

FAMILY RESPONSE AND CLIENT SELF-ESTEEM  
IN VOCATIONAL REHABILITATION OF THE  
INDUSTRIALLY DISABLED

by

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SIGNED: Jedui Louis Hutchins, Jr.

To my parents,  
Dr. Fredric Francis Mitchell  
and the late  
Betty Hodges Mitchell  
My brothers and sisters,

Bryan

Liz

Joe

Grace

Charlie

Hamilton

And my son,

Geoffrey

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## ABSTRACT

Research in rehabilitation psychology supports the idea that the rehabilitation of the injured worker is dependent upon the reciprocal interaction of social and psychological variables, not merely upon the severity or type of injury. Among the most important psychosocial factors influencing the injured worker are his family, the workplace, and his psychological well-being. This investigation was concerned both with the impact of industrial injury on the family viewed as a system, the salience of the work-role and the self-esteem of the injured worker; and with the interrelationships of these variables to the vocational rehabilitation of the male, head of household.

Seven hypotheses were proposed and analyzed using primarily non-parametric techniques in order to test the interrelationships of the variables under examination. The first two hypotheses attempted to measure the impact of recent industrial injury on the family system dimensions of cohesion and adaptability and on the self-esteem of the injured breadwinner. Hypotheses four through six examined the configurations of family systems dimensions, work-role salience and self-esteem; and the influence of these patterns on the vocational rehabilitation of the worker over time. Hypothesis seven attempted to measure the effects of early rehabilitative intervention.

The sample for this study consisted of thirty-five industrially injured male applicants for workmen's compensation benefits and their families. These subjects were assessed on a measure of family adaptability and cohesion, a self-esteem scale, and a work-role salience scale at two periods of time separated by a three month interval. The injured workers' statuses in rehabilitation were also evaluated at both observations using a goal attainment scale developed for this study.

None of the formal hypotheses was supported by statistical analysis. However, several significant though unexpected relationships were found between the variables. From these it was concluded that the research sample displayed a distinct pattern of family systems dimensions represented by a linear relationship between cohesion and adaptability. It was further concluded that family coping patterns were significantly related to both the psychological well-being and work values of the injured breadwinner during his rehabilitation. Results regarding the effects of the psychosocial variables on rehabilitation were inconclusive.

## CHAPTER 1

### INTRODUCTION

Increasingly we are learning that human motivation is influenced by many things. Especially important are the psychological and social factors of an individual's life. These factors are important to consider early in our planning for the whole program of rehabilitation for the individual and in the evaluation of each step of its development. (p. iii).

Mary E. Switzer (1953)  
Director, U.S. Office of  
Vocational Rehabilitation,  
1951-1963

Mary Switzer's words synthesize elements of a major tradition in rehabilitation psychology and one which underlies this study: personal and environmental factors interact to mediate the rehabilitation process of the disabled. Further, an understanding of these social-psychological influences is necessary to predict, evaluate, and refine that process. More specifically, this study is concerned with the interaction of family environments and client self-esteem on the vocational rehabilitation of industrially disabled claimants for workmen's compensation benefits.

#### Social-Psychological Influences in Rehabilitation

The idea that a reciprocal interaction between the person and his environment may influence the course of physical rehabilitation is not new. It dates in the field of rehabilitation psychology to the application of Lewin's (1935) formula for behavior,  $B=f(P,E)$ , by his

students, notably, Barker, Wright, Meyerson, and Gonick (1953), Wright (1960), and Dembo, Leviton, and Wright (1956), to the problems of physical disability. World War II served as a precipitating event to focus research efforts on the social-psychological rehabilitation of the physically handicapped. Faced with the spectre of thousands of returning, disabled G.I.s, the U.S. government began pouring money into vocational rehabilitation only to find that physical and psychological restoration were not synonymous in many cases.

Dembo et al. (1956) urged the development of a "life-related approach" to the field of adjustment to disability, an approach which would examine the "social-emotional" relationships between the impaired and non-impaired from multiple points of view. The saliency of Dembo's work in the rehabilitation of physical disability continues to be addressed in more recent literature by Wright (1981) whose belief in the importance of the social context in rehabilitation takes the form of a key principle: "The client is seen, not as an isolated individual, but as part of a larger group that includes other people, often the family" (p. 267).

Schontz (1975) invoked Angyal's construct of the "biosphere," in discussing behavioral responses to disability in his "principle of the unity of organism and environment," which states, "behavior is a function of relationships within an integrated organism-environment totality" (p. 197).

From the field of sociology, Parsons (1951) developed the concept of the sick role, which spelled out the social antecedents and determiners of one's response to disability. Role theory advanced the

idea that the nature of disability was defined by and for the disabled by society, specifically by important dyadic relationships, e.g., between the patient and his physician, and between the patient and his family (Marinelli and Dell Orto, 1977).

Thus, the importance of personality and social-environmental interactions has a long and well-documented history in the writings on disability and rehabilitation. This paper will address the thesis that the self exists and functions in a context of social subsystems of which two of the most important in industrialized society are the family and the workplace. It is the position of this paper that industrial disability represents a self-subsystem collapse of varying psychosocial impact which will establish new relationships between the self and the family. These new alignments will be important determiners of the rehabilitation process. However, before specifying the research problems at hand it will be necessary to define the relevant psychosocial variables as they will be used here.

#### Self-esteem

Cooley (1902) introduced the concept of the looking glass self to describe his belief that people see themselves as they are seen by others. Mead (1934) and Sullivan (1953) furthered the idea that the self arises out of and exists only through social interactions. Epstein (1973) in a review of the major theories of the self-concept writes that genesis of the self-concept is a function of "social interactions with significant others" (p. 407). He goes on to state that the self-system no matter how it is construed has one preeminent

need, that of self esteem (p. 407). Thus, it follows that maintaining and enhancing self-esteem is a primary function of the individual. Faunce (1981) writes that self-esteem maintenance is a social process in that we arrange our social environments to promote favorable evaluations from significant others. Depending upon their past interactional history, people will invest themselves in those social situations which have the highest potential for maintaining and enhancing self-esteem. Elsewhere, Faunce (1972) writes, "The values characteristic of industrial societies would provide the greatest legitimacy for self-investment in occupational and familial roles" (p. 13).

#### Self/Occupational Interaction

An important point to be made here for the purposes of this study is that the psychosocial role of the workplace in self-esteem maintenance may depend upon the worker's initial level of self-esteem (Greenhaus, 1971, 1973) and upon how important work is to him/her to begin with.

Safilios-Rothschild (1970), citing a number of studies on the meaning of work in American society, suggests that work fulfills very different needs for upper-level white collar and blue collar workers. For the former, a career "constitutes the very essence of their lives, it is their *raison d'etre*, the basic dimension of their core identity" (p. 195). For the skilled and semi-skilled blue collar worker, however, it is the external value of work that is prized, i.e., the instrumental aspects of a job such as steady salary and regular

activity which provide the worker with a respectable identity, viz, the self-sufficient provider of the family. Thus, a major psychosocial difference in the meaning of work between white and blue collar worker appears to be the amount of self-concept investment in a job. Safilios-Rothschild (1970) suggests that where self-investment is high, that is, in upper-level white collar and professional occupations, disability has minimal impact on reemployability. The central aspects of self-definition are not physical strength, manual skill, or role as family provider for the upper level white collar worker. The situation is quite different for the blue and lower level white collar worker, however, "Because of (the) emphasis on respectability and on being self-supporting, affliction caused by disability can be quite threatening to the self-concept" (Safilios-Rothschild, p. 197). Thus it is likely that self-concept and self-esteem are affected very differently by disability depending on one's occupational investment.

Faunce (1972) suggests that in contemporary American society the value of industrial-level work for maintaining self-esteem is declining:

For those who start in lower level blue collar and white collar jobs, there are limited opportunities for occupational mobility and the likelihood of changing the status assignment system...is very small. The withdrawal of self-investment from occupational role is likely to occur early in the career of persons who start these jobs (p. 15).

Dubin (1956) reported that for a large majority of industrial workers studied, the workplace was not a central life interest. Greenhaus and Simon (1976) hypothesized that low occupational salience and low self-

esteem support and maintain one another. For Korman (1966, 1968) low occupational salience and low self-esteem are consistent because failure to gratify intrinsic needs, e.g., creativity and independence, promotes low self-esteem which in turn leads to a choice of occupations which fails to fulfill such needs.

Therefore, if the workplace has little bearing upon self-esteem for the industrial worker, what does? Korman (1968) suggests that "social influence processes" produce satisfaction for those whose self-esteem and occupational salience is low (p. 489). Similarly, Faunce (1972) assigns the control of self-esteem among industrial workers to significant social groups. He writes, "The work-related values of locally based collectives--families, friendship groups, work organizations, neighborhoods--are probably much more important than broad societally based values as determinants of the extent to which success or failure at work affect self-esteem" (p. 6).

In summary, it is suggested that the self-concept, while self-generated, is powerfully influenced by the individual's social context. Among the central components of the self-concept is the basic need for self-esteem. Particularly among industrial workers who will be the focus of this study, self-esteem maintenance and enhancement are dependent upon interpersonal variables such as shared familial values and approval. It is the interaction between the disabled industrial worker and his most salient social subsystem, his family, over the course of time that is of interest here.

### The Family as a System

Central to the interactionist view put forward in this paper is the definition of the family as a complex adaptive system (Buckley, 1968). In General, a complex adaptive system is any whole composed of parts which are interrelated in a more or less stable way at any one given period of time. This viewpoint is a major departure from the tradition of individually oriented, cause-effect approaches to diagnosis and therapy.

Beginning with the work of Bateson, Jackson, Haley, and Weakland (1956) on the concept of the double-bind, most of the documentation for family systems theory has come from clinical-case observations of psychiatrists working with schizophrenics (Olson, Sprenkle, & Russell, 1979). More recently, systematic forces have been linked to delinquency, alcoholism, psychosomatic diseases, and traditionally defined organic illnesses (Haley, 1980; Weissner, 1966; Minuchin, Rosman, & Baker, 1978).

Family systems theory has also been addressed by a number of authors in the field of rehabilitation who have proposed several models of systematic family reactions to disability. These models are summarized by Power & Dell Orto (1980). However, where the family therapists have attempted to describe family dynamics from an essentially retrospective viewpoint, i.e., by working backward from the symptomatic individual to the family system, the theorists in rehabilitation, faced with the reality of disability, have taken a more projective view, attempting to describe the impact of disability on subsequent systematic functioning.

For the purposes of this study the functioning of the family as a complex adaptive system is governed by two related principles: the processes of requisite variety or morphogenesis which allow subsystem independence and growth, and the forces of homeostasis or morphostasis which act to restrict excessive subsystem deviations and systematic degeneration (Baumgartner, Buckley, Burns, & Schuster, 1976). A balance of these two forces promotes maximum adaptability and evolution while maintaining system integrity.

Stress on the system, e.g., the disability of a breadwinner, represents an interruption of the morphogenic-morphostatic balance. When placed under stress the system may react by intensifying its subsystem contact or by isolating subsystems. The sociologist Angell (1936) was among the first to discuss this concept. He defined the family's characteristic reactions to stress as inherent systematic predispositions. Hill (1958) called these predispositions "latent action patterns" (p. 144). He went on to say that these patterns were "most clearly observable at times of crisis" (p. 144).

In the field of family therapy, Bowen (1960) was an early proponent of the idea of pathological family structures. He applied the psychodynamic concept of regression to explain the excessive interdependency he found in the families he treated. From Bowen's work to modern structural and strategic family therapies, the idea of extreme family reorganizations in times of crisis has been a central theme within many family therapy models. These models, which are summarized by Madanes (1981) and Olson, Sprenkle, and Russell (1979), deemphasize treatment of psychological symptoms in favor of a focus on

realigning or repatterning of family subsystems.

#### Statement of the Problem

To summarize the conceptual framework presented above, the individual's psychological existence is dependent upon the significant social subsystems within which he is embedded. These subsystems provide identity and meaning to the self-concept whose most basic need is that of self-esteem. The individual seeks to maintain and enhance self-esteem through identification with salient subsystems. In American society two of the most important subsystems are the workplace and the family. For the industrial worker there is considerable evidence that the self-as-worker identity is even more dependent upon social influences than upon internal personality features.

The family within which the individual exists is a system which operates according to rules. Two of the most important rules have been identified as relative adaptability and integration. These rules or patterns of system interaction are most clearly perceived during crises. Furthermore, it is the family system that defines the crisis and it is this definition rather than the purely physical aspects of the crisis that determines individual and social response (Hill, 1958; Nagi, 1969; Safilios-Rothschild, 1963).

With the relevant psychosocial variables defined as above the problem for rehabilitation psychology can be stated as follows: What configurations of client self-esteem and family response to industrial disability will promote or impede Subject rehabilitation over time?

Based on the problem as stated above, the following hypotheses were be subjected to formal investigation:

H<sub>1</sub> Families who have suffered the recent disablement of the male breadwinner will display extreme systematic reactions on dimensions of cohesion and adaptability.

H<sub>2</sub> Recent industrial injury will result in reduced self-esteem of the disabled breadwinner.

H<sub>3</sub> Over time families who regain moderate levels of system reaction dimensions will promote self-esteem and rehabilitation progress of the disabled worker.

H<sub>4</sub> Over time, families who display continued or increased enmeshment (extremes of cohesion) will be associated with increased worker self-esteem but decreased rehabilitation progress.

H<sub>5</sub> Increase in self-esteem over time without corresponding increases in career salience will be associated with family enmeshment and decreased rehabilitation progress.

H<sub>6</sub> Over time, families who display increased disintegration will be associated with decreased client self-esteem and stable or decreased rehabilitation progress.

Additionally, it was felt by the rehabilitation counselors who worked with the researcher that early rehabilitative intervention after injury increased the claimant's chances for rehabilitation progress by counteracting the drift toward extreme and intransigent psychosocial reactions. To test this idea, a seventh hypothesis was included as follows:

H<sub>7</sub> Shorter time periods between date of injury and date of

acceptance for rehabilitative services will be associated with greater rehabilitation progress compared to longer periods of time between date of injury and dates of acceptance for rehabilitative services.

#### Assumptions Underlying the Study

1. The sample of industrially disabled claimants used for this study was representative of a larger population of industrially injured claimants whose response to disability was sufficiently problematic to warrant referral for rehabilitation services through both public and private compensation facilities. It was assumed that reemployability at commensurate levels of salary and ability was the ultimate goal of these agencies, not relocation, support for independent living, or retraining/reeducation for higher level vocations.
2. The procedures for screening, evaluating, and treating claimants referred for rehabilitation were representative of those provided by the majority of workmen's compensation agencies nationally.
3. The procedure for screening, evaluating and treating claimants referred for rehabilitation services were essentially the same for all claimants.
4. The families of the subjects of this study were representative of the larger population of American families of disabled industrial workers referred for rehabilitation services with respect to composition, age, number of members, economic level, access to public and private support systems, education and achievement levels, values, role-relationships and goals.

### Limitations of the Study

1. As noted, this study was limited to the subset of disabled claimants (and the families of those claimants) within both public and private compensation networks who were referred for rehabilitation services. The results cannot be generalized to the majority of disabled claimants who are not referred for rehabilitation services.
2. The study was limited to those claimants (and their families) who were still open cases for rehabilitation purposes at the onset of the project.
3. The study was limited by the inclusion of male head of household with regard to Subject sample. The results do not reflect upon families where both husband and wife or significant others share major economic support roles, nor upon single parent households or households headed by female breadwinners who have become disabled.
4. Generalization of findings to a larger population may be limited by sampling procedures, as Ss were drawn from that subset of workmen's compensation claimants referred for rehabilitation. Further, all Ss were drawn from the Tucson and Phoenix metropolitan areas and from Arizona Southern counties.
5. Generalization of findings may be limited by the sample size.
6. This investigation falls into the category of field study. Generalizability of findings is limited by the nature of such research, particularly, the ex post facto design, lack of control over multiple environmental variables, and lack of precision of measurement.

### Significance of the Study

Despite its limitations, the results obtained through this research are expected to have both theoretical and practical relevance.

The problem under examination furthers the research in rehabilitation psychology on social psychological aspects of disability. It expands on the limited research in rehabilitation on the interaction of social and psychological factors. Further, the study addresses social psychological interactions over a period of time. Within rehabilitation, longitudinal approaches are rare but are needed to increase understanding of the process of rehabilitation which involves a personal-environmental adjustment.

The present study is believed by the examiner to introduce for the first time the concept of family systems to formal investigation within rehabilitation psychology. Family systems therapies have shown increasing growth as the treatment of choice for a number of intransigent psychosocial problems, e.g., alcoholism, delinquency, and eating disorders. Therefore, from a practical point of view results from the study of family system variable should be of interest to rehabilitation counselors in planning the most efficacious treatment approaches for their clients. Family therapies may be ideal in the area of adjustment to disability in that they avoid psychiatric labelling, support the client's primary social system, and encourage group responsibility and striving for important goals.

With regard to ecological relevance, the research problem as presented addresses the issue of contemporary social change. This

country is experiencing accelerating alterations of its major social institutions. The workplace may increasingly be losing its ability to sustain and promote personal worth for more and more employees while the family as a supportive unit is undergoing cataclysmic reorganization if not disintegration. The interaction of these two social subsystems may be most clearly defined where the stress of disability highlights psychosocial evolution. It is in the midst of crisis that a glimpse of the future of the family and the workplace may be seen.

#### Definition of Terms

Disability and disabled shall refer, following Wright (1983) to "limitations of function that result directly from an impairment at the level of a specific organ or body system" (p. 11). These terms shall have no value connotations nor shall they imply the term "handicap," a concept which refers to personal, social, and environmental obstacles or hindrances in the pursuit of goals.

Family system shall be defined as the significant kinship group under study which operates according to rules as defined above.

Self-esteem will be defined in the phenomenal sense, i.e., as the subject consciously acknowledges his worth and competence in positive-negative terms. Further, self-esteem will be defined in terms of global attributions of self-regard rather than in terms of body-image, self-ideal comparisons, or within restricted arenas of evaluation, e.g., vocational ability.

Career salience is defined as the value placed on work for the

purposes of maintaining and enhancing self esteem.

Claimant shall refer to the industrially injured worker within the workmen's compensation system.

Rehabilitation and rehabilitative services shall be defined as the range of services provided to the industrially injured to return them to the highest level of economic usefulness. Services include expenditure of funds for diagnostic workups; planning for formal training, self-employment or on-the-job training; and counseling in medical issues, adjustment to disability, academic issues, and related secondary problems. Further services include liaison between claimant, medical personnel, attorneys and claims department; assistance with occupational information; vocational testing; community organization and referral; job readiness training; and job placement (M. Tigerman, personal communication, March 19, 1986).

## CHAPTER 2

### REVIEW OF THE LITERATURE

The following summary will focus upon those studies which have examined the interactions of work values, personality factors, and family variables as they influence the rehabilitation process of the disabled. This review is not intended to address research which is peripherally related to the present study, e.g., the emotional adjustment of the individual to traumatic injury, the grief process and coping style of the victim and his family, the sociological studies of families in crisis, or the extensive literature on family somatics. Particular attention will be paid to research into the patterns of personal-social adjustment within families which have experienced the physical disablement of the adult, male, head of household.

The limited research on the interaction of personality and social variables in rehabilitation falls into two broad categories: 1. Those studies which postulate a psychosocial predisposition for both the disability and the course of adjustment, and, 2. Studies which attempt to identify psychosocial patterns resulting from disability which may influence the rehabilitation process. Research findings within these two categories are outlined below.

### Research on the Psychosocial Etiology of Disability

An early psychological explanation for injury was the concept of accident proneness, which suggested that certain types of people were predisposed to self-destructive behavior (Rawson, cited in Hirschfeld & Behan, 1963). Schulzinger (1956) proposed the idea of an accident syndrome which tied accidents and disability to family and social problems. In a more recent study of the concept of accident proneness, Allodi and Montgomery (1979) compared a sample of industrial workers who had been injured at work to a sample of non-injured workers. They found the accident group to be considerably higher than the control group on pre-injury indices of medical, surgical, and psychiatric disorders. Allodi and Montgomery did not find a relationship in their sample between stressful family/social situations and prolonged recovery times. However, they did find that poor recovery rates and continued psychiatric symptoms were positively correlated with job dissatisfaction. "In other words," they wrote, "There do seem to be accident prone individuals and whether such workers will take an inordinate amount of time off work following an accident depends on job dissatisfaction and correlated psychopathological states" (p. 28).

A concept related to accident proneness was developed by Hirschfeld and Behan (1963, 1966) in seeking some answers to the difficult problems they encountered in the treatment of industrial injuries. They reviewed 300 cases of industrial accident victims. In each case they found a pattern of social psychological events leading up to an injury and subsequent disability: an accident process which

served as a solution to the injured worker's life problems. Four distinguishing elements of the accident process were identified (Weinstein, 1978):

1. High predisability levels of tension and stress resulting from interpersonal conflict and producing depression.
2. A dependent personality makeup but one in which dependency must be denied.
3. An injury, the occurrence of which becomes an acceptable explanation for psychological dysphoria.
4. The socially reinforced establishment of disability as a way of life.

For Hirschfeld and Behan, whether the disability was acceptable or unacceptable was a question of social definition as reflected by the patient. An unacceptable disability though real enough was primarily psychological in nature. Among the blue collar workers and their social subsystems that were the focus of Hirschfeld and Behan's study, psychological disorders implied moral weakness and personal failure. Thus, an intensifying defensive spiral ensued because the burden of negative self/social judgments and unexpressed feelings and needs merely exacerbated the original conflict.

Sustaining an injury, however, allowed the worker to attribute the cause of his interpersonal difficulties, dependency needs, and dysphoric mood to an "acceptable," objective source; the injury itself. Subsequently, maintaining the disability provided a measure of economic compensation as well as a focus of blame for other personal problems.

In a study which supported Hirschfeld and Behan's thesis, Brewin (1984) found that industrial accident victims who attributed the cause of their disabilities to outside sources, e.g., who blamed others for their injuries, exhibited a poorer rehabilitation response measured in terms of time off from work. Among the sample of 93 industrially injured males, those with the best rehabilitation response expressed a sense of culpability or moral responsibility for their own injuries.

Weinstein (1978) expanded on Hirschfeld and Behan's concept to cover illness and non-industrially related disablement in proposing a disability process. Like the accident process, the disability process was conceived of as a socially produced and maintained neurosis; an acceptable defensive strategy for the injured person. However, Weinstein explained symptom relief, external attribution of responsibility for the injury, and secondary gain as processes by which the disabled worker maintained his self esteem. Weinstein perceived self-esteem as the important mediating factor in the recovery process. He wrote, "whenever self-esteem is elevated, change is difficult and unlikely; when it is low, change is actively sought by the patient and can be facilitated by others" (p. 109). In other words, the disability process produces an interpersonal configuration which raises personal self-esteem at the expense of rehabilitation progress. In Figure 1, Weinstein graphically represented the disability process for a single individual. As can be seen, the occurrence of an injury or other disabling event serves to acceptably "explain" personal problems thus raising self-esteem while at the time

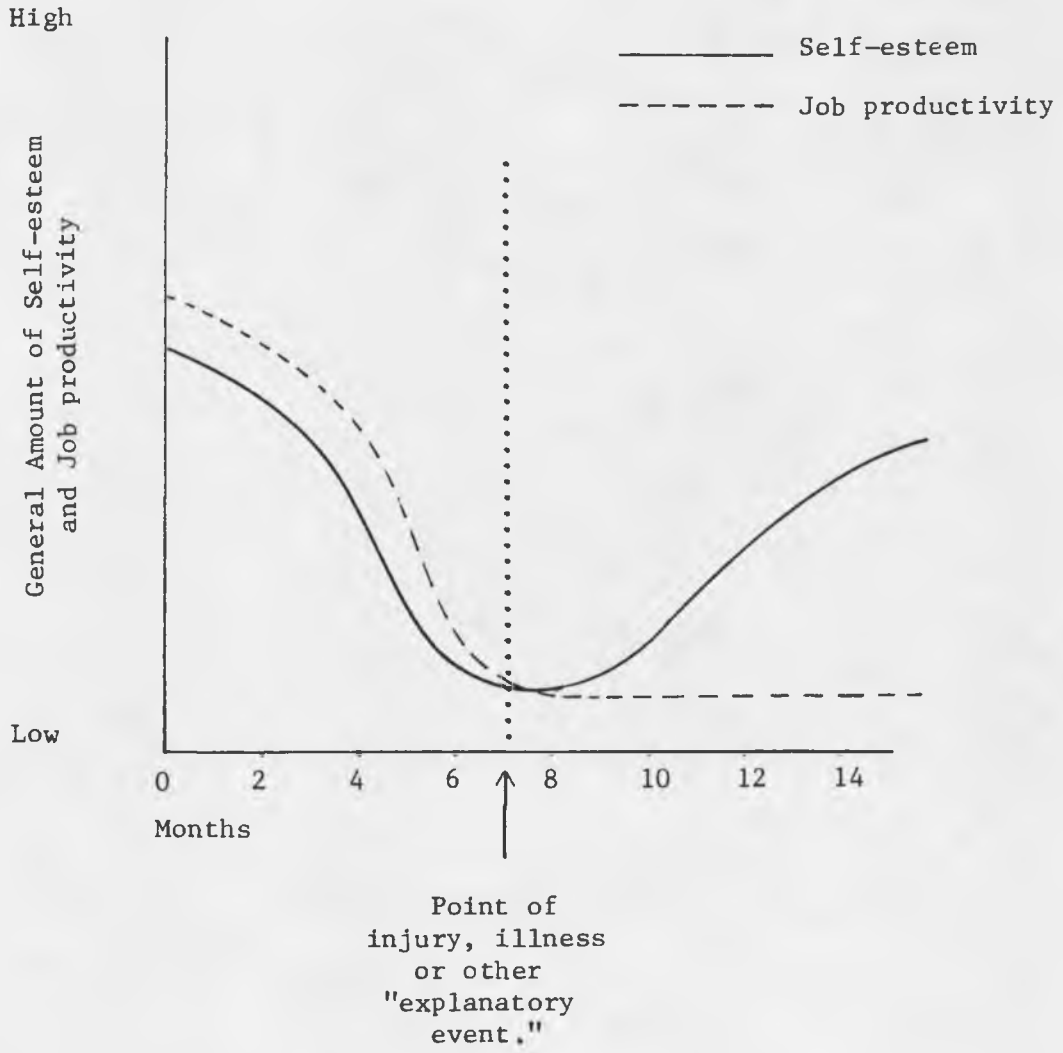


Figure 1. The disability process illustrating the function of industrial injury or other event to explain and sanction changes in self-esteem and job productivity in an individual (modified from Weinstein, 1978, p. 108).

sanctioning the continued loss of job productivity.

A characteristic of these dysfunctional predisposing patterns is that they preclude positive change in the patient in favor of a social status quo which supports the patient's symptoms. Dalvey and Hopkins (1982), in a case study of chronic pain patients, suggested that certain types of neurotic preexisting family relationships become more entrenched in the wake of physical trauma to one of the spouses. They employed the concept of collusion between patient and spouse to explain the intransigence of pain symptoms. Willi (1984) has defined collusion as, "a neurotic interplay in which partners act more and more in a forced progressive or regressive way, thus fixating the other in a complimentary position" (p. 183). For collusive couples physical symptoms in one partner intensify the symbiotic nature of the relationship. The disabled spouse is able to gratify dependency needs while the control needs of the non-disabled spouse are satisfied. Willi suggested that it is the inability of some couples to change such regressive/progressive positions in the face of life crises which differentiates them from non-collusive dyads. A similar idea was advanced by Waltzlawick and Coyne (1980) in an examination of the marital relationship of stroke patients. They found that where marital overinvolvement existed prior to the stroke, the post-traumatic period was characterized by increased enmeshment which led to overt depression in the male stroke victims and covert depression in their wives.

The studies cited thus far have attempted to identify a psychosocial predisposition for dysfunctional interpersonal patterns

which emerged following disability. Because of the difficulties imposed by retrospective analysis, however, many more studies have addressed the impact of disability on social-personal variables than have examined etiological factors. Those studies which are relevant to the present research are presented here.

#### Research on Patient/Family Response to Disability and Rehabilitation

Many investigators have approached the study of social psychological responses to disability from the perspective of role theory. In a thorough review of the literature on marital readjustment following spousal disability, Peterson (1979) reported that the stress of the disability was dependent upon the integration of role performance and the sex of the disabled spouse. In other words, where the disabled spouse performed his/her traditional role as expected following injury, marital satisfaction was higher. Thus, many of the studies surveyed by Peterson concluded that greater role flexibility during the recovery period was required of the disabled male to maintain family harmony due to the nature of his traditional predisability position as provider. Fink, Skipper, and Hallenbeck (1968) in a study of disabled wives found that marital satisfaction was based on the husband's effective role as income earner. In support of these findings, Collette (1969) found from an examination of the case records of Social Security benefits applicants that the amount of hardship imposed by the physical disablement of the male breadwinner was related to the degree of role disruption in the family resulting from the disability. He observed that marital disharmony

measured by self-reported decline in marital relationships and by clinical observation was associated with greater dependency, both economic and physical, of the husband on the wife.

Ludwig and Collette (1969) in a related study using a sample of 235 disabled workers from a population of disability benefit applicants, found that role reversal following disability was in some cases associated with a "dependency factor" among disabled husbands. In these cases dependency on the wife for activities of daily living was unrelated to the severity of the disability and led to abrogation of traditional role functions. Similarly, Safilios-Rothschild (1963) reported that lower rates of return to work among a sample of 141 male black-injured workers was correlated with a combination of low work morale and stable but flexible families in which the wife willingly took over the breadwinner role.

In a case study of 8 families in which the father suffered a work related disability, the spouse and children in each case tried to restore family equilibrium by attempting to return the father to his former position (De La Mata, Gingras & Wittkower, 1960). Where this was not possible, better family adjustment was associated with the ability of the parents to reverse roles while the father gratified self-esteem needs other than through his previous role as income earner.

There is evidence that the level of role responsibility or investment as well as its traditional definition has an impact on rehabilitation progress. For example, Safilios-Rothschild in the study cited above (1963) observed that higher rates of return to work

were common among families with larger numbers of dependents. Deutsch and Goldston (1960) studying a sample of severely disable polio victims, reported that the greater the number of domestic instrumental roles, the greater the likelihood patients would return home. In their sample, for instance, young men without families had the poorest prognosis, while married men, older married, men, and women with children were increasingly likely to return home from the hospital.

Nagi (1969) examined the validity of disability determinations and rehabilitation potential among 2,454 Social Security Disability benefits applicants. He concluded that a significantly higher "disability inclination" existed among the separated and divorced as well as among those with overall poor interpersonal relationships. Nagi defined "disability inclination" as a "pattern...characteristic of persons who, because of the lack of motivation toward work or because of other problems consciously or unconsciously find in disability a socially acceptable avenue for withdrawal" (p. 125).

Litman (1964) looked at role functioning from the symbolic interactionist view in a longitudinal study conducted on 100 orthopedically disabled patients hospitalized for rehabilitation. He suggested that positive self-conception, which was associated with rehabilitation progress, was based on the individual's evaluations of the attitudes of others toward him. Litman concluded that poor self evaluations among the disabled sample resulted from the inability of non-disabled others to "take the role of the disabled," i.e., to empathetically understand and anticipate their behavior (p. 11).

Role theory research in rehabilitation generally focuses on

traditional behaviors of the individual within the group and how these behaviors are altered and redefined by disability. In the studies presented above, disruption of family life is cast in terms of the loss of habitual functions and the need for reorganization of roles. The idea of systematic changes within social structures is not addressed by role theory except by implication. For example, although Litman's (1964) research found that family support as well as a socially dependent positive self-conception were both necessary for rehabilitation progress, he failed to demonstrate a clear association between these concepts. However, a reciprocal interaction between patient's self-conception and family response was proposed by Kong-ming New, Ruscio, Priest, Petritsi, and George (1968) in a case study theoretically similar to Litman's. Assuming that positive rehabilitation response depended upon family support, Kong-ming New et al. examined the family relationship of 45 cardiac patients to determine what constituted supportive versus non-supportive interactional patterns. Invoking self-presentation theory (Goffman, 1959) they proposed that family support would depend upon how well the patient conveyed his subjective view of reality to his significant others, and upon the significant others' agreement or disagreement with his assessment. The researchers found that agreement between the patient's view of self and the family's view of the patient in terms of the patient's ability to perform activities of daily living only occurred consistently where the patient was extremely dependent upon the family. However, while Kong-ming New et al. hypothesized that lack of internal family agreement would jeopardize rehabilitation

efforts, they did not test this assumption empirically. Nevertheless, their study attempted to outline a truly systematic explanation of the family's response to disability.

Family systems theory rests on the proposal that the individual and his immediate subsystem are interconnected so that change in one necessitates changes in the other. The studies which follow have attempted to identify a finite number of systematic response patterns to disability and the effects of these patterns on rehabilitation.

Stone and Shapiro (1968) in a descriptive longitudinal study of 30 families with a severely disabled member developed four categories of families with respect to equilibrium and the family's use or misuse of socially approved means to achieve goals. Equilibrium was defined as "family cohesion, strength, resilience, and persistence in time." Socially approved means were defined as those which reflected, "acceptance of legal and moral restraints" (p. 319). The categories and their salient interpersonal characteristics were defined as follows (p. 320):

Type 1, social equilibrium.--The family maintains autonomy and continuity despite changes and shifts in positions of power and support, with the result that reciprocal roles (sometimes interchangeable) carry respect and dignity for all members.

Type 2, social disequilibrium.--The family maintains a tenuous cohesion and/or is rigid in its role differentiation but respects social values, with the result that adaptation to change is constricted and individual members may pay a high price for group stability.

Type 3, asocial equilibrium.--Neurotic needs of individuals guide role definition, and complementarity exists only through a symbiosis of dominant-submissive or sadistic-masochistic

roles. The resultant balance encroaches on justice and dignity.

Type 4, antisocial disequilibrium.--Individual needs or appetities supersede group goals...with the result that social failure leads to family break-up and for the individuals a sense of being aggrieved or alienated from extended family, significant peer group, and/or society.

The researchers found that role stress and role dysfunction were markedly lower in Type 1 families and that Type 1 families were more adept at utilizing both extended family and community resources for support than Types 2, 3 and 4.

In an extensive field study on systematic family response to disability, Cogswell (1976) also examined internal and external forces affecting the family. She followed 12 whole families for two and three year periods. In each of the families one of the parents had suffered a serious but not life threatening disability. Cogswell defined rehabilitation gain in both physical and social terms. Physical rehabilitation had to do solely with restoration of physical capacity and return to employment while social rehabilitation included restoration of harmonious family and peer relationships and outside social involvements for all members of the family. Cogswell found that 11 of the 12 of the families exhibited morphogenic features which she defined as role flexibility and accessibility to outside resources. In those families both social and physical rehabilitation proceeded successfully. In the one family which was identified as exhibiting extreme morphostasis, i.e., rigid role structure and social isolation, physical but not social rehabilitation was accomplished.

A classification system similar to Stone and Shapiro's was

devised by Westin and Reiss (1979) in a study aimed at determining family problem-solving styles in a rehabilitation setting. The researchers hypothesized that a family's shared conception of its social world would determine its problem-solving style and, thus, its approach to the rehabilitation of an adolescent member. Although not based on family response to a disable breadwinner, the classification system developed by Westin and Reiss is presented here as another good example of latent reaction patterns in families stressed by disability. (p. 28):

Environment Sensitive. These families cooperate with the treatment program and allow the patient full participation with his peers. They are liked by other families.

Consensus Sensitive. This is an uncooperative group of families. They involve the patient in the family and keep him from interacting with peers. These are conspicuous families who often stimulate ambivalence in other families.

Distance Sensitive. These are the most uncooperative families. Family members are isolated from one another and the patient is neglected. They are unnoticed by other families.

The typology of family problem-solving styles developed by Westin and Reiss is conceptual in nature. The article in which it appeared indicated that the classification system was part of an ongoing study designed to develop a family therapy model for rehabilitation.

Finally, in another study which dealt with the family's involvement with the rehabilitation team, Peck (1974) characterized four distinct interpersonal patterns which may arise between family and rehabilitation professionals following serious injury of a parent. He suggested that these "interactional-familial configurations" arose

because disability of a parent disrupted the family's typical interdependency style (p. 469). He classified the resulting pathological realignments in metaphorical terms:

1. The "as if dead" fantasy. In this configuration, the injured parent loses all sense of power as a separate person within the family system and becomes infantilized. Rehabilitation becomes something that is done to the victim rather than being seen as a cooperative process (p. 471).
2. The triangulation pattern. In this configuration, a preexisting but covert conflict between mother and father had resulted in one or more children becoming go-betweens. The disability of a parent becomes an excuse for the non-disabled parent to withdraw, thereby intensifying the relationship between injured parent and child even more. Burdened by excessive responsibility the child also withdraws and attempts to co-opt professional helpers to act as family surrogates.
3. The squared-off scenario. In this configuration the increased burden of disability on the non-disabled family members results in a competition with the rehabilitation professionals over who will take care of the disabled parent. The "loser" in this case must continue to relate to the disabled member as a person while the "winner" gets to retreat into scientific objectivity and aloofness.
4. The final pattern identified by Peck emerges when a helping professional, a therapist or family doctor, becomes "absorbed" into the family as a pseudo-member. If the family's response to the crisis is counterproductive, the helper merely amplifies the problem, e.g., by countermanding the recommendations of the rehabilitation team.

Peck demonstrated in a clinical-casework approach that these patterns were damaging to rehabilitation efforts.

#### Summary

The impact of disability upon the head of household can be seen to have a resonating effect upon the family structure which, in turn, defines the subsequent rehabilitation process. Whether the relevant family dynamics precede or, indeed, promote the onset of

disability or not remains a matter of conjecture since the etiological studies available were based on retrospective analysis and recollections. However, for the purposes of rehabilitation practice, the identification of supportive and deleterious family responses after disablement remains important.

Studies presented on family reactions to disability were divided into the areas of role theory and systems theory. The major conceptual difference between these two approaches appears to be whether the focus is upon the individual's functioning within the group--role theory--or on the structure of the group as a whole, each part of which is necessarily altered by changes in another part--systems theory.

Role theory studies generally defined negative responses to disability in terms of the loss of traditional role behaviors accompanied by excessive dependency on the family which precluded other avenues of self-investment. Systems theory studies, on the other hand, included the broader scope of the family as a unit in defining the nature of pathological versus beneficial realignments following disability. Studies on the family as a system described polarity formation in response to the crisis of disability. A common theme in these studies was the idea of a continuum running from extreme enmeshment and dependency at one end to extreme isolation and disintegration at the other. There is evidence in many of the studies presented that intransigent physical symptoms, psychological symptoms, self-concept variables, and work values within the disabled individual were directly related to the family's position on such a continuum.

It is the goal of the present research, using current knowledge of family systems theory and measurement, to identify more clearly the relevant systematic patterns and personality variables associated with physical disability.

## CHAPTER 3

### METHODOLOGY

#### Subjects

The subjects for this study were 35 industrially injured males and their respective families who volunteered to participate. (The specifics of the sample selection process are contained in the Procedure Section.) All the injured workers were claimants for Arizona workmen's compensation benefits whose past adjustment to injury was judged sufficiently problematic either by the claims representative or by a physician to warrant referral for rehabilitation services.

Subjects were drawn from both the Rehabilitation Department of the Arizona State Compensation Fund and from Wesley Rehabilitation and Counseling Services. Claimants from both agencies were similar with respect to racial-ethnic distribution, socio-economic level, occupational and personal characteristics, as well as to type of injury sustained and subsequent claim procedures followed. The chief difference between agencies had to do with whether the employer was covered by state or private liability insurance.

With respect to demographic characteristics, 14 (40%) of the subjects lived in the Tucson metropolitan area, 15 (43%) in the Phoenix metropolitan area. The remainder, 6 (15%) were drawn from

small towns in northern Pima, Pinal, and Santa Cruz counties. The latter three locales are served by the Tucson workmen's compensation office. The ethnic mix of the sample was 28 Anglo and 7 Mexican-American. The types of jobs held by the claimant at the time of injury were approximately 30% construction and 70% other skilled trades almost all of which involved a high degree of manual labor. Type of injury suffered was musculoskeletal in all cases, 91% of which involved low back trauma.

With respect to family characteristics, the subject sample was limited to those families in which the disabled worker was the sole or chief provider at the time of his injury. Families who had at least one dependent at the time of injury, i.e., spouse or other immediate family member, were included if that member continued to: 1. Live under the same roof as the disabled worker or, 2. Live in close proximity to the disabled worker and to have frequent contact with him. In fact, of the 35 families tested, 30 maintained continuity of membership under one roof between time of injury and initial testing for the present study.

#### Measures

In this study, configurations or patterns of claimant self-esteem, claimant work-role salience, and family environment were used to predict progress or stagnation in the rehabilitation process. The predicting measure of claimant self-esteem was the SELF-ESTEEM INVENTORY (Rosenberg, 1965). The Rosenberg self-esteem inventory (RSE) is a ten item Guttman scale which measures self-acceptance

aspects of self-esteem on four point continua from strongly agree to strongly disagree. Reliability of .92 has been obtained (Robinson & Shaver, 1976, p.81). Convergent validities of between .56 and .85 have been obtained with other measures of self-esteem and with clinical assessment (Robinson & Shaver, 1976, p.81).

The RSE was chosen for its brevity, ease of administration, and high reliability and validity. Although not extensively utilized in rehabilitation research, Wylie (1961) reports that the RSE is deserving of more research and application and ranks it higher than more commonly used measures of self-regard, e.g., the Tennessee Self-Concept Scale.

The predicting measure of systematic family response was the FAMILY ADAPTABILITY AND COHESION EVALUATION SCALE II (FACES II) (Olson, Portner, & Bell, 1982). As pointed out in Chapter One, Olson has devised a scale which purports to measure latent systematic patterns within families. FACES II is a 30 item self-report instrument which is designed to measure family members' perceptions of two major systematic variables, relative cohesion and adaptability of the family. These two variables are further divided into four subcategories each. The cohesion subcategories are: enmeshed, connected, separated, and disengaged; the adaptability subcategories are: chaotic, flexible, structured, and rigid. The instrument is administered to family members individually and all scores are combined to yield a group profile. The group profile representing the interactions of the two variables is then plotted on a circular graph or rectangular grid. Figure 2 presents a grid devised by the scale's

## COHESION

		Disengaged	Separated	Connected	Enmeshed
ADAPTABILITY	Chaotic				
	Flexible				
	Structured				
	Rigid				

Figure 2. Grid for plotting family position with respect to systems dimensions of cohesion and adaptability.

Note. From D.H. Olson, & J. Portner (1983). Family adaptability and cohesion evaluation scales. In E. E. Filsinger (Ed.), Marriage and Family Assessment (pp. 299-315). Beverly Hills, Ca: Sage. Copyright 1982 by D. Olson. Adapted by permission.

authors for plotting the position of families in terms of the two dimensions. Olson, Russell, and Sprenkle, (1980) after a thorough review of the various models of family systems have predicted how families under stress will respond as measured by the variables of adaptability and cohesion. They hypothesize that stress will differentiate families on the basis of cohesion and adaptability into problematic and non-problematic configurations. The former will be identified by extreme scores on both dimensions while the latter will exhibit more moderate scores. The reliability of FACES II has been measured by both internal consistency and test-retest procedures. Internal consistency determined by calculating alpha figures for a total sample of 2,412 respondents yielded scores of .90 for the scale. The test-retest reliability for a sample of 124 respondents was .85 for the scale as a whole. Factor analysis was used for construct validation of FACES II. In a sample of 464 adult subjects, 8 factors for both test dimensions, cohesion and adaptability, accounted for 75% of the variance (Olson, Portner, & Bell, 1982).

Career or work-role salience is defined by Greenhaus (1971) as "the importance of work and a career in one's total life" (p.210). Work-role salience was measured by a 28 item Likert-type questionnaire developed by Greenhaus & Sklarew (1981). The scale is designed to assess the worker's occupational investment over three areas: a. general attitudes toward work, b. degree of vocationally relevant planning and thought, and c. the relative importance of work. The reliability of the work-role salience inventory (coefficient alpha) was .81 for a sample of 377 adult respondents.

The criterion for the present study, rehabilitation gain or loss, was measured by the weighted closure method. Backer (1980) writes, "This approach is designed to reflect the reality that some clients are harder to assess, harder to train, and harder to place than others" (p.210). The weighted closure approach utilizes relative client position in the rehabilitation process to establish individualized and realistic treatment goals.

To accomplish the measurement of rehabilitation gain or loss over time; goal attainment scales (GAS) were developed by counselors at the Tucson office of the State Compensation Fund and Wesley Rehabilitation and Counseling Services in conjunction with the researcher. GAS was originally developed for use in mental health settings (Kiresuk, 1973; Kiresuk, & Sherman, 1968). More recently GAS has been used successfully to measure rehabilitation progress in the hospital (Goodyear, and Bitter, 1974), and has been redesigned for use in other rehabilitation settings (Jewish Vocational Service, 1976, 1977).

Seven goal attainment sub-scales were designed to measure each of the relevant client variables in rehabilitation within the compensation framework. The seven sub-scales are included in Appendix D. Gain or loss in the rehabilitation process was scored by assigning one of five numerical levels from -2 to +2 to behaviorally defined steps on a continuum ranging from most unfavorable outcome to best anticipated outcome. These levels, in turn were weighted by the counselors to reflect the relative importance of each of the seven sub-scales in an overall goal attainment score. In a pilot study of

the Goal Attainment Scales developed for the present research, interrater reliability of .98 was achieved with a sample of 10 cases.

### Procedures

Claimants who fit the research criteria (disabled male, head of household) were contacted by their rehabilitation counselors and asked if they and their families would volunteer for the study. Claimants were told that the study was designed to improve rehabilitation services by gathering more information as to the impact of disability and unemployment on the entire family. Procedural questions about the study were briefly answered by the counselor. This initial contact yielded a pool of 73 potential subjects.

To those claimants who expressed an interest in the study to their counselors, the examiner mailed a letter of introduction containing a more detailed description of the purpose of the study, the specific activities required of the claimants and their families, and an informed consent statement (See APPENDICES F & G). Of this group, 39 (53%) returned a signed consent statement to the examiner. Subsequently, each family that returned a consent statement was contacted by the examiner to schedule a family meeting at the claimant's home. At the family meetings the examiner administered the FACES II questionnaire to all family members who were old enough to respond to the items. In addition, each claimant was administered the self-esteem inventory and the work-role salience inventory. In some cases the test instructions were read to the claimant and the questionnaires left with the family to be mailed back to the examiner

in a self-addressed, postage-paid envelope. However, in all cases, for the first administration of the questionnaires, the examiner met the claimant and as many family members as were available, personally, in the claimant's home.

Within a week of completing the predictor measures, counselors either scheduled an appointment with each claimant or phoned the claimant in order to gather the necessary information to complete the Client Data Sheet for Goal Attainment Scaling (See Appendix E). The Data Sheet is simply a summary form devised by the examiner for collecting objective information pertaining to the rehabilitation criteria measured by the seven goal attainment sub-scales. All data collected by the examiner from the claimant and his family and by the rehabilitation counselor at the initial administration will hereafter be referred to as Time-1 or T-1.

Approximately three months after the initial testing, counselors again contacted claimants by phone to gather information for the concluding G.A.S. rating. The experimenter then contacted the claimants by phone and by mail to schedule a concluding administration of the family, self-esteem, and work-role salience inventories. In some cases, the concluding sets of questionnaires were mailed to the claimants and their families along with a brief summary of the test instructions and a pre-addressed, postage-paid envelope for returning the completed answer sheets. All data collected by the examiner from the claimant and his family and by the rehabilitation counselors at the concluding administration will hereafter be referred to as Time-2 or T-2.

Of the 39 families who returned consent forms, 35 returned both Time-1 and Time-2 answer sheets as well as providing their counselors with data for goal attainment scaling. Thus of the original pool of 73 potential subjects, 47.94% completed the study.

### Data Analysis

The scores collected from the predictor and outcome measures were treated primarily by non-parametric, descriptive techniques. A Pearson product-moment correlation matrix of all variables was produced in order to examine overall relationships between variables. Regression analyses were performed to establish a predicted value for the T-2 scores from the T-1 scores for all variables. In this way, the variability of the T-2 scores due to variability in the T-1 scores was accounted for. The resulting residual scores were also intercorrelated for a further examination of general relationships.

With regard to hypothesis testing, the significance of the relationship between time since injury and systematic family response (H1) was tested by: 1. Using a one-way analysis of variance to determine significant differences between family systems subcategories and, 2. Using planned post-hoc tests to compare the profile achieved to the predicted pattern.

A Pearson product-moment correlation procedure was used to measure the relationship between time since injury and self-esteem of the claimant. (H2)

A cross-lagged panel correlation design (Rosenthal, & Rosnow, 1984) was utilized to assess the role of movement in systematic family

variables on changes in self-esteem and rehabilitation progress. (H3)

Non-parametric contingency tables were used to plot the relationships between predicted patterns of system dimensions, self-esteem, work-role salience and movement in rehabilitation compared to demonstrated patterns of these variables. (H4, H5, & H6)

A Pearson product-moment coefficient of correlation was used to measure the extent of the relationship between the time between date of injury and acceptance for rehabilitative service and progress in rehabilitation. (H7)

## CHAPTER 4

### RESULTS

This chapter will present scoring procedures, general descriptive statistics, specific tests of the presented hypotheses and unexpected results not included in the tested hypotheses. A discussion of the findings will follow in Chapter 5.

#### Scoring Procedures

##### Family Adaptability and Cohesion Evaluation Scale (FACES II)

Family adaptability and cohesion were scored from the FACES II answer sheets by the examiner for each family participant at both T1 and T2 utilizing the scoring procedure and forms included by the authors of the test in the published packet (Olson, Portner, & Bell, 1982). In order to obtain a total family score for both dimensions of cohesion and adaptability at both T1 and T2, a simple average was taken of the individual member's scores for each of the two variables at both administrations. In this way, the influence of each family member on the total score was given equal weight.

##### Self-esteem and Work-role Saliency

Self-esteem (SE) and work-role saliency (WRS) answer sheets were collected from all 35 claimants. No additional calculations were performed on these raw scores prior to computer analysis.

### Goal Attainment Scales

In order to preserve the reliability of the goal attainment scales (GAS) the same two rehabilitation counselors who established inter-rater reliability with the GAS performed all GAS ratings for the experimental sample. The counselors collected all Client Data Sheets and from these rated each subject's goal attainment level from -2 to +2 on all seven GAS subscales at both T1 and T2. The GAS rating forms were then coded by subject number and date and transferred to the examiner.

The data as obtained above for both T1 and T2 administrations along with demographic information for each subject were coded by case number and entered into a Statistical Package for the Social Sciences (SPSS) computational program for analysis.

Following the developers of the goal attainment scales (Kiresuk, & Sherman, 1968) a compute statement was entered into the program which converted the seven GAS subscales to a single t-score with a mean of 50 and a standard deviation of 10 for each of the 35 subjects at both T1 and T2. The formula for computing the raw GAS subscale scores to t-scores is presented as follows:

$$t = \frac{50 + 10(\sum x_i w_i)}{\sqrt{(1-\rho)\sum w_i^2 + \rho(\sum w_i)^2}}$$

Where:  $x_i$  = the subscale score.

$w_i$  = the weight of the subscale score.

$\rho$  = the expected correlation between the subscales, set by the authors of the scales at .3.

The only additional computations needed to yield final scores for all variables involved recoding reverse-scored items within inventories. In all cases the recoding was performed so that high scores reflected high levels of the particular variable.

### Descriptive Data

#### Characteristics of the Sample

The descriptive statistics of the subjects are as follows: the mean age of the disabled breadwinners (claimants) at the onset of the study was 38.34 years (SD=11.16). Ages ranged from 18 to 62 years. The mean age of the claimants at the time of injury was 35.31 years (SD=10.86), with a range of 18 to 60 years. The mean number of years of education of the claimants was 11.54 years (SD=1.5) with a range of 7 to 14 years of education. The mean family size was 2.83 (SD=1.01), the smallest families consisting of 2 persons and the largest of 5 persons. The mean monthly salary of the disabled workers only (prior to injury) was \$1,335.60 (SD=\$581.99) with a salary range of \$691.00 to \$4,250.00 per month. This mean salary figure may underestimate the actual salary level prior to injury somewhat due to the use of a maximum compensable basis for compensation which replaced actual pre-injury salary levels for a portion of the sample. In other words, pre-injury monthly salary levels provided by some of the rehabilitation counselors for this study did not exceed \$1,325.00 per month, the upper limit on which unemployment compensation is based in Arizona.

### Characteristics of the Variables under Examination

Table 1 lists the means and standard deviations of the five major variables under examination for both T1 and T2 administrations, as well as for the three sub-scales of the variable work-role salience. Also listed are the means and standard deviations of the two variables concerning passage of time since the compensable injury.

The statistics in Table 1 are provided for information, reference, and informal comparison. Since this was not an experimental study, no testing of the difference between means was undertaken. The only measure for which published norms were available is the Family Adaptation and Cohesion Evaluation Scale (FACES II). As a point of comparison, for sample sizes of 2,030 parents and 416 adolescents, the published means and standard deviations for the FACES II are (Olson, Portner, & Bell, 1982):

for parent norms

Mean = 64.9, SD = 8.4 -- Cohesion

Mean = 49.9, SD = 6.6 -- Adaptability

for adolescent norms

Mean = 56.3, SD = 9.2 -- Cohesion

Mean = 45.5, SD = 7.9 -- Adaptability

As can be seen the means and standard deviations of the research samples for the FACES II are extremely close to the published norms. For purposes of hypothesis testing, these parent norms were used throughout the remainder of this study for classification of the subjects' scores unless otherwise indicated.

Table 1  
Means and Standard Deviations of the  
Variables Under Study at Time-1 and Time-2

VARIABLE	MEAN		STANDARD DEVIATION	
	Time-1	Time-2	Time-1	Time-2
Family Cohesion	63.41	63.27	8.59	9.20
Family Adaptability	48.17	47.07	7.49	8.11
Work-role salience	88.20	87.39	18.73	10.04
1.Relative importance of work and career	18.53	18.86	5.61	3.67
2.Planning and thinking about career	29.72	29.08	6.44	4.25
3.General attitude toward work	29.17	28.96	6.55	4.25
Self-Esteem	31.26	31.69	3.93	4.17
Goal Attainment	46.04	52.11	10.98	12.79
-----				
Months Since Injury	37.74	---	42.97	---
Date of Injury to Date of Acceptance for Rehabilita- tion services (in months)	24.50	---	33.44	--

## Relationships between Variables

In order to look at the overall relationships between measured variables, a first step was to form a correlation matrix of the five major factors using Pearson product-moment correlations. This correlation matrix is presented in Table 2. The two factors pertaining to time since injury were not included in this matrix as they were related to specific hypotheses not having to do with the interaction of psycho-social variables.

On examination of the correlation matrix, it was apparent that the test-retest reliabilities of the variables achieved significance at the .001 level of probability with the exception of the work-role salience (WRS) inventory and its subscales. Of the latter, all but the General Attitude Toward Work (GATW) subscale achieved test-retest correlations significant at the .05 probability level. Beyond these indices of reliability, WRS (and two of its subscales) displayed significant negative correlations with goal attainment (GAS) at T1. At T2 these relationships had disappeared while only the GATW subscale displayed a significant positive relationship with goal attainment ( $r = .38, p = .011$ ).

The family systems dimensions of cohesion (FC) and adaptability (FA) were positively and significantly intercorrelated at the .001 level of probability ( $r = .81$  at T2). This high positive correlation between cohesion and adaptability was an unexpected result which will be discussed later in this chapter.

Other significant relationships which might shed light on possible patterns among variables were confused by the presence of

Table 2

## The Correlation Matrix for the Major Variables

	FC/T1	FC/T2	FA/T1	FA/T2	SE/T1	SE/T2	WRS/T1
FC/T1	1.00	.77**	.75**	.76**	.07	.05	-.13
FC/T2		1.00	.65**	.81**	.07	.15	-.10
FA/T1			1.00	.80**	.30*	.30*	-.05
FA/T2				1.00	.15	.19	.12
SE/T1					1.00	.51**	-.08
SE/T2						1.00	.32*
WRS/T1							1.00
RIWC/T1							
PTAC/T1							
GAIW/T1							
WRS/T2							
RIWC/T2							
PTAC/T2							
GAIW/T2							
GAS/T1							
GAS/T2							

\*p&lt;.05

\*\*p&lt;.001

## Legend:

FC/T1=family cohesion at Time-1

FC/T2=family cohesion at Time-2

FA/T1=family adaptability at Time-1

FA/T2=family adaptability at Time-2

WRS/T1=work-role salience at Time-1

WRS/T2=work-role salience at Time-2

RIWC/T1(T2)=relative importance of work and career at Time-1  
(Time-2)

PTAC/T1(T2)=planning and thinking about career at Time-2 (Time-2)

GAIW/T1(T2)=general attitude toward work at Time-1 (Time-2)

GAS/T1=goal attainment scale at Time-1

GAS/T2=goal attainment scale at Time-2

Table 2--Continued

	RIWC/T1	PTAC/T1	GAIW/1	WRS/T2	RIWC/T2	PTAC/T2
FC/T1	0.22	-.18	-.00	-.13	-.05	.11
FC/T2	-.10	.15	.12	.08	-.09	.12
FA/T1	-.10	-.07	-.02	.07	.01	.06
FA/T2	.08	.08	.11	.06	.08	.12
SE/T1	-.09	-.03	-.05	.25	.18	.24
SE/T2	.27	.29*	.29*	.24	.05	.21
WRS/T1	.84**	.87**	.91**	.28*	.32*	.17
RIWC/T1	1.00	.59**	.67**	.25	.42*	-.06
PTAC/T1		1.00	.73**	.26	.23	.35*
GAIW/T1			1.00	.24	.23	.15
WRS/T2				1.00	.71**	.73
RIWC/T2					1.00	.27
PTAC/T2						1.00

\* $p < .05$ \*\* $p < \text{or} = .001$

Table 2—Continued

	GATW/T2	GAS/T1	GAS/T2
FC/T1	.12	.10	-.03
FC/T2	-.11	-.11	-.23
FA/T1	.14	.12	-.03
FA/T2	.01	-.04	-.28*
SE/T1	.19	.17	.20
SE/T2	.19	.05	.09
WRS/T1	.09	-.34*	-.01
RIWC/T1	.14	-.32*	-.07
PTAC/T1	-.01	-.33*	-.09
GATW/T1	.11	-.28	.11
WRS/T2	.85**	.16	.24
RIWC/T2	.53**	.12	.21
PTAC/T2	.42*	.09	-.03
GATW/T2	1.00	.18	.39*
GAS/T1		1.00	.68**
GAS/T2			1.00

\*p&lt;.05

\*\*P&lt; or =.001

correlations over time. For example, family adaptability at Time-1 (FA/T1) was significantly correlated with self-esteem at both Time-1 and Time-2 (SE/T1,T2), while FA/T2 was not correlated with SE at either T1 or T2.

A second problem with interpretation was the fact that work-role salience, self-esteem, and goal attainment scores were derived from linear measures while the family cohesion and adaptability scores were derived from curvilinear measures. In other words, for the family measures, both extreme high and low scores were considered problematic. Thus, ambiguity arose in attempting to assess relationships between family systems scores and the other variables using this method. Interpretation became clearer as the individual hypotheses involving the family systems variables were addressed later in this chapter.

A third issue which confounded interpretation was the possibility that the T2 scores for all five factors were influenced by the variability inherent in the T1 scores. In order to control for the possible effects of T1 variability, a regression analysis was performed for all five major variables. This procedure predicted the T2 scores based on the correlation between T1 and T2 scores. By subtracting the estimated values of the T2 scores from the actual T2 scores a set of residualized change scores was generated for each variable.

In order to examine the overall interrelationships of the residualized scores, a second correlation matrix of the residualized

change scores was produced. This matrix is presented in Table 3. The subscale scores for the work-role salience inventory were deleted from the residualized correlation matrix and will appear later in this chapter.

As can be seen a significant correlation between family systems variables remained after removing variability due to the initial testing ( $r=.48$ ,  $p<.05$ ). Also, a strong negative correlation appeared between family adaptability and the outcome measure, goal attainment in rehabilitation ( $r= -.58$ ,  $p<.001$ ). Correlations between work-role salience and family cohesion ( $r=-.27$ ,  $p=.08$ ) and between goal attainment and family cohesion ( $r=.24$ ,  $p=.09$ ) were close to but did not achieve significance at the .05 level. Although the relationships illustrated in Table 3 were more representative of actual differences between T1 and T2 scores than those presented in Table 2, interpretation remained vague due largely to the curvilinearity of the family systems dimensions.

#### Testing the Hypotheses

H1 Families who have suffered the recent disablement of the breadwinner will display extreme systematic reactions on dimensions of cohesion and adaptability.

In order to test the hypothesis of extreme systematic family reactions to recency of disablement, the subjects were first divided into the four subcategories of both family cohesion (disengaged, separated, connected, enmeshed) and family adaptability (rigid, structured, flexible, chaotic) based on their scores on those

Table 3

## Correlation Matrix for the Residual Scores

	FC/R	FA/R	SE/R	WRS/R	GAS/R
FC/R	1.00	.48*	.05	-.27	-.24
FA/R		1.00	-.10	-.06	-.58**
SE/R			1.00	-.02	-.10
WRS/R				1.00	.04
GAS/R					1.00

\*p&lt;.05

\*\*p&lt;.001

Legend: FC/R=family cohesion-residualized;  
 FA/R= family adaptability, residualized;  
 SE/R=self-esteem, residualized;  
 WRS/R=work-role salience, residualized;  
 GAS/R=goal attainment score, residualized.

dimensions. Then the observed frequencies of families in each subcategory in relation to time since injury were compared to the predicted frequencies. Figure 3 represents a graphic comparison of observed to expected patterns of positions on cohesion and adaptability at T1 in relation to time since injury in months. In order to test the difference between predicted and observed patterns for significance, planned comparisons using F-tests were performed (Kirk, 1968). To test the reliability of the patterns observed at T1, the above procedure was repeated for T2 scores. Figure 4 illustrates the observed versus predicted patterns at T2. The F-ratios for each of the planned comparisons are presented in Table 4.

As can be seen, in no case were the relationships between months since injury and family position which followed the predicted pattern greater than chance expectations. Thus, H1 was not supported. However, as illustrated in Figures 3 and 4, those families in the less cohesive and less adaptable areas approximated the predicted pattern. That is, for families below the mean of cohesion and adaptability, those that were closer to time since injury were more extreme on systems dimensions.

H2 Recent industrial injury will result in reduced self-esteem of the breadwinner.

To test H2 a Pearson product-moment correlation coefficient was computed for time since injury in months (MSI) and Rosenberg self-esteem scores (SE) at both T1 and T2. A nonsignificant positive  $r$  of

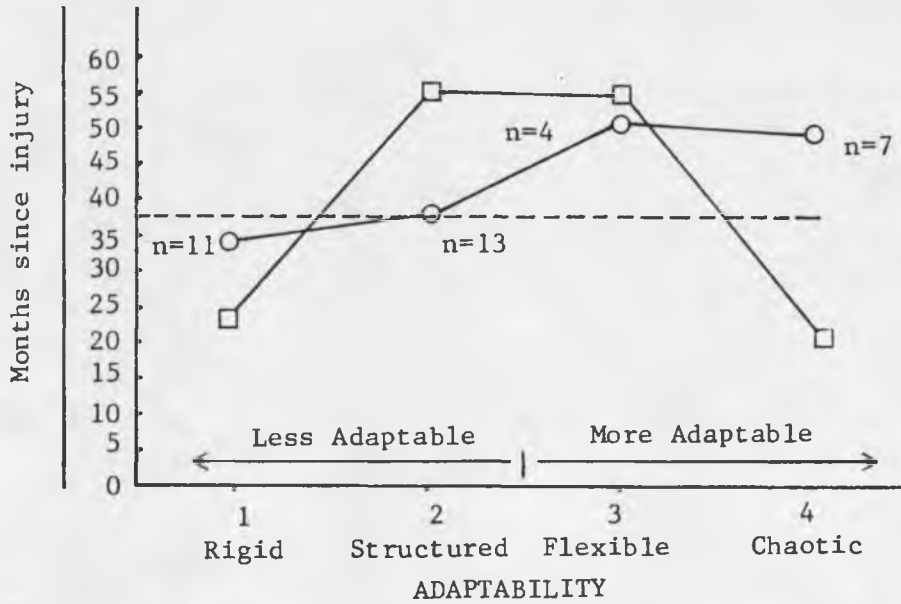
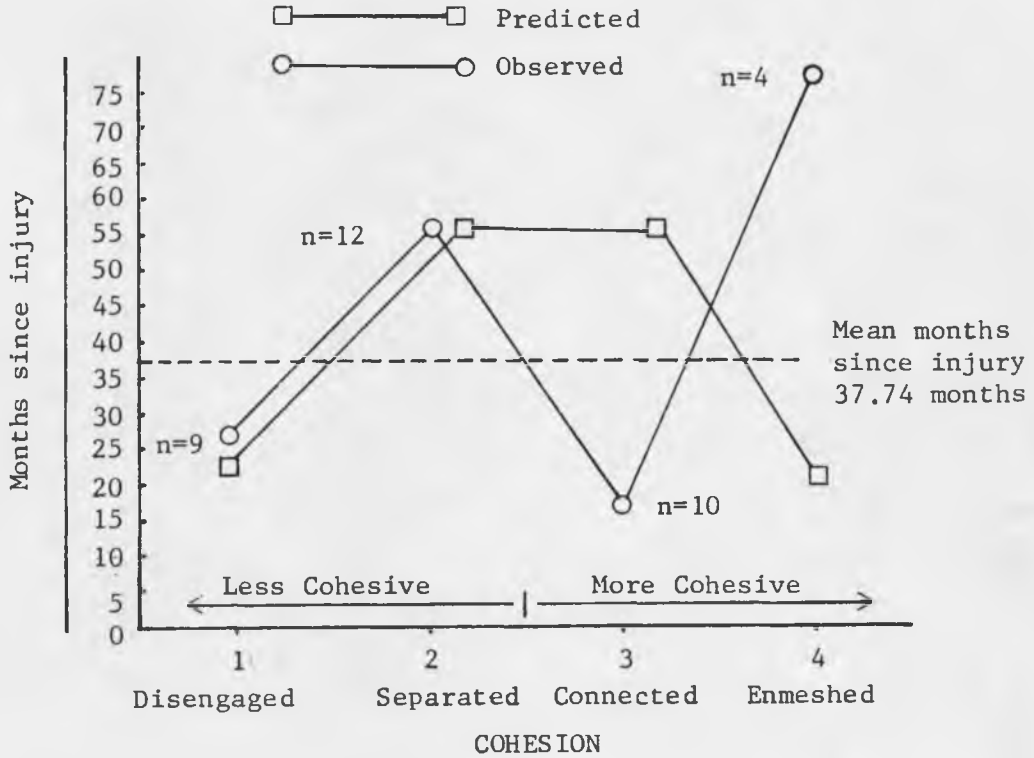


Figure 3. Comparison of observed to predicted family systems patterns as related to time since injury in months at Time-1.

Table 4  
 Comparisons of Predicted Patterns of  
 Family Systems Position by Time Since Injury  
 to Chance Expectations

Comparison	F-value (degrees of freedom)
<u>TIME-1</u>	
Total Cohesion	1.03 (3,30)
Disengaged to Separated	2.00 (1,30)
Total Adaptability	.07 (3,30)
<u>TIME-2</u>	
Disengaged to Separated	1.44 (1,30)
Rigid to Structured	1.28 (1,30)

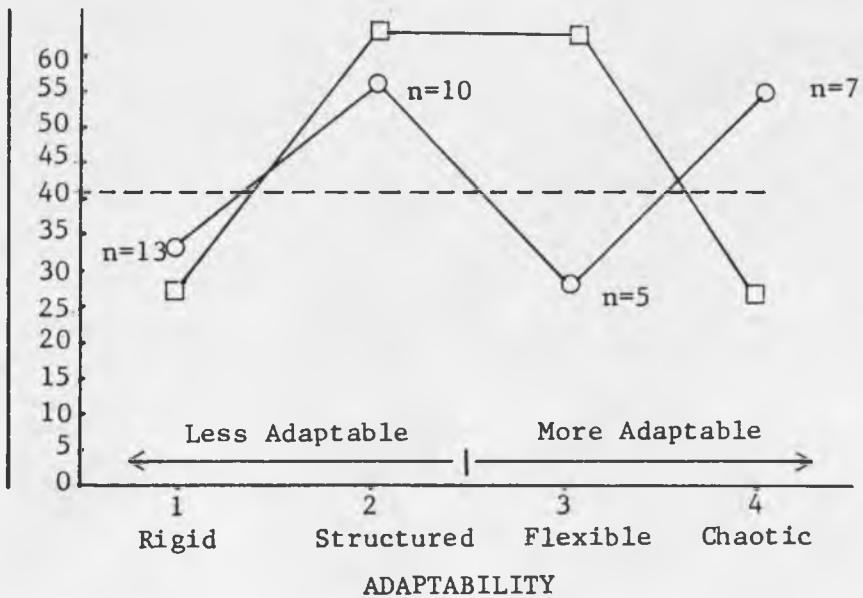
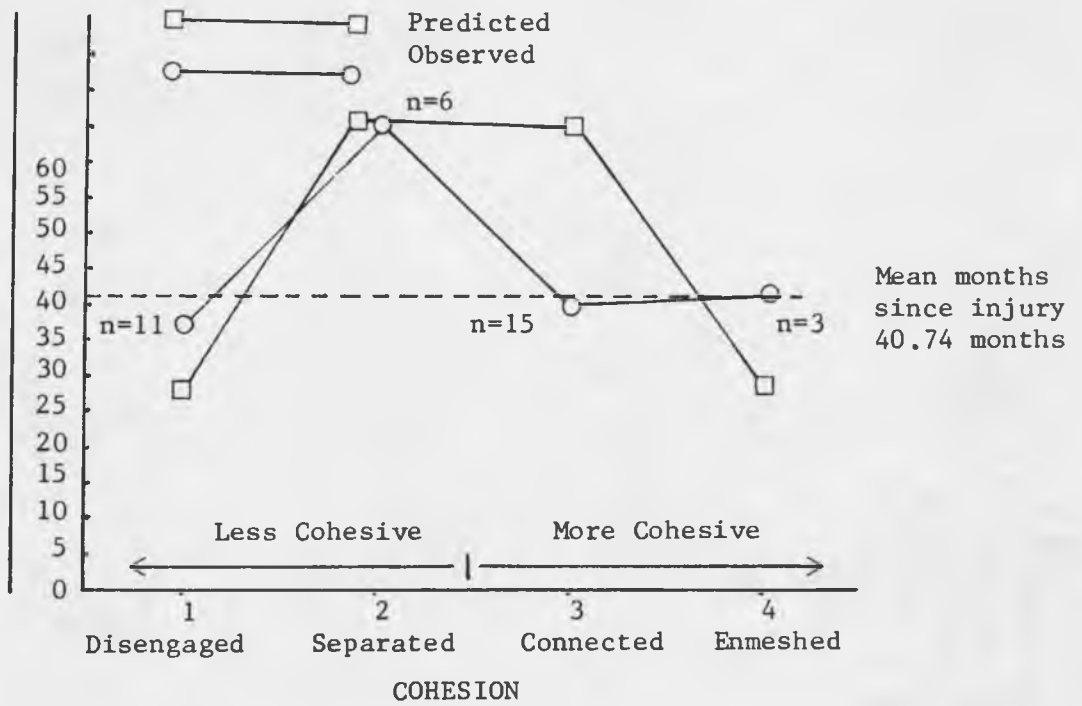


Figure 4. Comparison of observed to predicted family systems patterns as related to time since injury in months at Time-2.

.03 at T1 and .23 at T2 did not support the hypothesis of reduced self-esteem as a function of time since injury.

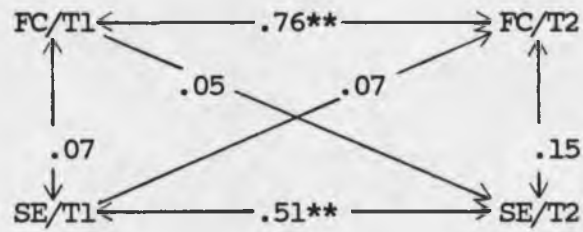
H3 Over time, families who regain moderate levels of system reaction dimensions will promote self-esteem and rehabilitation progress of the disabled worker.

In H3 the purpose was to predict a causal sequence as follows:

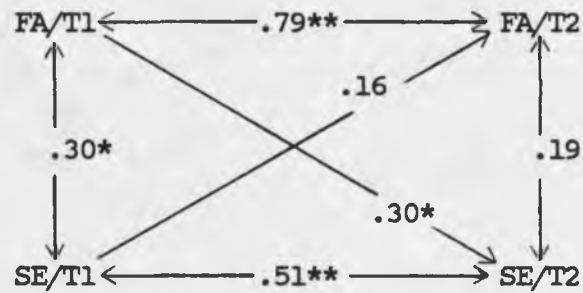
Families that are moderate on family systems characteristics will, over time, promote both the self-esteem and rehabilitation of the claimant. In order to test such causal relationships, a cross-lagged panel correlation design was used (Rosenthal, & Rosnow, 1984). In a cross-lagged research design, the relationships of the variables under consideration are tracked over time. Intercorrelations between all possible combinations of two variables are compared. It is the relationships between the two variables at T1 and T2 that gives some indication of causal directionality. Figure 5 presents the cross-lagged research design comparing the variables of family cohesion with self-esteem and family adaptability with self-esteem at T1 and T2. As shown, there were no significant correlations between family cohesion and self-esteem. However, the correlation between FA/T1 and SE/T2 was significant ( $r=.30$ ,  $p<.05$ ) and much higher than the correlation between SE/T1 and FA/T2 ( $r=.16$ ). This finding supported the idea that higher family adaptability at T1 resulted in higher self-esteem at T2 while weakening the alternative that higher self-esteem at T1 led to higher family adaptability at T2.

To conclude the test of H3 another set of cross-lagged

A.



B.



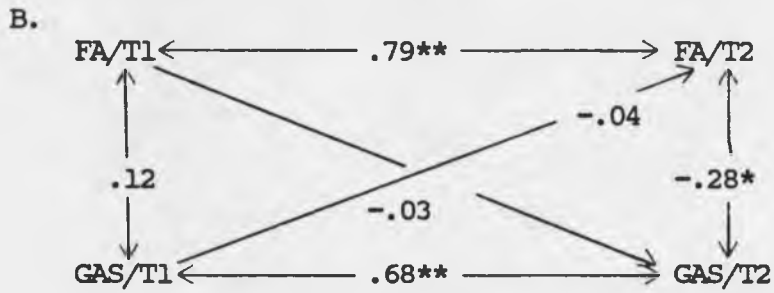
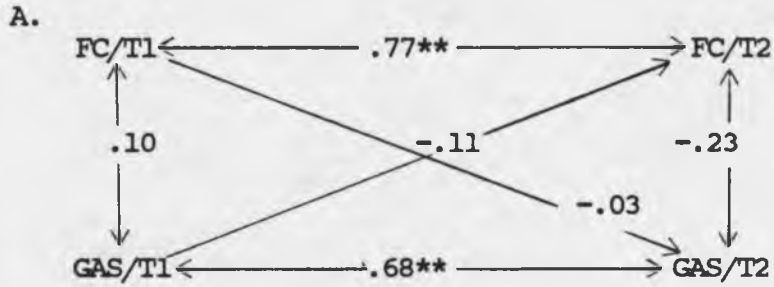
\* $p < .05$   
 \*\* $p < .001$

Figure 5. Cross-lagged panel correlations:  
 A. Family cohesion and self-esteem.  
 B. Family adaptability and self-esteem.

correlations was produced for family dimensions and goal attainment scores. These are illustrated in Figure 6. None of the predicted relationships between systems dimensions and goal attainment over time achieved a meaningful level of correlation, thus, H3 was not supported.

For hypotheses 4, 5, and 6 the purpose was to examine the interrelationships of the psychosocial factors and the outcome measure over time but not necessarily in terms of causality. For these hypotheses, the residualized scores were used in order to obtain a truer indication of differences between levels of the variables over time. The first step before testing the hypotheses was to code the residualized scores for each of the 35 subjects on the five major variables according to their relative magnitude at T2 and for the amount of difference between T1 and T2 scores.

The coding procedure was as follows: Pluses (+), minuses (-) and zeros(0) were used to represent high, low, and moderate levels of the variables respectively. For the two family systems variables and the work-role salience and self-esteem variables, zeros replaced T2 scores within  $\pm 1SD$  of the sample mean, pluses replaced any score  $>1SD$  above the sample mean and minuses a score  $>1SD$  below the mean. This system was also used to reflect the relative amount of difference between T1 and T2 levels as measured by the residualized scores. For the goal attainment scores which had a larger variance than the other factors ( $SD=12.8$ ) a  $.5SD$  cutting point was used. For purposes of investigation later in this chapter, the actual direction of T1 to T2



\* $p < .05$   
 \*\* $p < .001$

Figure 6. Cross-lagged panel correlations:  
 A. Family cohesion and goal attainment.  
 B. Family adaptability and goal attainment.

change measured by the residualized scores regardless of magnitude was also coded. Table 5 presents the coding summary as described above.

H4 Over time, families who display continued or increased enmeshment (extreme positive cohesion) will be associated with increased worker self-esteem but decreased rehabilitation progress.

H4 was designed as a test of the disability process theory, i.e., that while self-esteem is maintained through excessive interpersonal dependency, the industrial injury is used as a justification for all intra- and interpersonal shortcomings, thus effectively precluding rehabilitation. To test H4, the subjects whose family position on cohesion fell into the enmeshed range (+ position) were cross-tabulated with their position and/or magnitude scores on self-esteem and their magnitude scores on goal attainment. The predicted pattern for H4 appeared as follows:

	<u>Cohesion</u>	<u>Self-Esteem</u>	<u>Goal Attainment</u>
Code:	+	+	-

Table 6 presents the cross-tabulation of the variables under examination. For H4 (and H5, H6) a YES indicated a fit with the predicted pattern; a NO indicated a deviation from the predicted pattern. As can be seen, none of the eleven enmeshed families also displayed both high or increasing self-esteem and negative movement in rehabilitation. Therefore, H4 was not supported.

Table 5  
Coding Chart for Residualized Scores

Case No.	Family Cohesion		Family Adaptability		Work-role Salience		Self-esteem		Goal Attainment	
	Position	Magnitude	Position	Magnitude	Position	Magnitude	Position	Magnitude	Position	Magnitude
1	0	0	0	0	+	0	+	+	+	+
2	+	0	+	0	0	0	+	0	+	+
3	0	0	0	0	0	0	0	0	+	+
4	0	0	0	0	0	0	0	0	+	+
5	0	0	0	0	+	0	+	+	+	+
6	+	0	+	0	0	0	+	+	+	+
7	0	0	0	0	0	0	0	0	+	+
8	0	0	0	0	0	0	0	0	0	+
9	0	0	0	0	0	0	+	+	0	+
10	0	0	0	0	0	0	0	0	0	+
11	0	0	0	0	+	0	+	+	0	+
12	0	+	0	0	0	0	0	+	0	+
13	0	0	0	0	0	0	0	0	0	+
14	0	0	0	0	0	0	0	0	0	+
15	0	0	0	0	+	0	0	+	0	+
16	0	+	0	0	+	0	0	+	0	+

(cont'd)

Legend: Position = residualized score in relation to sample mean.  
 Magnitude = amount and direction of change of residual.  
 Direction = direction of residual difference regardless of magnitude.  
 For cohesion, adaptability, work-role salience and self-esteem: (+)=1SD above mean, (-)=1SD below mean, (0)=±1SD of mean. For GAS, above values are .5 standard deviations.  
 \*Direction of movement without respect to magnitude of movement.

Table 5--Continued

Case No.

- 17
- 18
- 19
- 20
- 21
- 22
- 23
- 24
- 25
- 26
- 27
- 28
- 29
- 30
- 31
- 32
- 33
- 34
- 35

	Family Cohesion	Family Adaptability	Work--role Saliency	Self-esteem	Goal Attainment
Position	+	+	+	+	+
Magnitude	0	0	0	0	0
Direction*	+	+	+	+	+
Position	0	+	+	+	+
Magnitude	0	0	0	0	0
Direction	+	+	+	+	+
Position	+	+	+	+	+
Magnitude	0	0	0	0	0
Direction*	+	+	+	+	+
Position	+	+	+	+	+
Magnitude	0	0	0	0	0
Direction*	+	+	+	+	+
Position	+	+	+	+	+
Magnitude	0	0	0	0	0
Direction*	+	+	+	+	+
Position	+	+	+	+	+
Magnitude	0	0	0	0	0
Direction*	+	+	+	+	+
Position	+	+	+	+	+
Magnitude	0	0	0	0	0
Direction*	+	+	+	+	+
Position	+	+	+	+	+
Magnitude	0	0	0	0	0
Direction*	+	+	+	+	+

Table 6  
 Cross-Tabulation of Family Enmeshment With  
 Self-Esteem and Goal Attainment

Predicted Pattern	Variable		
	Cohesion (+)	Self-esteem (+)	Goal attainment (-)
<u>Case No.</u>			
2	YES	YES	NO
6	YES	YES	NO
17	YES	YES	NO
20	YES	YES	NO
21	YES	NO	YES
23	YES	NO	NO
24	YES	NO	NO
25	YES	NO	YES
27	YES	NO	NO
28	YES	YES	NO
31	YES	NO	NO

H5 Increase in self-esteem over time without corresponding increase in work-role salience will be associated with family enmeshment and decreased rehabilitation progress.

The purpose of H5 was to retest the disability process but with the effect of work-role salience included. It was hypothesized that the disability process might occur only in those claimants for disability benefits for whom the importance of work was relatively weak. Thus the predicted pattern for H5 was as follows:

	<u>Self-Esteem</u>	<u>Work-Role Salience</u>	<u>Cohesion</u>	<u>Goal Attainment</u>
Code:	+	-	+	-

As illustrated in Table 7, none of the subjects displayed the predicted relationship, thus, H5 was not supported.

H6 Over time, families who display increased disintegration (negative cohesion) will be associated with decreased claimant self-esteem and stable or decreased rehabilitation scores.

The purpose of H6 was to test the idea that with both important subsystems, family and vocation, disrupted, there was little basis for self-esteem or rehabilitation progress. The predicted pattern for H6 was as follows:

	<u>Cohesion</u>	<u>Self-Esteem</u>	<u>Goal Attainment</u>
Code:	-	-	0 or -

Table 8 reveals that only one of eight possible "disintegrated"

Table 7

Cross-Tabulation of Self-Esteem, Work-Role Salience,  
Cohesion and Goal Attainment

Predicted pattern	<u>Variable</u>			
	Self- esteem	Work-role salience	Cohesion	G.A.S.
	(+)	(-)	(+)	(-)
<u>Case No.</u>				
1	YES	NO	NO	NO
2	YES	NO	YES	NO
6	YES	NO	YES	NO
9	YES	NO	NO	YES
17	YES	NO	YES	NO
20	YES	NO	YES	NO
28	YES	NO	YES	NO
34	YES	YES	NO	NO

Table 8  
 Cross-Tabulation of Family Disintegration  
 With Self-Esteem and Goal Attainment

	Variable		
	Cohesion	Self- esteem	G.A.S.
Predicted pattern	(-)	(-)	(0 or -)
<u>Case No.</u>			
4	YES	YES	YES
7	YES	NO	YES
14	YES	NO	NO
18	YES	NO	YES
22	YES	NO	YES
29	YES	NO	YES
32	YES	NO	YES
34	YES	NO	YES

families displayed the predicted pattern. Thus H6 was not supported.

H7 Shorter time periods between date of injury and date of acceptance for rehabilitative services will be associated with greater rehabilitation progress compared to longer periods of time.

To test H7, a Pearson product-moment correlation coefficient was calculated for Time between injury and acceptance for rehabilitative services (in months) and residualized goal attainment scores. An  $r$  of  $-.23$  was in the predicted direction but not large enough to support H7.

#### Additional Findings

The most striking unexpected result was the strong positive correlation between family adaptability and cohesion (See Tables 2 and 3). Families high on cohesion tended to be high on adaptability as well with enmeshed families (extreme upper category of cohesion) tending also to be in the chaotic (extreme upper) range of adaptability.

At the other end, families low on cohesion tended to be low on adaptability with disengaged (extreme low cohesion) families tending also to be rigid (extreme low adaptability). As Figure 7 illustrates, there were no families in the chaotically-disengaged or rigidly enmeshed areas. Further, it appeared that families became more extreme on the family dimensions over time. To test this observation, family positions on adaptability and cohesion at T1 were compared to their T2 positions using the coding format in Table 5. The

T1 → T2

COHESION

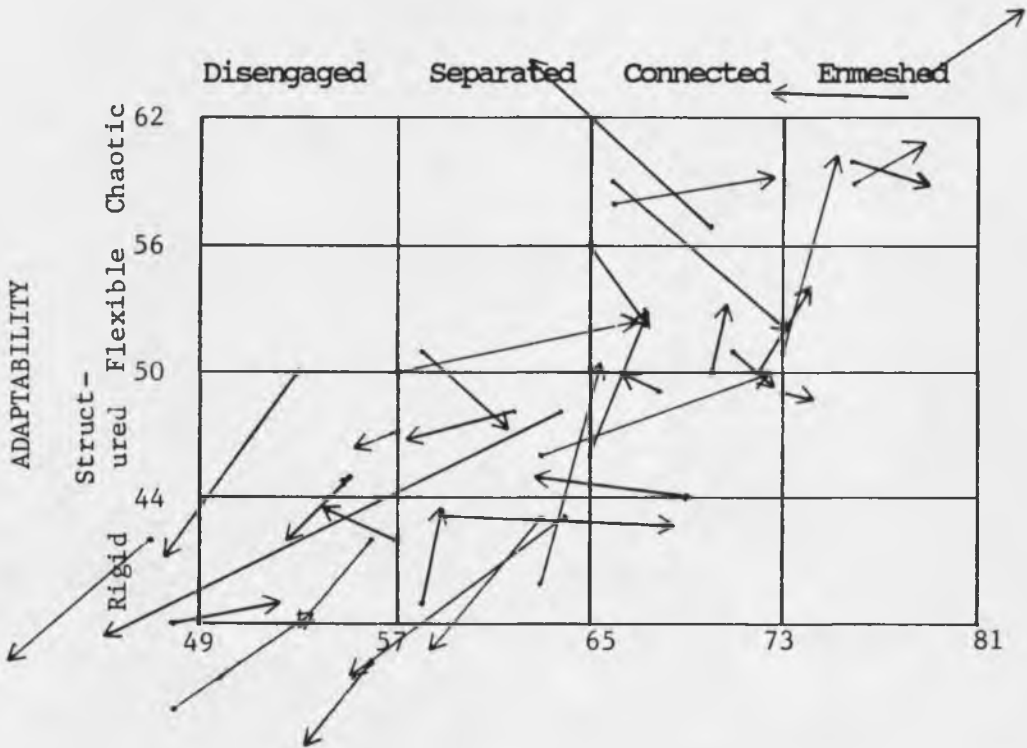


Figure 7. Scatterplot of residualized change scores for the family systems dimensions of cohesion and adaptability (n=35).

developers of FACES II have divided families into 3 types according to their positions on the two dimensions: balanced, extreme, and midrange (Olson, & Portner, 1983). Balanced families are within 1SD of the mean on both dimensions. They would fall into the separated or connected subcategories of Cohesion and the structured or flexible subcategories of Adaptability. Thus balanced families received a code of (0) for both dimensions. Extreme families are greater than or less than 1SD of the mean on both dimensions. They would fall into the disengaged or enmeshed subcategories of Cohesion and the rigid or chaotic subcategories of Adaptability. Extreme families included those coded (+) or (-) for cohesion and adaptability. Finally, midrange families were those with an extreme score on one dimension (+ or -) but a moderate score on the other dimension (0).

An informal comparison of T1 and T2 positions using residualized scores showed that the number of extreme families increased from 6 to 12, the number of midrange families increased from 9 to 10, while the number of moderate families necessarily decreased from 20 to 13. Most of the increase in extreme families took place in the negative direction. at T1 there were 2 rigidly-disengaged families compared to 6 such families at T2. In the positive direction, there were 4 chaotically-enmeshed families at T1 compared to 6 such families at T2.

To hopefully provide further clarification of the findings, it was decided to evaluate the variables in relation to the family positions as outlined above. Direction of change codes without regard

to magnitude of change were used for the non-family variables throughout the post hoc investigations unless otherwise indicated. Using direction codes increased the possibility of including error variance in the comparisons but also increased the sensitivity of comparisons and, thus, the possibility of discovering significant relationships between the variables.

Examining the cohesion dimension only, families were separated into enmeshed (+) and disintegrated (-) groups based on their residual score positions. No clear patterns were revealed by comparing enmeshed and disintegrated families to other variables though it appeared there were more low self-esteem scores among the disintegrated group. To further investigate this possibility, the families were next separated along the adaptability dimension into rigid (-) and chaotic (+) groups. The 7 chaotic families displayed no apparent commonalities with the other variables. However, there was a high correspondence between the rigid families and low self-esteem of the claimant. In order to test this relationship, a contingency table between family rigidity and self-esteem was produced. Using a chi-square test, a significant positive relationship was found between family rigidity and low self-esteem,  $\chi^2(1)=7.78, p<.01$ , (See Table 9). Interestingly, those subjects with rigid families and low self-esteem appeared to display increased goal attainment scores. To measure this observation, rigid families were cross-tabulated with the combination of negative movement in self-esteem and positive movement in goal attainment. Table 10 presents the cross-tabulation for this

Table 9  
 Relationship Between Self-Esteem  
 And Family Rigidity

Family Position	Self-Esteem		
	Decreased self-esteem	Other	
Rigid	8	0	8
Other	12	15	27
	20	15	35

Chi-square = 7.78\*

\*p<.01

Table 10  
 Relationship Between Family Rigidity,  
 Self-Esteem and Goal Attainment

Family Position	Self-Esteem/G.A.S		
	Decreased self-esteem with increased G.A.S.	Other	
Rigid	6	2	8
Other	4	23	27
	10	25	35

Chi-square = 10.95\*\*

\*\*p<.001

comparison. As can be seen, the pattern was significantly greater than chance at the .001 level of probability,  $\chi^2(1)=10.95$ , (See Table 10).

Next, the family dimensions were combined to produce a balanced group (0/0) and two extreme groups, chaotically-ermeshed (+/+) and rigidly-disengaged (-/-). Comparing the extreme families to their scores on the other variables again revealed an apparent positive correlation with self-esteem. Table 11 illustrates that there was indeed a significant relationship between the extreme families and direction of change in self-esteem of the claimant. Chaotically-ermeshed families were associated with increased self-esteem,  $\chi^2(1)=4.80$ ,  $p<.05$ , and rigidly-disengaged families with decreased self-esteem,  $\chi^2(1)=5.43$ ,  $p<.05$ .

The balanced group consisted of those families who were within + or - 1 SD of the sample mean on both dimensions of cohesion and adaptability. As noted above, there were 13 families in the balanced group at T2. Segregating the balanced group and comparing their scores on the other variables revealed a possibly significant relationship with the direction of change of the work-role salience scores. As above, this relationship was evaluated using a chi-square test. Table 12 illustrates that there was a significant relationship between balanced family type (0/0) and increased work-role salience of the claimant.

Balanced families also displayed stable or improved self-esteem scores though this relationship was not significantly different

Table 11  
 Relationship Between Extreme Family Types  
 And (Claimant) Self-Esteem

Family Position	Self-Esteem		
	Increased self-esteem	Other	
Chaotically-ermeshed	5	1	6
Other	10	19	29
	15	20	35

Chi-square = 4.80\*

\*p<.05

Family Position	Self-Esteem		
	Decreased self-esteem	Other	
Rigidly-disengaged	6	0	6
Other	14	15	29
	20	15	35

Chi-square = 5.43\*

\*p<.05

Table 12  
 Relationship Between Balanced Families  
 and Work-Role Salience

Family Position	Work-role Salience		
	Increased work- role salience	Other	
Balanced	10	3	13
Other	7	15	22
	17	18	35

Chi-square = 6.65\*\*

\*\*p < .01

than expected by chance. However, when increased work-role salience was combined with stable or increased self-esteem, the relationship of this combination was significantly associated with balanced families at the .01 level of probability,  $\chi^2(1)=9.79$ , (See Table 13). This pattern was not, however, related to the goal attainment variable in a meaningful way.

The final post-hoc investigation involved examining the relationship of WRS and its subscales to the GAS variables. As noted, there was a significant negative correlation between WRS and GAS at T1 ( $r=-.34$ ,  $p<.05$ ). To determine the nature of this relationship, the T1 scores for both variables were coded according to their position in relation to their sample means using the coding format previously established for the residualized scores. By pairing the two variables for each subject it was discovered that 19 of the 35 pairs displayed at least 1 SD of difference between their positions with respect to the two variables. Of these 19, 10 combined high WRS (>1 SD above the mean) with moderate to low GAS (+1 SD of the mean to >1 SD below the mean). Five of the 19 pairs combined moderate WRS with low GAS. The remaining 4 pairs were equally divided into two groups, moderate WRS/high GAS and low WRS/moderate GAS. The three WRS subscales displayed a like relationship to GAS at T1.

To conclude the investigation of the WRS variable, regression analyses were performed for the three subscales to yield a set of residualized scores for each. The three subscales are: 1. Relative importance of work and career (RIWC), 2. Planning and thinking about

Table 13

Relationship Between Balanced Families,  
Work-role Salience and Self-Esteem

Family Position	Work-role Salience Self-Esteem		
	Increased work-role salience and stable <u>or</u> increased self-esteem	Other	
Balanced	9	4	13
Other	2	20	22
	11	24	35

Chi-square = 9.79\*\*

\*\*p<.01

career (PTAC), and 3. General attitude toward work (GATW). As with the other variables, the residualized scores were coded for position with respect to the sample mean, magnitude of change, and direction of change (See Table 5 for explanation). No meaningful patterns were discovered by comparing the WRS subscales to the other variables with the exception of the previously found significant positive correlation between the GATW subscale and GAS ( $r=.39, p<.05$ ).

## CHAPTER 5

### SUMMARY, DISCUSSION AND RECOMMENDATIONS

This chapter presents a summary of the problem, procedures, and results followed by a discussion of the findings and conclusions drawn from those findings. Finally, recommendations and implications for further research are reviewed.

#### Summary

The present study was concerned with the vocational rehabilitation of the industrially injured worker in relation to his family defined as a complex adaptive system, his level of self-esteem, and his view of the work place as measured by the relative importance of work in his life.

To provide a background for the study, evidence indicated that for the type of injury represented in the subject sample (91% lower back trauma) both the onset and maintenance of physical symptoms are psychologically based (Flor, Turk and Birbaumer, 1985; Sarno, 1984). A review of the literature as well as discussions with rehabilitation counselors lent strong support to the theory that psychosocial factors and not the severity or type of physical disorder also mediated the rehabilitation process of the industrially injured worker. It was therefore decided to assess the interaction of major social subsystems (the family and the work place) and the psychological well-being of

the injured worker as these factors influenced his rehabilitation. More specifically, the purpose of this research was to identify configurations of family systems types, worker self-esteem and work-role salience and the relationship of these configurations to the rehabilitation of industrially injured, male breadwinners over a three month period of time.

### Procedures

To summarize the procedures used, 35 claimants for workmen's compensation benefits who had been referred for rehabilitation services were identified as having been the major family provider at the time of their injury. The claimants were assessed at two points in time separated by a three month hiatus on measures of general self-esteem and the relative importance of work in their lives (work-role salience). The same workers and their families were also measured as to their perceptions of the amount of cohesiveness and adaptability exhibited by their families. In addition, each claimant was assessed at both observation points on seven indices of rehabilitation progress.

The measured factors including the number of months since injury and the amount of time between injury and acceptance for rehabilitation were then subjected to statistical analysis for the purpose of hypothesis testing.

### Results

Based on theoretical assumptions outlined in the literature six hypotheses were generated. They were:

H1 Families who have suffered the recent disablement of the male breadwinner will display extreme systematic reactions on dimensions of cohesion and adaptability.

H2 Recent industrial injury will result in reduced self-esteem of the disabled breadwinner.

H3 Over time, families who regain moderate levels of system reaction dimensions will promote self-esteem and rehabilitation progress of the disabled worker.

H4 Over time, families who display continued or increased enmeshment (extreme positive cohesion) will be associated with increased worker self-esteem but decreased rehabilitation progress.

H5 Increases in self-esteem over time without corresponding increases in career salience will be associated with family enmeshment and decreased rehabilitation progress.

H6 Over time, families who display increased disintegration (extreme negative cohesion) will be associated with decreased client self-esteem and decreased rehabilitation progress.

A seventh hypothesis based on clinical observations by rehabilitation counselors of their clients regarding the efficacy of early post-injury rehabilitation was also included, as follows:

H7 Shorter time periods between date of injury and date of acceptance for rehabilitation services will be associated with greater rehabilitation progress compared to longer periods of time between date of injury and date of acceptance for rehabilitation services.

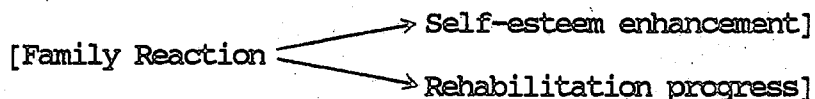
Unfortunately, none of the hypotheses were supported by statistical analysis. There were, however, some trends in the predicted directions worthy of note. These will be presented followed by a discussion of the possible reasons for the lack of statistical support.

H1 attempted to address the theory that traumatic stress on the family system would result initially in a movement of the family toward extreme coping patterns. It was therefore predicted that the

more recent the industrial injury and unemployment of the breadwinner, the more polarized would be the family's position on systems dimensions. It was discovered that for families below the mean on cohesion and adaptability, those closer to the date of injury (DOI) were represented more frequently in the extreme system subcategories (rigid and disengaged) than in the moderate subcategories (structured and separated). The differences were not however greater than chance for the sample size.

H2 tried to assess the impact of the severe disruption in both major social subsystems, work and family, on the self-concept as measured by self-esteem of the injured worker. It was predicted that the more recent the injury, the less time the injured worker would have had to recover the psychosocial supports necessary for self-esteem enhancement. The comparisons of self-esteem to time since injury produced non-significant Pearson correlations, though the  $r$  of .23 at the T2 comparison approached significance ( $p=.09$ ).

H3 was designed to test the theory that the family's reaction to stress influenced both the injured breadwinner's self-esteem and rehabilitation rather than the alternative that increased self-esteem or progress in rehabilitation altered the family system. Tests to support the predicted causal sequence



produced no definitive results for the influence of family cohesion on rehabilitation progress. However, the expected sequence was supported

for the influence of higher family adaptability at T1 on higher self-esteem at T2 ( $r=.30$ ,  $p<.05$ ) versus the alternative that self-esteem at T1 influenced family adaptability at T2 ( $r=.16$ ).

None of the statistical comparisons of family systems dimensions, self-esteem, work-role salience and rehabilitation progress (H4, H5, and H6) produced any measurable trends.

H7 compared the period of time between injury and acceptance for rehabilitation services with goal attainment in rehabilitation. The Pearson  $r$  of  $-.23$  was in the predicted direction but did not achieve significance at the .05 level of probability.

Setting aside the possibility that there was no real foundation for the predicted relationships, there are a number of possible explanations for the lack of statistically significant results among the tested hypotheses. First the small sample size was a concern for all hypotheses. For the hypotheses which required a Pearson product-moment correlation, the sample size appeared to be too small to allow for significance of comparisons, especially in the case of H7.

Hypotheses 1 and 2 which compared other variables to the date of injury may have been compromised by the length of time which had elapsed since injury. Only 4 of 35 cases were within 6 months of injury at the time the study was conducted with the mean elapsed time since injury being over 3 years. Thus, it was doubtful that a recency effect could be accurately measured.

With regard to H7, the mean period between date of injury and acceptance for rehabilitation services was 2 years. Only 5 of 35

cases were accepted for rehabilitation services in less than 6 months of injury. Again, the measurement of any possible effects attributable to timely rehabilitation were jeopardized by the lack of substantial time comparisons.

Another problem in achieving significant results was the potential for high amounts of error variance inherently associated with field study research. Since the predictor and outcome measures demonstrated generally high reliability, most of the measurement error may have been attributable to inter-subject differences for which controls were not achieved.

As a safeguard against the possible inclusion of measurement error in the subjects' scores, the requirement of at least 1 standard deviation of change (.5 SD for the GAS scores) was stipulated for formal comparisons between variables. The effect of this safeguard, however, was to obviate potential comparisons in some cases by reducing the sensitivity of the measures.

Lack of measurement sensitivity may have been most problematic for the goal attainment scales. The GAS scores were designed to avoid dependence upon the discharge status of the claimant, e.g., employed, unemployed, as a measure of rehabilitation success or failure. However, for a three month period of time, the GAS scales may not have been sufficiently sensitive to reflect important from unimportant changes in the rehabilitation process.

The issue of sensitivity leads to the potential issue of validity. With the exception of the goal attainment scales, the measures used in this study were chosen for their demonstrated

potential for measuring the constructs being examined. The goal attainment scales, while being consensually validated by several rehabilitation counselors, have not yet demonstrated predictive validity. Indeed, this study may be the basis for refining and developing the GAS measure as a predictive instrument for the vocational rehabilitation process.

A related issue was the question of the ability and suitability of the predictor measures to reflect complicated hypothetical relationships found in the literature. In other words, there may have been little correspondence between the predicted psychosocial factors and the patterns actually being assessed. Hypotheses 4 and 5 which purported to test the concept of the disability process may have been most susceptible to this potential difficulty. To illustrate, the literature suggested that a dependent personality makeup and symbiotic familial patterns often combined to increase self-esteem through secondary gain and external attribution of blame while precluding individual rehabilitation. This pattern was translated for the purposes of the present research into a combination of family enmeshment, high global self-esteem, and decreased level of goal attainment. It is possible that these constructs, even if accurately measured, were not the same as those presented in the literature.

Despite the difficulties outlined above, there were a number of interesting and significant though unpredicted results which overcame the possible design and measurement problems. These results explained relationships between variables and provided directions for

further research.

### Unpredicted Results

As noted, there was a strong positive correlation between family cohesion and adaptability at both T1 and T2. For the extreme groups this meant that families who reported high symbiotic involvement, affective dependence, and lack of personal separateness (characteristics of enmeshment) also reported lack of role clarity, inconsistent rules, ineffective discipline and erratic leadership (characteristics of chaotic adaptability). At the other pole, families who reported extreme emotional separateness, disparate interests, and mutual affective alienation (characteristics of disengagement) also reported an authoritarian, autocratic leadership system with unbendable rules and strictly defined roles (characteristics of rigidity). None of the families displayed enmeshment and rigidity together or disengagement with chaotic role structures. Furthermore, families tended to move to the extreme poles over the three months assessment period.

In explaining the relationship between family systems dimensions, the possibility of a self-presentation bias cannot be ruled out. That is, it is possible that the T1 measures were spuriously moderate at the first administration point based on the families' desire to appear healthier than they really were. However, the fact that family members answered the same items independently and that their scores were averaged to arrive at a total family score argues against a measurable self-presentation effect at T1.

A second explanation for the shift toward the extreme poles of family systems dimensions has more to do with the nature of the study. That is, the demands placed on the claimant and his family by the rehabilitation process itself, e.g., job exploration, retraining, various appointments and the heightened awareness of financial insecurity, may have further pressed the coping strategies of those families who were already moving toward an extreme response.

As noted, most of the systematic shift occurred in the negative direction, i.e., from moderate to rigidly-disengaged family positions. An initial explanation for this phenomenon was based on assumptions regarding the values and typical role structures of the blue collar family. One could easily assume that the family norm for this sample prior to injury was a traditional home with husband as provider and wife as housekeeper and mother, there being little room for change in this arrangement. Theorizing that the injury and subsequent loss of economic security then violated the original marriage and family contract, for example by forcing the wife to work, the family would become mutually resentful and increasingly alienated from one-another. In this scenario, the family's lack of role options prior to injury would only increase its push to reestablish the original contract, thus increasing rigidity.

Upon further examination of the data, a second explanation was developed which accounted more adequately for the appearance of families at both polar extremes. At T2 there were 6 chaotically-ennmeshed families and 6 rigidly-disengaged families. The chaotically enmeshed families tended to be smaller, 5 of the 6 being couples with

the average age of the injured husband being 37.33 years. On the other hand, the rigidly-disengaged families were larger (average size of 3.17) and somewhat older (average age of the injured father being 39.33 years). It is possible that the two groups represented distinctly different stages of the family life cycle. If this was the case, there may have been a tendency for younger families from this population to be more enmeshed while older families faced with the stresses of raising teenagers in the process of leaving home displayed increased tightening of the rules and greater interpersonal separateness. In support of this hypothesis, Olson, Russell, and Sprenkle (1983) suggest that early distressed marriages tend more often to be enmeshed while distressed families with adolescent children may frequently be characterized as rigidly-disengaged. Beavers, and Voeller (1983) suggest that typical system movement over the family life cycle is from enmeshment to rigidity to an equalitarian position.

Descriptive information regarding the extreme families supported a life cycle explanation. Of the six chaotically-enmeshed families, 4 were relatively new marriages with no children or infant children. In all of those cases, the spouses appeared to freely reverse work, school, and child care roles. However, for the rigidly-disengaged group, 5 of the 6 families had teenage children and of those, 4 reported severe alienation between parents and children associated with juvenile offenses, runaways or other unsatisfactory separations.

Relating family systems dimensions to the other major

variables produced further unexpected but significant results when direction of change scores were used as the basis of comparison. There was a positive correlation between the systems dimensions and self-esteem of the claimant across the range of the family variables. In other words, the families on the extreme negative end of the systems dimensions displayed the lowest worker self-esteem, balanced families displayed moderate to high self-esteem, and families at the extreme high end of systems dimensions tended to report the highest worker self-esteem.

While the relationship between rigidly-disengaged family type and low self-esteem was both theoretically and intuitively plausible, the pairing of high self-esteem with chaotically-ennmeshed family types was more difficult to understand. The explanation which fit the theoretical basis for this study most closely was one that supported a part of the disability process concept. That is, enmeshed families, defined as highly interdependent and symbiotic, supported the self-esteem of the injured member. As noted, however, the relationship of this combination to stagnation in the rehabilitation process was not upheld by statistical analysis.

At the other extreme, rigidly-disengaged families were significantly associated with decreased worker self-esteem but increased goal attainment scores. This finding also supported the disability process concept but in a "backhanded" way by coinciding with Weinstein's (1978) contention that low self-esteem is a necessary catalyst for successful rehabilitation. It may have been that with an absence of family support and attendant emotional deprivation such as

one would find in the rigidly-disengaged group, progressing toward reemployment was the obvious avenue available for self-esteem enhancement.

The low self-esteem, high goal attainment group did not however reflect a particularly positive evaluation of the work place as measured by the work-role salience inventory, suggesting that the high GAS scores found in this group were unrelated to any intrinsic value placed upon work. The insignificant work-role salience scores for the rigidly-disengaged group provided further support to the idea that progress in rehabilitation was seen as a way to reestablish pre-injury role relationships.

As noted, work-role salience was significantly and negatively correlated with goal attainment at T1. This finding may have been, again, the result of a self-enhancement bias in the work-role salience inventory. Since the GAS scales were based on objective criteria and rated by the claimants' counselors, a self-enhancement effect was unlikely to show up on GAS scores. Therefore, the discovery of a preponderance of high T1 work-role salience scores and moderate to low GAS scores fit an enhancement explanation. An alternative explanation would state that workers who reported initially high investments in work were also more recent entries in the rehabilitation process. A third, more likely explanation would propose that injured workers who reported initially high levels of work-role salience were, also, more discouraged by their disablement and therefore exhibited lower levels of goal attainment due possibly to feelings of depression and helplessness.

At T2 there was no significant correspondence between the WRS subscales Relative Importance of Career and Planning and Thinking About Career and other variables. There was, however, a significant positive correlation between goal attainment and the WRS subscale, General Attitude Toward Work. In general, this finding may have been attributable to the relatively low level of self-investment in work for this subject sample, supporting Safilios-Rothschild's (1970) theory that work has little intrinsic value for the blue collar employee. In other words, while a positive attitude toward work may logically be associated with successful vocational rehabilitation, career planning and emphasizing work over other life interests would appear to suggest a higher level of career salience than demonstrated by this sample.

Only the balanced families were significantly associated with increased work-role salience as well as with stable or increased self-esteem over time. This finding suggested that for the balanced families, work-role salience was more integrated with the self-esteem maintenance of the injured breadwinner. It is possible that the lack of a measurable rehabilitation gain for this group may have resulted from slower but potentially more stable progress for which the GAS instrument was insufficiently sensitive.

#### Conclusions and Recommendations

While no statistical support was found for the formal hypotheses presented in this study, the researcher believes that important directions for clinical intervention and research within

rehabilitation psychology were discovered.

One hope for this study was the development of a rationale for a program of clinical family intervention within the compensation system. Although a clear foundation for such a program was not supported, it was demonstrated that family coping patterns influenced both the emotional well-being and the vocational values of the injured breadwinner.

The families studied in this research appear to be a significantly distressed group. During interviews with them, many family members commented on their desire for assistance with family problems. Among these were the desire for vocational and financial guidance for the non-injured spouse, depression among the injured workers and their wives, problems brought on by perceived loss of control over teenage children, and strains on the marital relationship.

Based on the unique pattern displayed by the subject families with regard to systems dimensions, a counseling program should address the issues raised by the extreme coping styles demonstrated frequently within this group. Of foremost importance would be the problems associated with excessive disengagement and rigidity, i.e., alienation, lack of choices in role functioning, poor communication, and reduced self-esteem.

Further research will hopefully reveal the efficacy of a family support program. It is suggested here that the prognosis for workers whose families are not socially rehabilitated will be poor; marked by recurrent physical crises which will have high personal,

social, and economic costs.

The present study raised many questions regarding the studied variables. Particularly intriguing were the possible effects and interactions of work-role salience and family systems variables on the rehabilitation of the injured worker. Further research should first address the problems inherent in the present design. The most economical and effective method would appear to be a time series design over one or more additional observation points using the present subject sample. Such a design would allow causal sequences to be clearly delineated while avoiding the need for a large increase in sample size. A second major advantage of a time series design would be the potential for developing predictive validity for the measures used in this study within a statewide compensation system. Of most personal interest to the examiner would be the refinement of the goal attainment scales as a predictive measure but also as an accurate gauge of rehabilitation effectiveness in the short run.

In the interests of further defining and understanding the workmen's compensation population for both clinical and research purposes, further research is proposed. Issues for investigation raised directly by the current study include the role of the family life cycle in rehabilitation, and the comparison of rehabilitants to claimants who are not referred for rehabilitation with regard to issues of work-role salience, family coping patterns, and goal attainment. Related to these, investigations could be undertaken to evaluate the psychosocial issues confronting single parents and female heads of household within the compensation system.

APPENDIX A

SELF-ESTEEM SCALE

INSTRUCTIONS: Indicate how much you agree or disagree with each of the following statements. Circle one number for each.

	STRONGLY AGREE	AGREE	DISAGREE	STRONGLY DISAGREE
1. I feel that I'm a person of worth, at least on an equal basis with others. (1,2)	1	2	3	4
2. I feel that I have a number of good qualities. (1,2)	1	2	3	4
3. All in all, I am inclined to feel that I am a failure. (3,4)	1	2	3	4
4. I am able to do things as well as most other people. (1,2)	1	2	3	4
5. I feel I do not have much to be proud of. (3,4)	1	2	3	4
6. I take a positive attitude toward myself. (1,2)	1	2	3	4
7. On the whole, I am satisfied with myself. (1,2)	1	2	3	4
8. I wish I could have more respect for myself. (3,4)	1	2	3	4
9. I certainly feel useless at times. (3,4)	1	2	3	4
10. At times I think I am no good at all. (3,4)	1	2	3	4

(Rosenberg, 1965)

(Numbers in parentheses refer to high self-esteem responses.)

APPENDIX B

FAMILY ADAPTABILITY & COHESION EVALUATION SCALE

INSTRUCTIONS: Please respond to the 30 items using the following scale: Circle one number for each.

---

ALMOST NEVER 1	ONCE IN A WHILE 2	SOMETIMES 3	FREQUENTLY 4	ALMOST ALWAYS 5
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1. Family members are supportive of each other during difficult times.
2. In our family, it is easy for everyone to express his/her opinion.
3. It is easier to discuss problems with people outside the family than with other family members.
4. Each family member has input in major family decisions.
5. Our family gathers together in the same room.
6. Children have a say in their discipline.
7. Our family does things together.
8. Family members discuss problems and feel good about the solutions.
9. In our family, everyone goes his/her way.
10. We shift household responsibilities from person to person.
11. Family members know each other's close friends.
12. It is hard to know what the rules are in our family.
13. Family members consult other family members on their decisions.
14. Family members say what they want.
15. We have difficulty thinking of things to do as a family.
16. In solving problems, the children's suggestions are followed.
17. Family members feel very close to each other.

APPENDIX B--Continued

18. Discipline is fair in our family.
  19. Family members feel closer to people outside the family than to other family members.
  20. Our family tries new ways of dealing with problems.
  21. Family members go along with what the family decides to do.
  22. In our family, everyone shares responsibilities.
  23. Family members like to spend their free time with each other.
  24. It is difficult to get a rule changed in our family.
  25. Family members avoid each other at home.
  26. When problems arise, we compromise.
  27. We approve of each other's friends.
  28. Family members are afraid to say what is on their minds.
  29. Family members pair up rather than do things as a total family.
  30. Family members share interests and hobbies with each other.
- 

(Olson, Portner, & Bell, 1982)

APPENDIX C

WORK-ROLE SALIENCE SCALE

INSTRUCTIONS: Please respond to the 27 items below using the following scale. Circle one number for each.

---

STRONGLY DISAGREE	DISAGREE	UNCERTAIN	AGREE	STRONGLY AGREE
1	2	3	4	5

---

1. I intend to pursue the job of my choice even if it cuts deeply into the time I have for my family.
2. It is more important to have some leisure time after work than to have a job in your chosen field, be devoted to it, and be a success at it.
3. If you work very hard on your job, you can't enjoy the better things of life.
4. Work is one of the few areas in life where you can gain real satisfaction.
5. I intend to pursue the job of my choice, even if it limits my personal freedom to enjoy life.
6. To me, a job should be viewed primarily as a way of making good money.
7. I enjoy thinking about and making plans about my future career.
8. It is difficult to find satisfaction in life unless you enjoy your job.
9. Work is one of those necessary evils.
10. Deciding on a career is just about the most important decision a young person makes.
11. I don't think too much about what type of job I'll be in ten years from now.
12. I'm ready to make many sacrifices to get ahead in my job.
13. I look at a career as a means of expressing myself.

WORK-ROLE SALIENCE SCALE--Continued

14. I would consider myself extremely "career minded."
15. I could never be truly happy in life unless I achieved success in my job or career.
16. I intend to pursue the job of my choice, even if it allows only very little opportunity to enjoy my friends.
17. I want to be able to pretty much forget my job when I leave work in the evenings.
18. I started thinking about jobs and careers when I was young.
19. I intend to pursue the job of my choice, even if it leaves me little time for my religious activities.
20. It is more important to have a job in your chosen field of interest, be devoted to it, and be a success at it than to have a family that is closely knit and that shares many experiences.
21. The whole idea of working and holding a job is kind of distasteful to me.
22. Planning for and succeeding in a career is my primary concern.
23. I often find myself thinking about whether I will enjoy my chosen field.
24. It is more important to be liked by your fellow man, devote your energies for the betterment of man, and be at least some help to someone than to have a job in your chosen field of interests, be devoted to it, and be a success at it.
25. Planning for a specific career usually is not worth the effort; it doesn't matter too much what you do.
26. I would move to another part of the country if I thought it would help advance my career.
27. I never really thought about these types of questions very much.

---

(Greenhaus, & Sklarew, 1981)

Reverse Scoring: Items 2,3,6,9,11,17,21,24,25,27

A priori dimensions: Item numbers in parentheses.

- a. Relative importance of work and career: (1,2,5,16,19,20,24)
- b. Planning and thinking about career: (7,10,11,18,22,23,25,27)
- c. General attitudes toward work: (4,6,8,9,13,14,15,17,21)

APPENDIX D

GOAL ATTAINMENT SCALES

AVERAGE SCORE	SCALE: 1 ECONOMIC DEPENDENCY Weight 5	SCALE: 2 MARKETABLE SKILL ATTAINMENT Weight 6
MOST UNFAVORABLE OUTCOME -2	100% benefits, 0% earned income	Client has undertaken NO skill attainment program.
LESS THAN EXPECTED -1	99-31% benefits, 1-69% earned income	Client has enrolled in or completed up to 25% of a program.
EXPECTED LEVEL OF SUCCESS 0	30-20% benefits 70-80% earned income	Client has completed 25% to 50% of a program.
MORE THAN EXPECTED +1	19-1% benefits 81-99% earned income	Client has completed 51% to 75% of a program.
MOST FAVORABLE OUTCOME +2	0% benefits, 100% earned income	75% of program completed to attainment of market- able skill, e.g., certificate, diploma.
CURRENT LEVEL		
METHOD	Self-report	Self-report
DEFINITIONS	100% earned income = \$1,325.00/mo.	

(modified from Jewish Vocational Service, 1976)

## APPENDIX D—Continued

AVERAGE SCORE	SCALE: 3 PHYSICAL ACTIVITY LEVEL Weight 4	SCALE: 4 EMPLOYMENT SEEKING BEHAVIOR Weight 5
MOST UNFAVORABLE OUTCOME -2	Client performs no activities of daily living (ADL). Spouse or sig. other performs all ADLs for client.	Not seeking employment
LESS THAN EXPECTED -1	Client performs ADLs with assistance from s/o at least once/day.	0-job interviews/month 1-3 applications/month
EXPECTED LEVEL OF SUCCESS 0	Client performs ADLs with assistance from s/o 5 to 6 times weekly.	1-job interview/month 4 applications/month
MORE THAN EXPECTED +1	Client performs ADLs. Requires assistance 1 to 4 times/week.	2-3 interviews/month 5-9 applications/month
MOST FAVORABLE OUTCOME +2	Client performs all ADLs with no physical assistance.	4 to more interviews/mo., 10 or more applications/ month. Or employed.
CURRENT LEVEL		
METHOD	Self-report	Self-report
DEFINITIONS		

## APPENDIX D--Continued

AVERAGE SCORE	SCALE: 5 MEDICATION BEHAVIOR Weight 5	SCALE: 6 COMPLAINT BEHAVIOR TO COUNSELOR Weight 2
MOST UNFAVORABLE OUTCOME -2	Daily use of narcotic Rx. Daily use of RX non-narcotic	Client phones Cslr. once/week or more with non-program related complaints.
LESS THAN EXPECTED -1	Narcotic Rx 1 to 6 times/week. Rx (other) 7 or more times/week.	Client phones Cslr. 3 times/month with non-program related complaints.
EXPECTED LEVEL OF SUCCESS 0	No Narcotic Rx. Rx (other) 1 to 6 times/week.	Client phones Cslr. 2 times/month with non-program related complaints.
MORE THAN EXPECTED +1	No narcotic Rx. No Rx (other) OTC meds 5 or more times/week.	Client phones Cslr. once per month with non- program related complaints.
MOST FAVORABLE OUTCOME +2	No narcotic Rx. No Rx other. OTC meds 1-4 times/ week.	Client does not phone Cslr. in a month with non-program related complaints.
CURRENT LEVEL		
METHOD	Self-report	Self-report
DEFINITIONS	Rx (other) means dis- ability related drugs, e.g., muscle relaxers, tranquilizers, sleep- ing pills. Narcotic Rx includes: codeine, Percodan, Tylenol 3, demerol, etc.	Non-program related complaints means com- plaints related to benefits check, conflicts with Dr., claims rep., pain com- plaints, and complaints about bills and collection agencies.

APPENDIX D--Continued

AVERAGE SCORE	SCALE: 7 PHYSICAL TOLERANCE (WORK RELATED) Weight 3
MOST UNFAVORABLE OUTCOME -2	Permanently and totally disabled. Unable to work.
LESS THAN EXPECTED -1	Released for reduced hours with limitations.*
EXPECTED LEVEL OF SUCCESS 0	Return to 8 hour day, 40 hour week. Some limitations in all physical tolerance areas.
MORE THAN EXPECTED +1	Return to 8 hour day, 40 hour week. Limitations in walking, lifting, continuous lifting.
MOST FAVORABLE OUTCOME +2	Return to full-time work. No limitations in physical tolerance or body positions.
CURRENT LEVEL	
METHOD	Physician's report, e.g., physical tolerance profile (see attached)
DEFINITIONS	*limitations: any limitations noted by physician in physical tolerances or body positions.

APPENDIX E

CLIENT DATA SHEET FOR GOAL ATTAINMENT SCALING

Date. \_\_\_\_\_ File Code \_\_\_\_\_  
Client I.D. \_\_\_\_\_  
D.O.I. \_\_\_\_\_  
Agency: SCF \_\_\_\_\_, WRCS \_\_\_\_\_  
Rater initials. \_\_\_\_\_  
CARE Score. \_\_\_\_\_

- 
1. Economic Dependency: % of benefits. \_\_\_\_\_, % of earned income. \_\_\_\_\_.
  
  2. Marketable Skill Attainment:  
No program undertaken? \_\_\_\_\_  
Total length of program in weeks, \_\_\_\_\_, months, \_\_\_\_\_.  
Percentage of program completed: \_\_\_\_\_.  
Completion of program: Yes \_\_\_\_\_, No \_\_\_\_\_, Date, \_\_\_\_\_.
  
  3. Physical Activity Level: Client requires assistance from spouse or significant other for Activities of Daily Living.  
\_\_\_\_\_ 100% of the time. (Ex. Bed ridden, unable to feed, dress, bathe, or transport self).  
\_\_\_\_\_ Requires assistance with ADL's at least once/day.  
\_\_\_\_\_ Requires assistance with ADL's 5 to 6 times weekly.  
\_\_\_\_\_ Requires assistance with ADL's 1 to 4 times weekly.  
\_\_\_\_\_ Client performs all ADL's with no assistance.
  
  4. Employment Seeking Behavior:  
Number of job interviews in the past month: \_\_\_\_\_.  
Number of job applications filed in past month: \_\_\_\_\_.
  
  5. Medication Behavior: Using Narcotic Rx (ex. Percodan, codeine, morphine, demerol) Yes \_\_\_\_\_, No \_\_\_\_\_. Dosage (ex. bid, qid) \_\_\_\_\_.  
Type of drug. \_\_\_\_\_.  
Using disability related non-Narcotic Rx: Yes \_\_\_\_\_, No \_\_\_\_\_.  
Dosage \_\_\_\_\_. Type of drug. \_\_\_\_\_  
Over-the-counter use: Yes \_\_\_\_\_, No \_\_\_\_\_. Dosage \_\_\_\_\_.  
Type(s) of CTC drug. \_\_\_\_\_.
  
  6. Complaint Behavior to Counselor: Number of phone calls for non-program related complaints in past month \_\_\_\_\_.
  
  7. Physical Tolerance for Work:  
Permanently and totally disabled? \_\_\_\_\_. (check if applicable).  
Released for reduced hours with limitations? \_\_\_\_\_.  
Date Released: \_\_\_\_\_  
Released to full-time work? \_\_\_\_\_. Date Released: \_\_\_\_\_  
Limits, Yes \_\_\_\_\_, No \_\_\_\_\_.

## APPENDIX F

### LETTER OF INTRODUCTION

Dear (Name of claimant):

Your counselor at the State Compensation Fund/Wesley Rehabilitation and Counseling Services has indicated that you might be willing to participate in a research study. This study is designed to better understand and serve the needs and concerns of the industrially injured applicant and his family. I am writing to explain more about the research and to invite you and your family to participate in it.

The study is being organized by the State Compensation Fund/Wesley Rehabilitation and Counseling Services and the Rehabilitation Department at the University of Arizona. We understand that the injury has caused a great deal of inconvenience and readjustment for you and we want to find out more about how it has affected you and your family so that, hopefully, rehabilitation services can be more closely geared to those areas of your life that are most important to you.

The study has been designed to find out how industrial injury has affected important areas of your life, your ideas and concerns about work, your feelings about yourself, and your family's reactions to a stressful situation.

If you agree to participate you will be asked to fill out two short questionnaires. One has to do with your thoughts about jobs and employment; the other has to do with your feelings about yourself as a person outside the workplace. You and those members of your immediate family who are old enough to read and understand will be asked to fill out a third short questionnaire about family life. Altogether, filling out the questionnaires should not take more than 60 minutes of your time.

Since we are interested in getting your opinions over time you will be asked to fill out the questionnaire twice, once in a few weeks and once again at the end of the summer.

You and your family's participation and answers on the questionnaire will be strictly confidential. While we will keep your name on file during the study in order to contact you, all identifying information will be destroyed at the end of the project.

APPENDIX F—Continued

At the conclusion of the study, you and your family will be given an explanation of the general results. Because we will have no record of who answer each individual questionnaire, we will not be able to tell you specifically about your family's results.

We wish to stress that participation will have no effect on your claim with the compensation agency or any other agency. We hope this study will provide valuable information on the major concerns of you and other claimants.

If you agree to participate in this study, please sign the enclosed consent form along with your wife, if married, and return it in the self-addressed envelope. Should you have any questions before we begin or at any time during the study, please feel free to call Fred Mitchell at 293-3394. Your vocational rehabilitation counselor will also be able to answer questions. If you decide to participate, you may withdraw from the study at any time with no ill will. I will be in contact with you in the next few days.

We look forward to your participation in this important project.

Sincerely yours,

Fred Mitchell, M.C.

APPENDIX G

INFORMED CONSENT STATEMENT

# \_\_\_\_\_

I have read the above letter. The nature, demands, and benefits of the project have been explained to me. I understand that I may ask questions and that I am free to withdraw from the project at any time without incurring ill will. I also understand that this consent form will be filed in an area designated by the Human Subjects Committee at the University of Arizona with access restricted to the principle investigator or authorized representatives of the particular department. A copy of this consent form is available to me upon request.

Signature \_\_\_\_\_ Date \_\_\_\_\_

Spouse's Signature \_\_\_\_\_ Date \_\_\_\_\_

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