several subjects were not feeling up to completing the form and asked to mail it back. After the initial intake, they were excused and given stamped envelopes to return the questionnaire (n=3, completed and returned questionnaire).

Instrumentation

The seven instruments utilized during the study period are listed below. With the exception of the logbook, which was recorded and maintained by the research team throughout the study, all instruments were administered to the subjects/respondents. These instruments were completed in one interview session of approximately two hours duration. All subjects filled out a questionnaire packet consisting of the consent form and five scales. The Stressful Life Events Questionnaire was administered after consent was secured and the other scales were presented in four random orders.

1) Logbook - A logbook was maintained by the research team. The purpose of the logbook was to record happenings, history, events, facts, etc., that may have influenced research outcome. Although the logbook cannot be measured quantitatively, it does reflect information regarding the cooperativeness of the subjects. (See Appendix G.)

2) Consent to Participate Form (CPF) - A CPF was signed by all subjects as validation that they understood tasks related to the study. The CPF represents a virtual composite of research "consent" forms. However, it was specifically adapted for use with industrially disabled workers (See Appendix A). The form also guaranteed confidentiality and that there was no potential for harm as a result of study participation.

3) Stressful Life Events Questionnaire (SLEQ) - Subjects' life stress was measured using the Schedule of Recent Experiences (Holmes & Rahe, 1967, Rahe, 1975). This 55-item questionnaire purports to examine stressful life events across five major categories: health, work, home and family, personal-social, and financial events that may have been experienced by respondents within the last 24 months.

Rahe reports reliability correlations between .87 and .90 on test and retest for the Schedule of Recent Experience. On validity studies, correlations ranging between .50 and .75 were reported. Rahe (1975) found that when the questionnaire was followed up by personal interview, questionnaire errors were discovered which were usually in the direction of under-reporting on the part of the subject. (See Appendix B.) The questionnaire is designed to be self-administered.

Respondents were to check those stressful life events that may have occurred to them. They were also asked to indicate the time frame (within the last 24 months) that the stressful life event occurred. A total score was obtained by adding all of the items checked. In addition, the questionnaire took into account the stressful life event in relationship to the injury. The number of events occurring after the injury, within the year prior to injury, etc. was obtained.

Demographic data were obtained from this questionnaire to achieve a

profile of respondents/subjects. The researcher added demographic variables to the beginning/end of the SLEQ to assess socioeconomic status (i.e., race, sex, education, income, occupation). Other demographics were those regarding the number of dependent children living in/out of the respondent's household, number of years in present occupational position, origin of birth, etc.

These items were specifically added to this questionnaire since it is the only instrument which was checked by the research team to minimize the effects of error in memory/under-reporting, as suggested by Rahe (1975). Demographic data were checked at the same time.

Particularly sensitive items (such as race and income) were added to the end of the questionnaire. It was felt that respondents would have time to examine all survey items and build up a higher element of trust by the time they came to these items.

4) Internal/External Locus of Control Scale (I/E Scale) - The Rotter (1966) Locus of Control Scale is commonly referred to as the I/E Scale. It is a 29-item forced choice questionnaire with six filler items. It was selected as the most accurate measure for this variable given its wide usage and acceptance in the literature. (See Appendix C)

The Locus of Control Scale claims to measure individual beliefs across a wide range of situations regarding generalized expectations that one can control the outcome of certain situations. Therefore, the I/E Scale pays particular attention to dispositional influences (internality/externality) affected by past situations/behavior/experiences as they influence responses to current situational cues.

"Internals" are those who expect or believe they have the power to affect situational outcomes (thereby positively influencing their ability to perform), and "externals" are those who do not expect or believe they have such power (to

control outcomes). The scale is scored in the external direction (i.e., the higher the score, the more external the individual). The scale is designed to be self-administered. The total score is obtained by adding all questions answered in the external mode. Scores range from 0-23.

Rotter (1966) reported internal consistency of .65 to .79. Reliability studies reported a range varying from .49 to .83.

5) Beck Depression Scale (BDS) - The Beck Depression Scale is an instrument that measures the degree to which respondents have depressive symptoms. The BDS contains 21 item sets. Each item set contains four possible choices of statements designed to reflect how the respondents have been feeling during the past month. The higher the item value selected within the set (on a scale of 0-3), the higher the depression (Beck, 1967).

The BDS scores range from 0-63. The BDS was selected for its high reliability use in previous stress research (Sandler & Lakey, 1982; Caldwell, Pearson, & Chin, 1984). (See Appendix D.)

Beck et al. (1988) reviewed research studies focusing on the psychometric properties of the BDI for the years 1961 through June, 1986. Internal consistency yielded a coefficient alpha of .81 for nonpsychiatric subjects. With respect to test-retest reliability the BDI's correlations are greater than .60. Concurrent validity of the BDI with respect to other measures of depression is high as well.

6) Social Support Dimension Scale (SSDS) - The SSDS is a new instrument utilized in life stress events/social support research, (Caldwell & Reinhart, 1988).

This scale is designed to be self-administered. It claims to measure the amount of satisfaction an individual reports from four different support network sources including same and opposite sex friends, family, and helping

professionals. It also examines different kinds of support including emotional, practical, informational, advisory, and companionship. With permission from the author, four sources of support were adapted for this study: friends, co-workers, family, and professionals.

Thus the SSDS focuses on specific kinds of support obtained from those in one's social network, the general satisfaction with the various sources of support, how much support was received, and those individuals that comprise the network itself. (See Appendix E). Total support is obtained by adding items checked in each category (i.e., source, type of support).

7) Coping with Disability Inventory (CDI) - The CDI is a newly developed instrument which measures coping behavior of physically disabled persons. The inventory is an 80 item, self-administered instrument. Subjects describe their preference on a five point scale ranging from never/rarely to almost always regarding various activities and statements of feelings toward themselves and others.

Kulcharni and Blom (1985) reported an alpha of .89 for the total coping score with a sample of 46 adult American individuals with disabilities involved in centers for independent living. The CDI has two subscales; the Process Coping subscale and the Outcome Subscale. Cronbach's alpha coefficients were .79 and .84 respectively. Overton (1987) used the CDI on a group of 197 disabled athletes. The results of the reliability analyses on the CDI were supportive of the Total Scale score as a consistent measure of coping. A coefficient alpha of .89 and item-total correlations in the .40 and above range were reported. Kulcharni (1985) reported for his sample a S.D.=27.25. The cut-off scores for low, medium, and high coping were 255, 283, and 311 respectively.

Research Team

The research team was comprised of two members. The author was the principal investigator (PI), and assumed all major responsibilities for the study such as obtaining all necessary agreements from appropriate parties, training the other research team member, and interviewing study participants.

In addition, the PI collected, maintained, coded, and analyzed all data. The other member of the research team assisted the PI by conducting interviews with study subjects.

Both the principal investigator and the other team member have Masters Degrees in rehabilitation counseling. In addition, both have had many years of experience interviewing and counseling disabled workers who have experienced a work-related injury.

Research team members conducted interviews at The Genesis Group site. Each research team member interviewed subjects in a closed interview area to maintain client/subject comfort as well as their privacy and confidentiality.

Procedures

The majority of clients came to the Genesis Group during the study period. They were to report to this office approximately six months after the disability procedures/process at that time to ensure ongoing disability status/benefits (although for some disabled workers this time period may have varied somewhat with regard to the seriousness of the disability, length of the recovery period, etc.). It was necessary for the researchers to travel to Grand Rapids and clients' homes to administer the balance of the questionnaire packets.

Procedure I

Clients were referred to a member of the research team in the interview area to undergo the initial rehabilitation interview. During this interview, the research team member explained to the client their rights and obligations under the Michigan Workers' Disability Compensation Act as well as obtain necessary information to determine the client's eligibility/ineligibility for participation in the study.

Procedure II

If the client did not meet the criteria for selection and/or was not willing to participate in the study, after the standard rehabilitation interview, the client left the area. If the client meet the criteria for selection and was willing to participate in the study, they then signed the Consent to Participate Form (See Appendix I). They were then given the set of questionnaires by research team member/interviewer. Five and one-third percent of the eligible subjects did not consent to participate in the study.

Procedure III

The interviewer explained the tasks associated with the study (completing all questionnaires/questionnaire items) to the subject. At this time the client/subject was also assured verbally by the interviewer that their confidentiality and privacy would be maintained and that their disability benefits/payments were in no way connected to the study. Any questions posed by the subject regarding these issues were answered during this period before the subject began to respond to the questionnaire.

Procedure IV

The interviewer then instructed the subject as to how to complete each of the questionnaires. Questions posed by the subject regarding this task were answered by the interviewer. When it appeared the subject understood the

tasks so that accuracy of response appeared reasonably ensured, the interviewer informed the subject of their departure from the area. The departure of the interviewer at this time enabled the subject to answer all questionnaire/items in an environment suggestive of privacy and confidentiality. The interviewer, however, informed the subject prior to their departure that they would be accessible immediately by extension phone should any questions arise when the questionnaires were completed. Subjects were also told not to leave the building until the interviewer returned in order to complete the rehabilitation interview.

Procedure V

After completing all questionnaires, the subject notified the interviewer by phone. (However, when a fifteen minute time period elapsed in which the interviewer was not summoned by the subject, the interviewer voluntarily returned to the interview area.) After the interviewer returned to the interview area they asked the subject if any questions/problems arose during the completion of the questionnaire. The interviewer noted and recorded all/any comments in a logbook for later assessment that day by the PI. (If a consensus/trend of problems surfaced regarding the questionnaires/items, the PI made took any necessary steps to ensure the ongoing internal consistency and operation of the study.)

The interviewer took possession of the questionnaires at that time. He/she then conducted a gently probing interview with the subject in regard to the Stressful Life Events Questionnaire (See Appendix B). The reason was to further ensure accuracy/completeness of response to all items. Subjects were then thanked for their participation and cooperation by the interviewer. (Note: Additional data obtained in this manner were recorded by the interviewer and included in the total stress score.)

Procedure VI

These procedures were repeated until the pool of subjects was exhausted within a six month period. The interview and the completion of the questionnaires took approximately one hour each.

Data Collection, Scoring, and Analysis

All data were collected by the principal investigator (PI) and the research team member/interviewer as it was obtained. However, the PI collected all data at the end of each interview and maintained it in a secure place. The PI also scored and coded all data. Another member of the research team recalculated all data to insure accuracy.

Chapter III

RESULTS

Introduction

This was an exploratory study to assess those factors that buffer individuals in a stressful situation. Specifically, locus of control, social support and gender were evaluated in terms of subjects' reported stress, depression and coping with industrial injury.

Two major areas were addressed in the analysis of the data. The first area presented a descriptive summary of sample characteristics on the variables of interest. These variables included the following: Locus of Control Scale, Coping with Disability Inventory, Beck Depression Scale, Social Support Dimension Scale, and the Stressful Life Events Questionnaire.

The second area presented the formal testing of the hypotheses which were explored in the the study. The test statistics and analyses used in examining the hypotheses were Pearson Product-Moment Correlation, Multiple Regression and t-test for independent samples.

Sample Characteristics on the Variables of Interest in the Study

In an effort to better understand the variables in this study, as well as to examine relationships that may present themselves, each variable is examined separately. Frequency data are provided for each of these variables.

Locus of Control (LOC)

Locus of control was hypothesized to be significantly related to stress level as well as coping and depression. The mean LOC score for this sample was 10.0 (S.D.=3.5). The range extended from 3 to 17. There was no significant difference between male and female responses on this measure. Subjects were moderately external, based on Owen's sample of able-bodied individuals as reported by Overton (1987), mean=8.3 (S.D.=3.9). The reliability

coefficient for this scale was .59.

Coping with Disability (CDI)

An individual's ability to cope with stress especially from an industrial injury is an important aspect of the total disability process. The mean CDI score for this sample was 266.5 (S.D.=24.6), out of a possible 395. The range of individual scores for this sample was 188 to 315 indicating considerable variability among injured workers in coping with disability. There was no significant gender difference. $t = -.26$, (df=54) p = n.s. A CDI score of 266.5±5 (Question #8 was omitted on the original questionnaire.) indicates that the subjects in this study were moderately coping with their disability. The reliability coefficient for this scale was .89.

Beck Depression Scale (BDI)

In this study subjects' scores ranged from 0 to 41. The most frequent score was 8. The mean score was 9.13 (S.D. = 6.49). According to Beck, the mean BDI scores for the minimal, mild, moderate, and severe classifications are 10.9 (S.D. = 8.1), 18.7 (S.D. = 10.2), 25.4 (S.D. = 9.6) and 30.0 (S.D. = 10.4), respectively (1967, p. 196). For this group, depression would be in the minimal range (9.13 < 10.9).

There have been a number of studies examining the relationship of the BDI with gender. The overall pattern according to Beck (1988) has been mixed. Studies by Beck (1972), Nielson and Williams (1980) and Knight (1984) have reported that women have higher BDI mean scores than men. However, studies by Plumb and Holland (1977) and Schwab et al. (1967) have reported there was no significant relationship between gender and the BDI. There was no significant difference between male and female responses in this study. The reliability coefficient for this scale was .83 suggesting a high reliability value.

Social Support Dimension Scale (SSDS)

The Social Support Dimension Scale examines the functional aspects of social support. In this study four groups of individuals were examined: family, friends, co-workers, and helping professionals. Subjects checked the amount of support ranging from 0 to 3 (none, very little, average, and great) regarding four types of support (emotional support, practical assistance, companionship, and advice or information).

The mean score for this group of subjects was 23.84 (S.D.=6.86). The range extended from 10 to 47. The most frequent score was 24. There were no significant differences between male and female responses on the total score or any of the sub-scores. The alpha value for this scale was .84.

Stressful Life Events Questionnaire (SLEQ)

The total stress score for the period two years prior to injury ranged from 0 to 13. The mean was 2.96 (S.D.=3.35). The post (after injury) stress range was from 1 to 36. The mean was 9.23 (S.D.=7.38). In examining the stress scores one year prior to injury and the score for the period two years prior to injury, there is a remarkable increase in stress level in the period following the injury (6 months - 18 months). (See Table 4)

The mean score for the combined time period of two years pre-injury and post-injury was 12.20 (S.D.=7.52). The reliability coefficient for this scale was .90.

HYPOTHESIS 1

Externality will be directly related to stress level.

Based on a review of the literature, individuals classified as external in their locus of control experience higher stress (Johnson & Sarason, 1978; Lefcourt, 1981). The Pearson product-moment correlation for locus of control and stress (with stress measured by the total number of events occurring

Table 4

Comparison of Stress Levels Over Time for Subjects in the Study

	Mean	S.D.	Range
Post injury	9.23*	7.37	1-36
One year pre-injury	1.86*	2.53	0-11
Two years pre-injury	1.11*	2.11	0-12
Life Incidence from birth to two years pre-injury	8.00*	6.66	0-27
Two years pre-injury plus post-injury	12.20*	7.56	1-36

*There were no significant differences between male and female responses on any of these variables.

between two years prior to injury and the time of the study on the Stressful Life Events Questionnaire) was $r=-.12$, $p> .10$. Therefore, this hypothesis was not supported.

HYPOTHESIS 2

Externality will be inversely related to coping level.

Studies have been reported that would support the notion that individuals with external locus of control have lower coping ability (Kobasa, 1979; Sandler & Lakey, 1982). The Pearson product-moment correlation for locus of control and coping (measured by the total number of items checked on the Coping with Disability Inventory) was statistically significant $r=-.29$, $p< .05$. Therefore, this hypothesis was supported indicating that external subjects had lower coping ability at the time of the study.

HYPOTHESIS 3

Externality will be directly related to depression.The research literature lends support to the fact that individuals who are external will experience more depression (Sandler & Lakey, 1982; Mullen & Suls, 1981). A Pearson product-moment correlation for locus of control and depression (measured by the total score on the Beck Depression Scale) was statistically significant $r=.34$, $p< .01$. Therefore, this hypothesis was supported.

HYPOTHESIS 4

Locus of control moderates the effects of stress on depression and coping.

Previous research studies have supported the notion that locus of control moderates the effects of stress on depression (Johnson & Sarason, 1978; Kobasa, 1979; Sandler & Lakey, 1982). To test this hypothesis, two multiple regressions were computed, adding each variable separately. Stress was measured by the Stressful Life Events Questionnaire. The results show

Table 5

Summary Table of Sample Characteristics

	Mean	S.D.	Range
Locus of Control (LOC)	10.0	3.5	3-17
Coping with Disability (CDI)	266.5	24.6	188-315
Beck Depression Scale (BDS)	9.13	6.49	0-41
Social Support Dimension Scale (SSDS)	23.84	6.86	10-47
Stressful Life Events			
Post injury	9.23	7.37	1-36
One year pre-injury	1.86	2.53	0-11
Two years pre-injury	1.11	2.11	0-12
Life Incidence from birth to two years pre-injury	8.00	6.66	0-27

that locus of control does not moderate the effects of stress on depression. The same is true for coping. See Table 6. Therefore, this hypothesis is not supported. It should be noted that there was a statistically significant main effect of locus of control with stress in regard to depression and coping.

HYPOTHESIS 5

Social support will be inversely related to stress level.

Work by Cassel (1974), Caplan (1974) and subsequent research (Caldwell & Bloom, 1982; LaRocco, House & French, 1980) all point to the fact that social support can mitigate the effects of stress. To test this hypothesis, a Pearson product-moment correlation was calculated between social support (measured by the Social Support Dimension Scale) and stress (measured by the Stressful Life Events Questionnaire). Looking at the pre-injury period one to two years prior to injury, the results were not statistically significant, r=.13, p= n.s. The correlation for social support with stress pre and post injury combined revealed similar results, r=.09, p=n.s. Therefore, this hypothesis was not supported.

HYPOTHESIS 6

Social support will be directly related to coping level.

Literature by Caldwell and Bloom (1982), Etzion (1984), and Gottleib (1981), examine the relationship between social support and adjustment. The consensus is that social support is helpful in coping with stress. A Pearson product-moment correlation between social support and coping (measured by the Coping With Disability Inventory) revealed that r=.47, p=.000, which indicated that a statistically significant relationship existed.

Closely related to the above hypothesis is the relationship between social support and depression. If one assumes that social support has a significant positive relationship with coping, one could conclude that the

TABLE 6

Multiple Regression for Locus of Control with Depression and Coping

DEPRESSION

Variable	R^2 Change	Significance
Stress (SLEQ)	.0550	.082
Locus of Control	.1380	.004
Stress X Locus of Control	.0379	.116

COPING

Variable	R^2 Change	Significance
Stress (SLEQ)	.1112	.012
Locus of Control	.0647	.046
Stress X Locus of Control	.0025	.692

opposite would be true for social support and depression.

HYPOTHESIS 7

Social support will be inversely related to depression.

The Pearson product-moment correlation between social support and depression as measured by the Beck Depression Scale was $r=-.19$, $p = .15$. This relationship was not statistically significant. It appears that social support has a significant positive relationship with coping, but no significant relationship with depression. This hypothesis was, therefore, not supported.

HYPOTHESIS 8

Social support moderates the effects of stress on depression and coping.

Research on the moderating effects of social support is plentiful. Studies by Caldwell, Pearson and Chin (1987); Etzion (1984), Cohen and Wills (1985); and others have clarified and supported these phenomena.

Two multiple regressions were calculated adding each variable separately. Stress was measured by the Stressful Life Events Questionnaire (SLEQ). There were no statistically significant interactions between social support/stress predicting depression or between social support/stress predicting coping. See Table 7. This hypothesis was not supported. It should be noted that there was a statistically significant main effect of social support on coping.

HYPOTHESIS 9

Females will experience higher levels of stress two years prior to their injury as compared to males.

Research on injury and gender by Levenson et al. (1983) suggests that females experienced more stress than men two years prior to injury. During

marital separation, similar findings were noted (Bloom, Hodges, & Caldwell, 1982).

In order to test this hypothesis, t-tests were computed between the stress levels of men and women during the specified time. A one-tailed t-test for independent samples was not statistically significant, $t=.26$, (df-54) $p > .05$. The mean for males was 1.05, S.D.= 2.32 and the mean for females was 1.21, S.D.= 1.69. This hypothesis is not supported.

HYPOTHESIS 10

Males will experience higher levels of stress one year prior to their injury as compared to females.

This hypothesis was tested by computing one-tailed t-test for independent samples. The result was not statistically significant, $t=.19$, (df=54) $p > .05$. The mean for males was 1.81, S.D.= 2.77 and the mean for females was 1.95, S.D.= 2.04. This hypothesis was not supported.

HYPOTHESIS 11

Females will experience more depression than males at the time of the study.

Studies examining gender differences in regard to depression have overwhelmingly shown that women in Western cultures have higher rates of affective and anxiety disorders than do men (Miller & Kirsch, 1987). However, recent investigations among college students and other young homogeneous adult populations have found equal rates of morbidity in males and females - at least for depression - thus casting doubt on the notion that females are universally more depressed than males (Jenkins, 1985). Clear explanations are not found to support these mixed findings.

To test this hypothesis, the test of choice was a one-tailed t-test for independent samples. The result was not statistically significant, $t=-.32$,

TABLE 7 - SUMMARY TABLE

Multiple Regression for Social Support with Depression and Coping

DEPRESSION

Variable	R^2 Change	Significance
Stress (SLEQ)	.0550	.082
Social Support	.0412	.126
Stress X Social Support	.0264	.216

COPING

Variable	R^2 Change	Significance
Stress (SLEQ)	.1112	.012
Social Support	.2133	.000
Stress X Social Support	.0018	.713

(df=52.9) $p > .05$. The mean for males was 9.30, S.D.=7.4 and the mean for females was 8.79, S.D.=4.33. The depression level was not significantly different for men and women at the time of the study. Therefore, this hypothesis was not supported.

HYPOTHESIS 12

Females will have higher coping than males at the time of the study.

Here again, research findings have been mixed. Depending on the particular aspect of coping or strategy used, studies have not been overwhelmingly significant regarding gender differences. According to Miller and Kirsh (1987), "the available evidence shows that females are more prone to psychological distress than males are, yet do not consistently demonstrate any underlying cognitive characteristic that would account for this difference." (p. 298).

The t-test for independent samples revealed $t=.26$, (df=54), $p > .05$. There was no statistically significant difference between men and women in regard to coping at the time of the study. The mean for males was 267.14, S.D.=26.32 and the mean for females was 265.32, S.D.=21.70. Therefore, this hypothesis was not supported.

HYPOTHESIS 13

Gender moderates the effects of stress on depression and coping.

Research has shown that gender can play an important role in the stress-illness process. Work by Caldwell and Bloom, (1982) as well as Levenson, Hirshfield, et al., (1983) support the notion that men and women experience and react differently to stress, and that gender moderates stress with regard to adjustment and coping.

Multiple regression results showed that there was a statistically significant moderating effect of gender on the relationship between stress and

depression, but not between stress and coping. (See Table 8).

HYPOTHESIS 14

Females will have more social support in total than males.

Research on gender differences in regard to social support and stress are mixed. Belle's review (1987) examined gender differences. As cited in Belle (1987), Miller and Ingham (1976) found that adult men had larger networks than women while Weiss and Lowenthal (1975) discovered that the women in their sample had more friends than did men. But yet, Caldwell and Peplau (1982) found no differences between male and female unmarried college students in the total number of friends.

To test this hypothesis, a one-tailed t-test for independent samples was performed. The results were $t=.62$, $(df=54)$, $p > .05$. The mean for males was 23.43, S.D.=7.37 and the mean for females was 24.63, S.D.= 5.84. Thus this hypothesis was not supported, suggesting that for this sample there were no statistically significant differences between men and women in regard to social support at the time of the study.

HYPOTHESIS 15

Locus of control, social support and gender have a significant interaction effect.

There is substantial evidence that moderator variables interact with each other, (Caldwell et al., 1984; Etzion, 1984; Krause, 1985). Multiple regression analysis placing all variables in the equation, as well as all possible combinations, revealed no significant interactions in regard to coping. Stress was measured by the Stressful Life Events Questionnaire. With depression, there was a significant stress, locus of control, gender interaction, as well as a significant stress, social support, locus of control, gender interaction. (See Table 9.) Therefore, this hypothesis was supported. Discussion of this

TABLE 8

Multiple Regression for Gender with Depression and Coping

DEPRESSION

Variable	R^2 Change	Significance
Stress (SLEQ)	.0550	.082
Sex	.0013	.791
Stress X Sex	.0789	.034

COPING

Variable	R^2 Change	Significance
Stress (SLEQ)	.1112	.012
Sex	.0003	.899
Stress X Sex	.0000	.980

TABLE 9

Multiple Regression for Locus of Control, Social Support, and Gender with Depression and Coping.

DEPRESSION

Variable	R^2 Change	Significance
Stress (SLEQ)	.0550	.082
Sex	.0013	.790
Locus of Control	.1418	.004*
Social Support	.0204	.255
S X SS X LOC	.0070	.504
S X SS X SEX	.0560	.056
S X LOC X SEX	.2252	.000*
S X SS X LOC X SEX	.0511	.024
S X LOC		**
S X SS		**
S X SEX	.0170	.627

Table 9 continues....

TABLE 9 (cont'd)

COPING

Variable	R^2 Change	Significance
Stress	.1112	.012
Sex	.0003	.899
Locus of Control	.0661	.046
Social Support	.1820	.001*
S X SS X LOC	.0100	.377
S X SS X SEX	.0177	.239
S X LOC X SEX	.0128	.316
S X SS X LOC X SEX	.0138	.298
S X LOC		**
S X SS		**
S X SEX	.0068	.915

* Significant $p < .05$

** These variables were added in one block with S X SEX

interaction is covered in the following chapter.

SUMMARY TABLE OF RESULTS OF STATISTICAL ANALYSES OF HYPOTHESES OF THE STUDY

Hypothesis Number	Hypothesis Tested	Statistical Procedure	Significant	Level	Accepted/ Rejected
H1	Externality directly related to stress level	Pearson Correlation	No	$p > .05$	Rejected
H2	Externality inversely related to coping level	Pearson Correlation	Yes	$p < .05$	Accepted
H3	Externality directly related to depression	Pearson Correlation	Yes	$p < .05$	Accepted
H4	Locus of control moderates stress on depression and coping	Multiple Regression Analysis	No (Depression)	$p > .05$	Rejected
			No (Coping)	$p > .05$	Rejected
H5	Social support inversely related to stress level	Pearson Correlation	No	$p > .05$	Rejected
H6	Social support directly related to coping level	Pearson Correlation	Yes	$p < .001$	Accepted
H7	Social support inversely related to depression	Pearson Correlation	No	$p > .05$	Rejected
H8	Social support moderates the effects on depression and coping	Multiple Regression Analysis	No (Depression)	$p > .05$	Rejected
			No (Coping)	$p > .05$	Rejected

Hypothesis Number	Hypothesis Tested	Statistical Procedure	Significant	Level	Accepted/ Rejected
H9	Females higher stress two years prior to injury	t-test	No	$p > .05$	Rejected
H10	Males higher stress one year prior to injury	t-test	No	$p > .05$	Rejected
H11	Females less depression at time of study	t-test	No	$p > .05$	Rejected
H12	Females higher coping at time of study	t-test	No	$p > .05$	Rejected
H13	Gender moderates stress on depression and coping	Multiple Regression Analyses	Yes (Depression)	$p > .05$	Accepted
			No (Coping)	$p > .05$	Rejected
H14	Females more social support in total	t-test	No	$p > .05$	Rejected
H15	Locus of control, social support and gender have interaction effect	Multiple Regression Analyses	Yes (Depression)	$p < .05$	Accepted
			No (Coping)	$p > .05$	Rejected

Chapter IV

Introduction

This chapter will commence by discussing and interpreting the results. A critique and discussion of the limitations of the study follow. Finally, conclusions and implications for future research will be presented.

Discussion

The purpose of this study was to better understand the complex psychosocial dynamics which accompany industrial injury and resulting disability. Specifically, a multidimensional model of stress and variables which affect adaptation to stress, was explored. The conceptual model utilized included social support, locus of control, and gender. There is growing support for including more than one type of moderator variable in order to examine possible interactions of these variables, as well as develop a strong, conceptual model (Caldwell et al., 1984, Dean & Ensel, 1982).

The first hypothesis tested the relationship between the subjects' locus of control orientation as measured by the Internal-External Locus of Control Scale, and stress level as measured by the Schedule of Recent Experience.

The LOC construct has been defined both as a situational construct as well as a dispositional construct. Lefcourt (1966) suggested that LOC can be conceptualized as a dispositional characteristic which refers to a broad range of situations in which an individual perceives having control over events happening to him or her. According to Srull and Karabenick (1975) LOC can be described as a situational variable in general. This construct is an indication of an individual's generalized belief that event outcomes are contingent upon one's ability (internal) versus forces beyond control such as chance or fate (external). This instrument has been used extensively in research. It has been significant in predicting variables ranging from personal adjustment to job

satisfaction within various groups of subjects ranging from children to the elderly, as well psychiatric patients, minorities and the disabled.

In this study the reliability coefficient for the LOC scale was .59. This coefficient reflects the extent to which a measure is free of error variance. When the coeffiecient is low as in this case, precaution must be taken in interpreting results. However, if an instrument has low reliability, yet demonstrates statistically significant correlations, one could argue that even under high error variance the relationship of the variables is strong. Nunnally (1978) stated that one of the most important uses of the reliability coefficient is in estimating the extent to which obtained correlations between variables are attentuated by measurement error. As the reliability increases, so does the correlation. Certainly, one would urge that future research utilize more reliable measures to test the relationships between variables in question.

The Schedule of Recent Experience is one of the most highly utilized instruments in stress research. There have been numerous stress scales derived from this measure. Controversy regarding the use of weighted and unweighted items is still found in the literature. According to Shrout (1984) although there has been discussion in the literature on life-event scaling for more than a decade, there has been no conclusive proof that one method is better than another in predicting health status. To this date the perfect life stress questionnaire has not been discovered.

The results of the first hypothesis showed no statistically significant relationship between externality on the locus of control measure and stress level. This finding is contrary to much of the research literature demonstrating a relationship between locus of control and life-event measures. Most findings in this regard point to the fact that externals experience more stress or report higher levels of stress (Kobasa, 1979, Sarason et al., 1978). However, Lefcourt

(1984) reported a relatively independent relationship between Rotter's I-E scale and a life-event measure in a group of fifty-nine college students. His explanation for this phenomenum is that the life-events measure, which requests that a subject recall past events, may be biased by the moods that are assessed by the mood scales; and in turn, locus of control scores may likewise reflect current moods.

Hypotheses two and three are closely related. A statistically significant negative relationship was established for hypothesis two between the subjects' locus of control orientation as measured by the Internal-External Locus of Control Scale and coping level as measured by the Coping with Disability Inventory.

In hypothesis three a statistically significant positive relationship was established between the subjects' locus of control orientation as measured by the Internal-External Locus of Control Scale and depression as measured by the Beck Depression Scale.

The CDI is a relatively new instrument. The original work by Kulcharni and Blom (1985) was designed to assess coping status, defined as an individual's current status with the use of coping behaviors and the level of achievement of coping outcomes (social competence and quality of life).

Overton (1987) further analyzed the CDI. Her findings supported the validity and reliability of the total score, however, the validity of the subscales of this instrument, as originally proposed by Kulcharni (1985) was not supported. She admits that her findings should be viewed with caution because her small homogeneous sample limits the generalizability of her results. Overton (1987) stated in her review of Kulcharni's work (1985) that this scale separated the process of coping from the outcomes of coping. The process of coping included coping behaviors similar to the description by Lazarus and Folkman

(1985) but more specific to disability. The outcomes of coping were suggestive of increased quality of life and increased competence.

The definition of coping according to Kulcharni (1985) is:

> An active psychosocial process characterized by a persistent effort to overcome, master and solve problems, issues, and dilemmas within the person and in the outside world, connected to or unconnected with the disability. This process occurs in the context of individual-environmental transactions, such as belief systems and cultural practices. Coping facilitates the development of competence and quality of life, which are behavioral outcomes, but it does not guarantee their occurrence (p. 17).

This researcher felt that the total score on the coping with disability inventory would by a good outcome measure to indicate an individual's behavioral and psychological adjustment to injury.

In regard to the Beck Depression Scale, twenty-five years of research literature about this instrument has accumulated since it's introduction in 1961 (Beck, Ward, Mendelson, Mock & Erbaugh, 1961). It was revised in 1971 and copyrighted in 1978 (Beck, Rush, Shaw & Emery, 1979). The Beck scale is one of the most popular and widely used instruments utilized in assessing the intensity of depression in psychiatrically diagnosed patients (Piotrowski, Sherry & Keller, 1985), but also for examining depression in nonpsychiatric populations (Steer, Beck & Garrison, 1986).

In examining the results of hypotheses two and three, it would seem logical that if external subjects are less effective at coping, then they would also suffer higher levels of depression. For this group of subjects, this was the case.

The research literature examining locus of control and coping/depression is fairly consistent. The earliest support for the control construct with depression is the work by Johnson and Sarason (1978). Their basic finding was that only those subjects with external locus of control

experienced depression in the face of stressful life events. In a somewhat related study by Huisaini, Neff, Newbrough and Moore (1982) in seven out of eight separate regression analyses, the subjects who had a sense of "personal competence" were less likely to experience depression when dealing with life events. Benassi, Sweeney and Dufour (1988) reported findings that the greater the externality of the subject, the greater the depression experienced. Locus of control was significantly related to depression. This relationship was moderately strong and consistent across the studies they reviewed.

Hypothesis four stated that locus of control would moderate the effects of stress in the context of depression and coping. That is, there would be an interactive effect between locus of control and stress. The results did not bear this out.

Cohen and Edward (1986) concluded that locus of control orientation is the personality characteristic with the most consistent and strongest evidence for stress buffering. In the present study there was a statistically significant main effect of locus of control with depression and coping. Some investigators equate evidence for stress buffering exclusively with a demonstrated interaction between stress and a variable (e.g., locus of control, social support) (Gore, 1981, Thoits, 1982), while others suggest an additive version of stress-buffering as well (Billings and Moos, 1981, Dean & Lin, 1977). Wheaton (1985) clarifies this researcher's position on this issue. He distinguishes between types of stress-buffering. A resource that moderates the effect of stress (interactive version) points to a condition, under which stress has substantially less impact. He goes on to explain that a resource that suppresses the effect of stress (main effect version) is generally mobilized by increases in stress, and as a result, dampens its overall causal impact. The suppressor role of a coping resource applies equally across all levels of stress. In the case of a moderator variable,

because of the multiplicative nature of the effect, the reduction in distress resulting from the resource typically will increase as stress increases.

Another type of main effect variable is one that is independent of the level of stress. It is benficial to the indivdual under high or low stress. For example, locus of control is not mobilized (i.e., the higher the stress, the more internal) but rather has an independent effect under any stress level.

Hypothesis five tested the relationship between the subjects' level of social support as measured by the Social Support Dimension Scale and level of stress as measured by the Schedule of Recent Experience.

The Social Support Dimension Scale is a newly developed instrument (Caldwell & Reinhart, 1988). There has been limited usage of this measure, but reliability testing has demonstrated high alpha values.

The results of this hypothesis were not statistically significant indicating that there was no relationship between social support and stress level. Three studies were found in the literature which specifically noted that their stress and support measures were not correlated (Habif & Lahey, Paykel et al., 1980, Sandler, 1980). This finding helped to rule out the possibility that buffering effects may be artifactual in light of significant buffering interactions in these studies. It should be noted that in the present study there was a statistically significant main effect of social support on coping. This finding covers the content of hypothesis six. The more support one has, the higher the coping level. Social support can provide resources such as reassurance of worth, assistance in problem solving, and practical assistance; these resources are critical to the development of self-concept and esteem, they help prevent demoralization in times of stress, they increase options when dealing with adaptation or loss, and they sometimes facilitate a more active style of coping (Antonucci & Depner, 1982; Cobb, 1976; Hirsch, 1981).

In hypothesis seven, the relationship between social support as measured by the Social Support Dimension Scale and depression as measured by the Beck Depression Scale was tested. No statistically significant relationship was established. This lack of a significant negative relationship between social support and depression is contrary to the majority of research examining these variables. One possible explanation may be the instrument utilized to measure the variables. At this juncture in the research literature, a dialogue continues regarding what constitutes support, and how it should be measured. The Social Support Dimension Scale is relatively new and it may not be sensitive to the particular aspect of social support that would demonstrate a significant relationship with depression. Another possible explanation could be the subjects' understanding of the scale as well as possible denial in regard to depression. This group of disabled workers was moderately coping and minimally depressed. Additionally, these phenomena could well be peculiar to this group of individuals.

Social support did not have a statistically significant effect in regard to moderating the effects of stress in the context of depression and coping. That is, there was no interaction effect between stress and social support in the context of depression or coping. There was a statistically significant main effect of social support with coping but not with depression. In examining extensive research studies, Payne and Jones (1987) stated that the results are mixed regarding both the main effects as well as the interactive effects of social support. Several researchers (Thoits, 1982; Kessler et al., 1985) almost take for granted that evidence exists demonstrating a strong association between social support and psychological symptoms. However, Leavy (1983) does caution that the size of the association is weak.

Payne and Jones (1987) in their review on main effects between social

support and psychological symptomatology argue that the range of variance shared between support and symptoms is 0 to 26% (Lin et al., 1979; Cohen et al., 1984). They further state that evidence in support of the interaction effect is also not clear.

One of the possible explanations why the evidence is not clear is that there may be measurement contamination. For example, a depressed person may report they get poor support because they are depressed. (The symptoms may affect the way they perceive the quality of support or the support they actually receive.)

Hypotheses nine and ten examined stress levels one to two years prior to injury for males and females. No differences were found to be statistically significant for either time period. These findings are contrary to the results of Levenson et al., (1983) regarding sex differences in industrial injury as well as other research. The Levenson study (1983) had a much larger sample. This could possibly explain the difference in results. Also, the present study did not break down the sources of the stressors but utilized a total stress score. Perhaps closer examination of these sources would demonstrate differences between men and women. It is interesting to note that in the Levenson study (1983) there were no gender differences post injury regarding level of stress reported as was true in the present study.

Hypotheses eleven and twelve are closely related and therefore, will be discussed in conjunction with each other. Hypothesis eleven tested for differences between male and females regarding depression as measured by the Beck Depression Scale, while hypothesis twelve tested for differences between males and females regarding coping as measured by the Coping with Disability Inventory. No statistically significant differences were established.

According to Al-Issa (1982) women report significantly higher rates of

psychological distress than men. Other researchers have demonstrated that women adjust somewhat better than men to the death of a spouse (Stroebe & Stroebe, 1983), that they are less emotionally affected than men by financial difficulties (Kessler, 1982) and cope better than men with the long-term aftermath of separation and divorce (Wallerstein & Kelly, 1980).

Miller and Kirsh (1987) have suggested several plausible explanations why the results are mixed regarding sex differences in the context of coping and depression: (1) past research has overlooked the most likely domains for the existence of these differences (i.e. males and females differ in their use of aggression; "acting out" may be a significant variable to consider as a potential mode for coping). (2) male and female responses may be biased in that males tend to underreport their symptoms, while females may overreport. It is possible that males may "mask" their depression due to the socialization process. (3) traditional theories do not tap the relevant cognitions to explain the sex differences in depression and coping or the opposite, that the cognitive level is not the route for sex differences. This view suggests that perhaps the higher incidence of pathology in females may be due to some other etiological factor, such as higher incidence of life stresses, biological predisposition, etc.

Hypothesis thirteen examined the possible interactive effects of gender and stress as measured by the Stressful Life Events Questionnaire in the context of coping and depression. There was a statistically significant interactive effect with gender and stress in the context of depression, but not with coping.

In examining the particular conditions under which the interaction takes place, it would appear that under high stress women were significantly less depressed (See Table 11), the opposite was true under low stress.

One possible explanation for this finding is that females have a diverse

Table 11: Mean BDI Scores for Males and Females Under High and Low Stress

	Stress	
	High	Low
Females	8.4	9.22
Males	10.79	7.72

Overall population mean = 9.12.

set of roles, (i.e. mother, wife, worker) that require equal amounts of demands upon them, while men place a larger emphasis on work or being the bread winner. When work is removed from men's lives it may cause more stress, consequently, they may feel more hopeless than females who may experience relief rather than depression.

Hypothesis fourteen tested the gender differences in social support as measured by the Social Support Dimension Scale. No statistically significant difference was established. Again, the sample was small, and perhaps the items on the social support scale may not have been sensitive enough to detect any difference.

The last hypothesis tested the interaction effect of gender locus of control and social support in the context of coping and depression. There were no interactions of variables in regard to coping. There was however a statistically significant interaction effect of locus of control, gender and stress with depression as well as one with gender, stress, locus of control and social support. Examination of these interactions are helpful. It would appear that internal women under high stress experienced the least amount of depression (See Table 12). External men on the other hand under high stress experienced the most depression. Internal locus of control seemed to produce the lowest depression across the board except for internal women under low stress. This might be explained in terms of the conceptualization of the life events included in the stress questionnaire. There has been research to indicate that daily disruptions or "hassles" are more difficult for women than major life events (Delongis, Coyne, Dahof, Folkman & Lazarus, 1982). Another plausible explanation is given by Rotter (1966). He indicated that extreme internality may work against adjustment and could indicate significant maladjustment.

In terms of the interaction effect of stress with gender, locus of control,

Table 12: Mean BDI Scores for Stress, Gender and Locus of Control

	Stress			
	High		Low	
	Locus of control			
	Internal	External	Internal	External
Females	5.33	9.71	10.00	8.60
Males	8.40	13.44	6.10	9.75

Entire population mean = 9.13

and social support, some interesting findings are noted, but difficult to explain. The highest depression mean occurred for external men under high stress with high support (see Table 13). The lowest depression level was for internal women under high stress with low social support. Women experienced generally lower depression except for two situations both with external locus of control, but in one instance stress was low with support high and in the other stress was high with support low. Because of the size of this sample, caution must be taken regarding interpretation of the above findings. For example, some of the cells have only one or two subjects.

Regarding gender differences in locus of control and stress, research results are mixed. Toves, Schill, and Ramanaiah (1981), replicated the earliest control study by Johnson and Sarason (1978) and found internal locus of control to be a stress resistance resource to men only. Lefcourt (1982) described subdividing his subjects and findings that internal/external orientation had no impact on how women responded to stressors. The males in the study enjoyed the buffering effect. A third study by Huisaini et al. (1982) showed even more diverse findings. They concluded that for both men and women, there were direct influences from life events and personal competence on depression.

In 1978 Pearlin and Schooner examined important data on women and control. One of their conclusions is that mastery (the extent to which one sees one's life chances as being under one's control in contrast to being fatalistically ruled) is found predominantly among the males in the study. They attribute this difference to socialization patterns which less adequately prepare women to deal with the stressors of life.

There were no gender differences in the present study of industrially injured workers. Research by Overton (1987) demonstrated similar results with

Table 13: Breakdown Mean BDI Scores for Stress, Gender, Locus of Control and Social Support

Stress

	High				Low			
	Social Support							
	High		Low		High		Low	
	Locus of control							
	Int	Ext	Int	Ext	Int	Ext	Int	Ext
Females	6.00	10.66	4.00	9.00	8.50	7.00	11.50	11.00
Males	8.62	17.33	7.50	5.66	6.20	8.75	6.00	10.75

Entire Population Mean Score = 9.13

a group of disabled athletes. One of the possible explanations for this study's results may be that employed men and women in jobs with similar levels of control and demand might be considered having similar roles. Additionally, when considering industrial injury, one could conclude that the experience is similar for both sexes because of the unexpected nature of injury. Barnet, Biener and Baruch (1987) felt that the task for researchers was to identify gender-relevant situations that are perceived as equally stressful and then examine stress reactions.

Limitations

This study utilized a correlational survey approach. According to Fox (1969), the correlational survey is designed to estimate the extent to which different variables are related to each other in the population of interest. The critical distinguishing characteristic is the effort to estimate a relationship.

There are several advantages to this type of research: (a) it permits one to measure a great number of variables and their interrelationships simultaneously; (b) it provides information concerning the degree of relationships between the variables being studied; (c) it is appropriate when the research situation is not particularly suited to the experimental method.

Although the correlational method does serve as a useful hypothesis-generating procedure, the results of such an investigation can never be statements of cause and effect such as is the case of true experiments, and therefore generalizations from this study are limited. Hypotheses for possible research consideration are included at the end of this section.

A further limitation of this study was the size of the sample. The referral source was not able to produce the number of subjects originally proposed. Attempts were made to increase the size, but due to time constraints, cost, and

location of potential subjects, efforts were discontinued after 56 subjects had been interviewed. These subjects all volunteered to participate. They were not randomly obtained, and most likely the results are not representative of the total population of disabled workers.

Another drawback of this study was the lack of a control group so that comparisons could be made between groups, in an attempt to discover significant differences and similarities. Beyond the limitations already mentioned, it is apparent that the instruments utilized required a great deal of time and persistence to complete. Many of these subjects requested assistance with directions and/or reading of the material. Due to the nature of some of the injuries, several clients asked to complete the questionnaires at home because they were experiencing pain or discomfort which affected their concentration.

Lastly, the instrumentation utilized had limitations. Overton (1987) completed extensive investigation on the Coping with Disability Inventory. She recommended that this questionnaire required further study to discover what it is measuring in more detail. She did feel that there was validity and reliability for the total score as opposed to the subscales. The use of the Stressful Life Events Questionnaire had some limitations as well that may have affected the accuracy and reliability of the total score. It is important to note that the demographic portion of the SLEQ had never been used before, and it is possible that the construction or wording biased responses from participants on these data. In addition there have been numerous studies concerning the nature of stressful life events. Specifically, research has focused on the question of whether the stressfulness of an event is a function or the amount of change it entails, regardless of whether the change is positive or negative, or whether only events that involve an undesirable change are stressful

(Dohrenwend & Dohrenwend, 1984). Discussion and investigation into this question is still mixed. Perhaps, further refinement of stress questionnaires in general is necessary before a truly reliable measure can be established.

Shrout (1984) has suggested that future research utilizing life-event scaling should seriously consider weighting of the items. This is the only way to discover what it is about certain life events that makes them more related to illness than other kinds of events. The difference among events is what is achieved by weighting.

Another consideration is that each new population under investigation may have important life events that are peculiar to their situation. It would be paramount to identify the characteristics of the important life events in order to capture the complete impact they might have upon the population under investigation.

Conclusions

It is evident that the stress process is a complex one. This study examined industrial injury within the context of this process by taking into account variables that positively or negatively influenced the individual's adjustment. This was accomplished by utilizing a multidimensional model, incorporating biological, social, and personality moderators (gender, social support and locus of control).

It is important to re-exam the conceptual model developed for this study. Based on the results which were obtained from this research the following can be stated:

(1) Gender was the only variable examined that had an interactive or modifier effect on the outcome variable of depression. In addition, there was a statistically significant interaction effect of the variables with each other in regard to depression. Specifically, there was a STRESS x GENDER x LOCUS

OF CONTROL interaction, as well as a STRESS x GENDER x LOCUS OF CONTROL x SOCIAL SUPPORT interaction.

Recent work by Krause (1987) attempted to demonstrate that social support operates by bolstering internal locus of control beliefs. This very well may explain why only one of the variables had an interaction effect singularly, but produced several when taken in combination.

(2) A statistically significant main effect was demonstrated for locus of control on both coping and depression. In a longitudinal study by Huisaini and von Frank, A. (1985), results showed that locus of control, as a measure of personal resources, had the most marked effect on depression.

(3) Social support demonstrated a main effect on coping.

(4) There were no gender differences on any of the variables. That is men and women experienced this life event in a similar manner.

A recent article by Ell (1986) called for a more integrative conceptual framework to advance theory and enhance the applied value of research data. She suggested that researchers include social support, locus of control, and various coping strategies in investigation.

There are some practical implications that can be derived from the present study. If locus of control and social support have main effects on depression and coping, then it would be reasonable to believe that injured workers need to feel that they have some control over their lives and that they have support in order to cope and adjust to their situation. It is also important to note that men and women have different reactions to stress. Perhaps fine tuning our understanding of these dynamics will allow counselors, claims personnel, physicians, and others who interact with this group, to assist more effectively.

Implications for Future Research

This research is only a preliminary study into the complex injury disability process. These are several characteristics of stress research which make this a challenging area of investigation in regard to workers' disability. First of all, the basic goal of research is to establish cause-effect relationships rather than merely descriptive. It would be helpful to definitively understand those variables that assist or harm individuals in an injury situation. Obviously, the more understanding of this process, the more assistance can be given to the individual. Certainly measurement of important variables runs into problems of assessment, bias, and confounding. More "fine tuning" of instruments are required in order to address these difficult problems.

Many questions remain unanswered in regard to stress research in general and even more are created regarding injury as a stressful life event. Before a reliable and valid model can be formulated and tested the following research questions need to be considered;

- What role does gender play, if any, in the adjustment of injured workers? Are there real differences between the sexes in this particular life stress or were the instruments not sensitive enough to detect them?

- Are social support and locus of control constructs too broad? Should they be fractionalized when used in stress research?

- Are there other variables that might be significant such as income level, education, or age?

- Since stress occurs over time, would longitudinal studies with control groups demonstrate more significant results?

Although there probably will never be the perfect design to examine work injury, at least an attempt has been made to increase the base of knowledge in this arena.

APPENDICES

APPENDIX A

CONSENT TO PARTICIPATE FORM

APPENDIX A

Date _____

CONSENT TO PARTICIPATE

I, _____, understand that I have been asked to participate in a study regarding disabled workers who have recently experienced a work-related injury. This will require my answering a set of questionnaires, but my name will not be used on any of these questionnaires to protect my identity.

At the present time, I can honestly state I am not experiencing any lapses in memory/memory problems that would interfere with my recall of dates/events, etc. However, I recognize that I may dismiss myself from the study prior to completing the questionnaire if I so choose for any reason.

I further understand that participation in this study will not produce any harmful psychological events to my person. Additionally, I also understand that in no way is the continuation/termination of my disability benefits paid to me connected to this study. Finally, I understand that any

responses I give will not be used by the researcher in a manner that would reveal my identity or violate my inherent right to privacy.

Signed	Witnessed by
Date	Date
Code #	Date Completed
Interviewer	

APPENDIX B

STRESSFUL LIFE EVENTS QUESTIONNAIRE

APPENDIX B

Questionnaire, Form 2

Marital Status (circle one)

1. Single now and never married
2. Divorced/Widowed/Separated
3. Married/Living with Partner

Sex (circle one)

4. Female
5. Male

Dependents In/Out of Household at Present

6. Number of dependent children not living in same household with you at present _____. (specify)

7. Number of dependent children living in same household with you at present _____. (specify)

Occupation (circle one)

8. Factory Worker
9. Office Worker (non managerial/administrative)
10. Managerial/Administrative
11. Service (Waiter, Waitress, Hairdresser, etc.)
12. Skilled Trade
13. Business Owner
14. Other

Race (circle one)

15. Black
16. White
17. Hispanic
18. Other_____ (specify)

Country of Origin/Birth (circle one)

19. American born

20. Foreign born _____
(specify country)

Instructions:

To answer the questions below, mark an "X" in one or more of the columns to the right of each question. If the event in question has occurred to you within the past two years, indicate when it occurred by marking the appropriate column: 0-6 months ago, 7-12 months ago, etc. It may be the case with some of the events below that you experienced them over more than one of the time periods listed for the past two years. If so, mark all the appropriate columns. If the event has not occurred to you during the last two years (or has never occurred to you) mark the last column with an "X".

Now go through the questionnaire and mark your recent life changes.

A. HEALTH

Within the time periods listed, have you experienced:	19-24 mos. ago	13-18 mos. ago	7-12 mos. ago	0-6 mos. ago	Over 2 Years Ago	Never
21. An illness or injury which:						

	19-24 mos. ago	13-18 mos. ago	7-12 mos. ago	0-6 mos. ago	Over 2 Years Ago	Never
(a) kept you in bed a week or more, or took you to the hospital?	____	____	____	____	_____	____
(b) was less serious than described above?	____	____	____	____	_____	____
22. a major change in eating habits?	____	____	____	____	_____	____
23. a major change in sleeping habits?	____	____	____	____	_____	____
24. a change in your usual type and/or amount of recreation?	____	____	____	____	_____	____
25. major dental work	____	____	____	____	_____	____
B. WORK						
Within the time period listed, have you:						
26. changed to a new type of work?	____	____	____	____	_____	____

	19-24 mos. ago	13-18 mos. ago	7-12 mos. ago	0-6 mos. ago	Over 2 Years Ago	Never
27. changed your work hours or conditions?	____	____	____	____	_____	____
28. had a change in your responsibilities at work, such as: (check all that apply)						
(a) more responsibilities?	____	____	____	____	_____	____
(b) less responsibilities?	____	____	____	____	_____	____
(c) promotion?	____	____	____	____	_____	____
(d) demotion?	____	____	____	____	_____	____
(e) transfer?	____	____	____	____	_____	____
29. experienced troubles at work (check all that apply)						
(a) with your boss?	____	____	____	____	_____	____
(b) with co-workers?	____	____	____	____	_____	____
(c) with persons under your supervision?	____	____	____	____	_____	____

	19-24 mos. ago	13-18 mos. ago	7-12 mos. ago	0-6 mos. ago	Over 2 Years Ago	Never
(d) other work troubles?	____	____	____	____	_____	____
30. experienced a major business readjustment?	____	____	____	____	_____	____
31. retired?	____	____	____	____	_____	____
32. experienced being:						
(a) fired from work?	____	____	____	____	_____	____
(b) laid off from work?	____	____	____	____	_____	____
33. taken courses by mail or studied at home to help you in your work?	____	____	____	____	_____	____
C. HOME AND FAMILY						
Within the time periods listed, have you experienced:						
34. a change in residence such as:						
(a) a move within the same town or city?	____	____	____	____	_____	____
(b) a move to a different town, city or state?	____	____	____	____	_____	____

		19-24 mos. ago	13-18 mos. ago	7-12 mos. ago	0-6 mos. ago	Over 2 Years Ago	Never
35.	a change in family "get-togethers"?	____	____	____	____	_____	____
36.	a major change in the health or behavior or a family member (illness, accidents, drug or disciplinary problems, etc.)?	____	____	____	____	_____	____
37.	major change in your living conditions (home improvements or a decline in your home or neighborhood)?	____	____	____	____	_____	____
38.	the death of a spouse?	____	____	____	____	_____	____
39.	the death of a: (check all that apply)						
	(a) a child?	____	____	____	____	_____	____
	(b) brother or sister?	____	____	____	____	_____	____
	(c) parents?	____	____	____	____	_____	____

	19-24 mos. ago	13-18 mos. ago	7-12 mos. ago	0-6 mos. ago	Over 2 Years Ago	Never
(d) other close family member?	___	___	___	___	_____	___
40. the death of a close friend?	___	___	___	___	_____	___
41. a change in the marital status of your parents: (check all that apply)						
(a) divorce?	___	___	___	___	_____	___
(b) remarriage?	___	___	___	___	_____	___

NOTE:

(Questions 42-53 concern marriage. For persons never married, proceed to Item 54.)

42. marriage?	___	___	___	___	_____	___
43. change in arguments with spouse?						
(a) an increase in arguments with your spouse?	___	___	___	___	_____	___
(b) a decrease in arguments with your spouse?	___	___	___	___	_____	___

	19-24 mos. ago	13-18 mos. ago	7-12 mos. ago	0-6 mos. ago	Over 2 Years Ago	Never
(c) no change in arguments with spouse?	____	____	____	____	_____	____
44. in-law problems?	____	____	____	____	_____	____
45. a separation from spouse:						
(a) due to work?	____	____	____	____	_____	____
(b) due to marital problems?	____	____	____	____	_____	____
46. a reconciliation with spouse?	____	____	____	____	_____	____
47. a divorce?	____	____	____	____	_____	____
48. a gain of a new family member:						
(a) birth of a child?	____	____	____	____	_____	____
(b) adoption of a child?	____	____	____	____	_____	____
(c) a relative moving in with you?	____	____	____	____	_____	____

	19-24 mos. ago	13-18 mos. ago	7-12 mos. ago	0-6 mos. ago	Over 2 Years Ago	Never
49. wife beginning or ceasing work outside the home?	___	___	___	___	_____	___
50. wife becoming pregnant?	___	___	___	___	_____	___
51. a child leaving home:						
(a) due to marriage?	___	___	___	___	_____	___
(b) to attend college?	___	___	___	___	_____	___
(c) for other reasons?	___	___	___	___	_____	___
52. wife have a miscarriage or abortion?	___	___	___	___	_____	___
53. birth of a grandchild?	___	___	___	___	_____	___
D. PERSONAL AND SOCIAL						
Within the time periods listed, have you experienced:						
54. a major personal achievement?	___	___	___	___	_____	___
55. a change in your personal habits (your dress, friends, life-style, etc.)?	___	___	___	___	_____	___

		19-24 mos. ago	13-18 mos. ago	7-12 mos. ago	0-6 mos. ago	Over 2 Years Ago	Never
56.	sexual difficulties?	____	____	____	____	_____	____
57.	beginning or ceasing school or college?	____	____	____	____	_____	____
58.	change of school or college?	____	____	____	____	_____	____
59.	a vacation?	____	____	____	____	_____	____
60.	a change in your religious beliefs?	____	____	____	____	_____	____
61.	a change in your social activities (clubs, movies, visiting)?	____	____	____	____	_____	____
62.	a minor violation of the law?	____	____	____	____	_____	____
63.	legal troubles resulting in your being in jail?	____	____	____	____	_____	____
64.	a change in your political beliefs?	____	____	____	____	_____	____
65.	a new, close personal relationship?	____	____	____	____	_____	____

	19-24 mos. ago	13-18 mos. ago	7-12 mos. ago	0-6 mos. ago	Over 2 Years Ago	Never
66. an engagement to marry?	____	____	____	____	____	____
67. a "falling out" of a close personal relationship?	____	____	____	____	____	____
68. girlfriend (or boyfriend) problems?	____	____	____	____	____	____
69. a loss or damage of personal property?	____	____	____	____	____	____
70. an accident?	____	____	____	____	____	____
71. a major decision regarding your immediate future?	____	____	____	____	____	____

E. FINANCIAL

Within the time periods listed, have you:

72. taken on a moderate purchase, such as a T.V., car, freezer, etc.?	____	____	____	____	____	____
73. taken on a major purchase or a mortgage loan, such as a home, business, property, etc.?	____	____	____	____	____	____

	19-24 mos. ago	13-18 mos. ago	7-12 mos. ago	0-6 mos. ago	Over 2 Years Ago	Never
74. experienced a foreclosure on a mortgage or loan?	____	____	____	____	_____	____
75. experienced a major change in finances: (circle all that apply)						
(a) increased income?	____	____	____	____	_____	____
(b) decreased income?	____	____	____	____	_____	____
(c) credit rating difficulties?	____	____	____	____	_____	____

76. Number of years in present job (specify) _____

77. Number of years in present company (specify) _____

Income (not including income from disability benefits)

(circle one)

78. $0-$4,999
79. $5,000-$9,999
80. $10,000-$14,999
81. $15,000-$19,999
82. $20,000-$24,999
83. $25,000-$29,999
84. $30,000-$34,999
85. $35,000 and above

_____ Code #

_____ Date Completed

_____ Interviewer

APPENDIX C

INTERNAL/EXTERNAL LOCUS OF CONTROL SCALE

APPENDIX C
Questionnaire, Form 3

Instructions:

This is a questionnaire to find out the way in which certain important events in our society affect different people. Each item consists of a pair of alternatives lettered a or b. Please select the one statement of each pair (and only one) which you more strongly believe to be the case as far as you're concerned. Be sure to select the one you actually believe is to be more true rather than the one you think you should choose or the one you would like to be true. This is a measure of personal belief; obviously there are no right or wrong answers.

In some instances you may discover that you believe both statements or neither one. In such cases, be sure to select the response you strongly believe to be more true as far as you're concerned. Also try to respond to each item independently when making your choice; do not be influenced by your previous choices.

1. __a. Children get into trouble because their parents punish them too much.

   __b. The trouble with most children nowadays is that their parents are too easy with them.

2. __a. Many of the unhappy things in people's lives are partly due to bad luck.

   __b. People's misfortunes result from the mistakes they make.

3. __a. One of the major reasons why we have wars is because people don't take enough interest in politics.

   __b. There will always be wars, no matter how hard people try to prevent them.

4. __a. In the long run people get the respect they deserve in this world.

   __b. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.

5. __a. The idea that teachers are unfair to students is nonsense.

   __b. Most students don't realize the extent to which their grades are influenced by accidental happenings.

6. __a. Without the right breaks one cannot be an effective leader.

   __b. Capable people who fail to become leaders have not taken advantage of their opportunities.

7. __a. No matter how hard you try some people just don't like you.

__b. People who can't get others to like them don't understand how to get along with others.

8. __a. Heredity plays the major role in determining one's personality.

__b. It is one's experiences in life which determine what they're like.

9. __a. I have often found that what is going to happen will happen.

__b. Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.

10. __a. In the case of the well prepared student there is rarely if ever such a thing as an unfair test.

__b. Many times exam questions tend to be so unrelated to course work that studying is really useless.

11. __a. Becoming a success is a matter of hard work, luck has little or nothing to do with it.

__b. Getting a good job depends mainly on being in the right place at the right time.

12. __a. The average citizen can have an influence in government decisions.

__b. This world is run by the few people in power, and there is not much the little guy can do about it.

13. __a. When I make plans, I am almost certain that I can make them work.

    __b. It is not always wise to plan too far ahead because many things turn out to be a matter or good or bad fortune anyhow.

14. __a. There are certain people who are just no good.

    __b. There is some good in everybody.

15. __a. In my case getting what I want has little or nothing to do with luck.

    __b. Many times we might must as well decide what to do by flipping a coin.

16. __a. Who gets to be the boss depends on who was lucky enough to be in the right place first.

    __b. Getting people to do the right thing depends on ability; luck has little or nothing to do with it.

17. __a. As far as world affairs are concerned, most of us are the victims of forces we can neither understand, nor control.

    __b. By taking an active part in political and social affairs the people can control world events.

18. __a. Most people don't realize the extent to which their lives are controlled by accidental happenings.

    __b. There really is no such thing as "luck".

19. __a. One should always be willing to admit his mistakes.

    __b. It is usually best to cover up one's mistakes.

20. __a. It is hard to know whether or not a person really likes you.

    __b. How many friends you have depends on how nice a person you are.

21. __a. In the long run the bad things that happen to use are balanced by the good ones.

    __b. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.

22. __a. With enough effort we can wipe out political corruption.

    __b. It is difficult for people to have much control over the things politicians do in office.

23. __a. Sometimes I can't understand how teachers arrive at the grades they give.

    __b. There is a direct connection between how hard I study and the grades I get.

24. __a. A good leader expects people to decide for themselves what they should do.

    __b. A good leader makes it clear to everybody what their jobs are.

25. __a. Many times I feel that I have little influence over the things that happen to me.

    __b. It is impossible for me to believe that chance or luck plays an important role in my life.

26. __a. People are lonely because they don't try to be friendly.

    __b. There's not much use in trying too hard to please people, if they like you, they like you.

27. __a. There is too much emphasis on athletics in high school.

    __b. Team sports are an excellent way to build character.

28. __a. What happens to me is my own doing.

    __b. Sometimes I feel that I don't have enough control over the direction my life is taking.

29. __a. Most of the time I can't understand why politicians behave the way they do.

    __b. In the long run the people are responsible for bad government on a national as well as on a local level.

Code # _____ Date Completed _____

Interviewer _____

APPENDIX D

BECK DEPRESSION SCALE

APPENDIX D

Questionnaire, Form 4

DIRECTIONS:

On this questionnaire are groups of statements for you to read. After carefully reading each group of statements, pick out the one statement in each group which best describes the way you have been feeling during the past month. Circle the number which corresponds to the statement you picked on the numbered response line for each question.

1. 0 I do not feel sad.
   1 I feel sad.
   2 I am sad all the time and can't snap out of it.
   3 I am so sad or unhappy that I can't stand it.
2. 0 I am not particularly discouraged about the future.
   1 I feel discouraged about the future.
   2 I feel I have nothing to look forward to.
   3 I feel that the future is hopeless and that things cannot improve.
3. 0 I do not feel like a failure.
   1 I feel I have failed more than the average person.
   2 As I look back on my life, all I can see is a lot of failures.
   3 I feel I am a complete failure as a person.

4. 0 I get as much satisfaction out of things as I used to.
   1 I don't enjoy things the way I used to.
   2 I don't get real satisfaction out of anything anymore.
   3 I am dissatisfied or bored with everything.

5. 0 I don't feel particularly guilty.
   1 I feel guilty a good part of the time.
   2 I feel quite guilty most of the time.
   3 I feel guilty all of the time.

6. 0 I don't feel I am being punished.
   1 I feel I may be punished.
   2 I expect to be punished.
   3 I feel I am being punished.

7. 0 I don't feel disappointed in myself.
   1 I am disappointed in myself.
   2 I am disgusted with myself.
   3 I hate myself.

8. 0 I don't feel I am any worse than anybody else.
   1 I am critical of myself for my weaknesses or mistakes.
   2 I blame myself all the time for my faults.
   3 I blame myself for everything that happens.

9. 0 I don't have any thoughts of killing myself.
   1 I have thoughts of killing myself, but I would not carry them out.

2 I would like to kill myself.

3 I would kill myself if I had the chance.

10. 0 I don't cry anymore than usual.

1 I cry more now than I used to.

2 I cry all the time now.

3 I used to be able to cry, but now I can't cry even though I want to.

11. 0 I am no more irritated now than I ever am.

1 I get annoyed or irritated more easily than I used to.

2 I feel irritated all the time now.

3 I don't get irritated at all by the things that used to irritate me.

12. 0 I have not lost interest in other people.

1 I am less interested in other people than I used to be.

2 I have lost most of my interest in other people.

3 I have lost all of my interest in other people.

13. 0 I make decisions about as well as I ever could.

1 I put off making decisions more than I used to.

2 I have greater difficulty in making decisions than before.

3 I I can't make decisions at all anymore.

14. 0 I don't feel I look any worse than I used to.

1 I am worried that I am looking old or unattractive.

2 I feel that there are permanent changes in my appearance that make me look unattractive.

3 I believe that I look ugly.

15. 0 I can work about as well as before.

1 It takes an extra effort to get started at doing something.

2 I have to push myself very hard to do anything.

3 I can't do any work at all.

16. 0 I can sleep as well as usual.

1 I don't sleep as well as I used to.

2 I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.

3 I wake up several hours earlier than I used to and cannot get back to sleep.

17. 0 I don't get more tired than usual.

1 I get tired more easily than I used to.

2 I get tired from doing almost anything.

3 I am too tired to do anything.

18. 0 My appetite is no worse than usual.

1 My appetite is not as good as it used to be.

2 My appetite is much worse now.

3 I have no appetite at all anymore.

19. 0 I haven't lost much weight, if any, lately.

    1 I have lost more than 5 pounds.

    2 I have lost more than 10 pounds.

    3 I have lost more than 15 pounds.

20. 0 I am no more worried about my health than usual.

    1 I am worried about physical problems such as aches and pains; or upset stomach; or constipation.

    2 I am very worried about physical problems and it's hard to think of much else.

    3 I am so worried about my physical problems, that I cannot think about anything else.

21. 0 I have not noticed any recent change in my interest in sex.

    1 I am less interested in sex than I used to be.

    2 I am much less interested in sex now.

    3 I have lost interest in sex completely.

_____ _____

Code # Date Completed

_____

Interviewer

APPENDIX E

SOCIAL SUPPORT DIMENSION SCALE

APPENDIX E

Questionnaire, Form 5

Instructions:

We would like to learn more about your interactions with four groups of people: (1) Close friends, (2) co-workers, (3) your family, and (4) professionals (doctors, teachers, therapists, religious leaders, etc.). Please be careful to use the appropriate response scale for each question. Use only one response per question.

	0	1	2	3
			Moderate	
		Very	or	Great
	None	Little	Average	Deal
In general, how much EMOTIONAL SUPPORT do you receive from:				
1a. Friends?	___	_____	_____	___
1b. Co-workers?	___	_____	_____	___
1c. Your family?	___	_____	_____	___
1d. Helping professionals? (Social Workers, Counselors, Psychologists, Physicians, Psychiatrists, Ministers, etc.)	___	_____	_____	___

	0	1	2	3
			Moderate	
		Very	or	Great
	None	Little	Average	Deal

In general, how much PRACTICAL ASSISTANCE (money, food, housing, services, etc.) do you receive from:

2a. Friends?	___	_____	_____	___
2b. Co-workers?	___	_____	_____	___
2c. Your family?	___	_____	_____	___
2d. Helping professionals? (Social Workers, Counselors, Psychologists, Physicians, Psychiatrists, Ministers, etc.)	___	_____	_____	___

In general, how much COMPANIONSHIP do you receive from:

3a. Friends?	___	_____	_____	___
3b. Co-workers?	___	_____	_____	___
3c. Your family?	___	_____	_____	___

	0	1	2	3
			Moderate	
		Very	or	Great
	None	Little	Average	Deal
3d. Helping professionals? (Social Workers, Counselors, Psychologists, Physicians, Psychiatrists, Ministers, etc.)	____	_____	_____	____

In general, how much ADVICE OR INFORMATION do you receive from:

4a. Friends?	____	_____	_____	____
4b. Co-workers?	____	_____	_____	____
4c. Your family?	____	_____	_____	____
4d. Helping professionals? (Social Workers, Counselors, Psychologists, Physicians, Psychiatrists, Ministers, etc.)	____	_____	_____	____

In general, how satisfied have you been with the amount of EMOTIONAL SUPPORT you have received from:

		0	1	2	3
		Completely Unsatisfied	Somewhat Unsatisfied	Somewhat Satisfied	Completely Satisfied
5a.	Friends?	_____	_____	_____	_____
5b.	Co-workers?	_____	_____	_____	_____
5c.	Your family?	_____	_____	_____	_____
5d.	Helping professionals? (Social Workers, Counselors, Psychologists, Physicians, Psychiatrists, Ministers, etc.)	_____	_____	_____	_____

In general, how satisfied have you been with amount of PRACTICAL ASSISTANCE (money, food, housing, services, etc.) you have received from:

	0	1	2	3
	Completely	Somewhat	Somewhat	Completely
	Unsatisfied	Unsatisfied	Satisfied	Satisfied
6a. Friends?	_____	_____	_____	_____
6b. Co-workers?	_____	_____	_____	_____
6c. Your family?	_____	_____	_____	_____
6d. Helping professionals? (Social Workers, Counselors, Psychologists, Physicians, Psychiatrists, Ministers, etc.)	_____	_____	_____	_____

In general, how satisfied have you been with the amount of COMPANIONSHIP you have received from:

7a. Friends?	_____	_____	_____	_____
7b. Co-workers?	_____	_____	_____	_____

	0	1	2	3
	Completely Unsatisfied	Somewhat Unsatisfied	Somewhat Satisfied	Completely Satisfied
8c. Your family?	_____	_____	_____	_____
8d. Helping professionals? (Social Workers, Counselors, Psychologists, Physicians, Psychiatrists, Ministers, etc.)	_____	_____	_____	_____

In general, how satisfied have you been with the amount of ADVICE OR INFORMATION you have received from:

9a. Friends?	_____	_____	_____	_____
9b. Co-workers?	_____	_____	_____	_____
9c. Your family?	_____	_____	_____	_____

	0	1	2	3
	Completely Unsatisfied	Somewhat Unsatisfied	Somewhat Satisfied	Completely Satisfied
9d. Helping professionals? (Social Workers, Counselors, Psychologists, Physicians, Psychiatrists, Ministers, etc.)	_____	_____	_____	_____

Code #_____ Date_____

Interviewer_____

APPENDIX F

COPING WITH DISABILITY INVENTORY

APPENDIX F

Questionnaire, Form 6

Rate each of the following statements in one of the columns on the right side of the page that best describes your preference or leanings. Answer according to your present situation (current feelings).

	1 Never/ Rarely	2 Seldom	3 Some-times	4 Often/ Frequent	5 Almost Always
1. I obtain information about my body in relation to my disability.	_____	_____	_____	_____	_____
2. I am involved in social, political and/or non-work activities.	_____	_____	_____	_____	_____
3. I am aware of my personal needs and concerns.	_____	_____	_____	_____	_____

	1	2	3	4	5
	Never/		Some-	Often/	Almost
	Rarely	Seldom	times	Frequent	Always
4. As a result of my disability, I tend to view life as having both meaning and purpose.	_____	_____	_____	_____	_____
5. I think about my disability.	_____	_____	_____	_____	_____
6. I find different things to do during my free time.	_____	_____	_____	_____	_____
7. I am able to express my anger.	_____	_____	_____	_____	_____
8. I can tolerate anger directed toward me.	_____	_____	_____	_____	_____

	1	2	3	4	5
	Never/		Some-	Often/	Almost
	Rarely	Seldom	times	Frequent	Always
9. I feel like a victim of fate or misfortune because of my disability.	_____	_____	_____	_____	_____
10. I have close love relationships.	_____	_____	_____	_____	_____
11. I experience emotional stress.	_____	_____	_____	_____	_____
12. I hold on to my opinions even though others may not agree.	_____	_____	_____	_____	_____
13. I consider my disability an inconvenience.	_____	_____	_____	_____	_____
14. I feel that I have to be on my guard in interaction with others.	_____	_____	_____	_____	_____
15. I help and encourage others.	_____	_____	_____	_____	_____

	1	2	3	4	5
	Never/ Rarely	Seldom	Some-times	Often/ Frequent	Almost Always
16. I use fantasy and imagination to develop options and opportunities in my life.	_____	_____	_____	_____	_____
17. I am optimistic and hopeful about my life.	_____	_____	_____	_____	_____
18. I participate in social organizations.	_____	_____	_____	_____	_____
19. I am involved in removing disability barriers and prejudice.	_____	_____	_____	_____	_____
20. I enjoy life.	_____	_____	_____	_____	_____
21. I am able to handle frustrating experiences.	_____	_____	_____	_____	_____
22. I am able to obtain material comforts.	_____	_____	_____	_____	_____
23. I have a positive opinion about myself.	_____	_____	_____	_____	_____

	1 Never/ Rarely	2 Seldom	3 Some- times	4 Often/ Frequent	5 Almost Always
24. I accept that my body looks and functions differently from others.	_____	_____	_____	_____	_____
25. I desire relationships that include intimacy and trust.	_____	_____	_____	_____	_____
26. I pay close attention to my body.	_____	_____	_____	_____	_____
27. I cannot stand ambiguity or uncertainty.	_____	_____	_____	_____	_____
28. I can point to real achievements in my life.	_____	_____	_____	_____	_____
29. I think of my disabilities as the worst thing that has happened to me.	_____	_____	_____	_____	_____
30. I see myself as no longer disabled in my day dreams.	_____	_____	_____	_____	_____
31. I think that my disability has advantages.	_____	_____	_____	_____	_____

	1	2	3	4	5
	Never/ Rarely	Seldom	Some-times	Often/ Frequent	Almost Always
32. I feel comfortable with looking at myself in the mirror.	_____	_____	_____	_____	_____
33. I care for the people and things in my life.	_____	_____	_____	_____	_____
34. I am aware of the difference between loving someone and needing someone's love.	_____	_____	_____	_____	_____
35. I am comfortable when others do not accept my beliefs.	_____	_____	_____	_____	_____
36. I am satisfied with myself even though I may be unemployed.	_____	_____	_____	_____	_____
37. I live in the "here and now" rather than in the past.	_____	_____	_____	_____	_____

	1	2	3	4	5
	Never/ Rarely	Seldom	Some-times	Often/ Frequent	Almost Always
38. I can accept compliments and recognition from other people.	_____	_____	_____	_____	_____
39. I think my life is challenging and exciting.	_____	_____	_____	_____	_____
40. I perceive problems as opportunities for growth.	_____	_____	_____	_____	_____
41. I am responsible for making other people happy.	_____	_____	_____	_____	_____
42. I like myself and accept my failings.	_____	_____	_____	_____	_____
43. I seek and obtain specific information to solve problems.	_____	_____	_____	_____	_____
44. I base my decisions on my future goals.	_____	_____	_____	_____	_____

	1	2	3	4	5
	Never/ Rarely	Seldom	Some-times	Often/ Frequent	Almost Always
45. I feel comfortable about asking others for support and assistance.	_____	_____	_____	_____	_____
46. I have problems in communicating with others.	_____	_____	_____	_____	_____
47. I am willing to take calculated risks.	_____	_____	_____	_____	_____
48. I initiate interactions with others.	_____	_____	_____	_____	_____
49. I see opportunities in my life as limited.	_____	_____	_____	_____	_____
50. I use professional assistance when needed.	_____	_____	_____	_____	_____
51. I reflect before and after my actions.	_____	_____	_____	_____	_____
52. I make efforts to overcome and solve my problems.	_____	_____	_____	_____	_____

	1	2	3	4	5
	Never/ Rarely	Seldom	Some-times	Often/ Frequent	Almost Always
53. I am positively influenced by persons apart from my family.	_____	_____	_____	_____	_____
54. I can laugh at myself and with others about life happenings that are connected with my disability.	_____	_____	_____	_____	_____
55. I am cautious in my behavior.	_____	_____	_____	_____	_____
56. I seek advice from other disabled persons.	_____	_____	_____	_____	_____
57. I find myself complying to the expectations of others.	_____	_____	_____	_____	_____
58. I back away from difficult situations.	_____	_____	_____	_____	_____
59. I like receiving compliments and recognition from other people.	_____	_____	_____	_____	_____

	1 Never/ Rarely	2 Seldom	3 Some- times	4 Often/ Frequent	5 Almost Always
60. I understand the nonverbal messages of others toward me.	_____	_____	_____	_____	_____
61. I examine alternative solutions to problems.	_____	_____	_____	_____	_____
62. I feel helpless in dealing with my disability.	_____	_____	_____	_____	_____
63. I use self-control in expressing my feelings.	_____	_____	_____	_____	_____
64. I attribute my disability to fate.	_____	_____	_____	_____	_____
65. I display my emotional reactions to stressful situations.	_____	_____	_____	_____	_____
66. I try to influence the direction of events toward personally determined goals.	_____	_____	_____	_____	_____

	1	2	3	4	5
	Never/ Rarely	Seldom	Some-times	Often/ Frequent	Almost Always
67. I mentally rehearse responses to events that will or might happen.	_____	_____	_____	_____	_____
68. I consider myself to be the source of control over events in my life.	_____	_____	_____	_____	_____
69. I experiment with different ways of dealing with disability-related problems.	_____	_____	_____	_____	_____
70. I evaluate my behavior by my own internal standards.	_____	_____	_____	_____	_____
71. I try to focus on other areas of my life that are more rewarding when I am troubled by my life.	_____	_____	_____	_____	_____
72. I experience sadness.	_____	_____	_____	_____	_____
73. I experience fear.	_____	_____	_____	_____	_____

	1 Never/ Rarely	2 Seldom	3 Some- times	4 Often/ Frequent	5 Almost Always
74. I am alert to changes in my body that may affect my health.	_____	_____	_____	_____	_____
75. I give myself presents, treats or nurture myself in other ways.	_____	_____	_____	_____	_____
76. I take responsibility for a problem rather than blaming myself for it.	_____	_____	_____	_____	_____
77. I experience grief in relation to my disability.	_____	_____	_____	_____	_____
78. I look forward to the future as an opportunity for further growth.	_____	_____	_____	_____	_____
79. I perceive problems as opportunities for growth.	_____	_____	_____	_____	_____

_____ _____

Code # Date Completed

_____

Interviewer

APPENDIX G

LOGBOOK

APPENDIX G

Logbook

Name	DOI	Qualified for Study	Participated	Comments

APPENDIX H

INTRODUCTORY PARTICIPATION STATEMENT

APPENDIX H

INTRODUCTORY PARTICIPATION STATEMENT

My colleagues and I are conducting research regarding industrial injury and stress. The purpose of this study is to discover how injured workers deal with this life event. We would appreciate it very much if you would answer these questions as honestly and completely as possible.

Be assured that all answers are STRICTLY CONFIDENTIAL. Your personal answers will not be divulged under any circumstances. The questionnaires will be identified by code numbers and not by name so that no connection can be made between any individual and their answers. Interest is in the answers of all respondents taken as a group rather than the answers of any one respondent. All results will be reported in general statistical form and no reference will be made to any individual.

I anticipate that there will be no risk in to you in filling out this questionnaire packet, nor will there be any benefits to you. Your participation or non-participation has no bearing on your rehabilitation interview.

Thank you for your cooperation in this matter. If there should be any questions at a later date, please feel free to call me at 559-1406.

APPENDIX I

UCRIHS APPROVAL LETTER

APPENDIX I

MICHIGAN STATE UNIVERSITY

UNIVERSITY COMMITTEE ON RESEARCH INVOLVING
HUMAN SUBJECTS (UCRIHS)
238 ADMINISTRATION BUILDING
(517) 355-2186

EAST LANSING • MICHIGAN • 48824-1046

July 22, 1987

Ms. Elaine M. Tripi
505 Victoria Square
Brighton, Michigan 48116

Dear Ms. Tripi:

Subject: Proposal Entitled, "The Industrially Injured Worker: Locus of Control Orientation, Gender and Social Support as Moderators of Stressful Life Events and Adaptation to Disability"

UCRIHS' review of the above referenced project has now been completed. I am pleased to advise that since the reviewers' comments have been satisfactorily addressed, the conditional approval given by the Committee at its July 6, 1987 meeting has now been changed to full approval.

You are reminded that UCRIHS approval is valid for one calendar year. If you plan to continue this project beyond one year, please make provisions for obtaining appropriate UCRIHS approval prior to July 6, 1988.

Any changes in procedures involving human subjects must be reviewed by the UCRIHS prior to initiation of the change. UCRIHS must also be notified promptly of any problems (unexpected side effects, complaints, etc.) involving human subjects during the course of the work.

Thank you for bringing this project to our attention. If we can be of any future help, please do not hesitate to let us know.

Sincerely,

Henry E. Bredeck, Ph.D.
Chairman, UCRIHS

jms

cc: Dr. William Hinds

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