RELATIONSHIPS BETWEEN PATIENT MOTIVATION FOR PHYSICAL REHABILITATION AND SUBSCALES ON THE EDWARDS PERSONAL PREFERENCE SCHEDULE

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DISSERTATION

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By

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CHAPTER I

INTRODUCTION

With the increasing emphasis upon the psychological aspects of physical disability and a greater patient-orientation in the general area of rehabilitation, there has grown an ever impelling need for research which can give more positive direction to rehabilitation efforts (9, pp. 735-736; 23, pp. 10-20). Of particular concern has been the motivation of the patient to use available treatment facilities and rehabilitation resources. In this connection Wright says:

> Attention to the emotional life of the ill and the injured has led to increasing concern with the motivation of the patient. The parable of the horse who, brought to water, could not be made to drink, is reflected time and again by patients who do not respond favorably to the rehabilitation opportunities available to them. The nature of the relationship between the rehabilitation worker and the patient; the importance of encouraging the patient to become a co-manager with the experts of his own rehabilitation program; the paradox of wanting and needing to work, but at the same time fearing to do so; the satisfaction of dependency needs and other secondary gains of disability--these and many other problems related to motivation are receiving the scrutiny of research. The findings of such research will lead to practical application in the ever-evolving concept of the rehabilitation process and the programs that provide the concrete means for realizing its purposes (23, p. 10).

Rusk (20, pp. 235-238) discusses motivation in relation to the patient's willingness to help himself by having treatment goals which are consistent with those of the rehabilitative effort. Individuals who are adequately motivated will take an active interest in a program of therapy designed to provide results in terms of the most optimum function. In dealing with the problem of lack of motivation he offers a number of points which promote an understanding of patients who do not attempt to profit by treatment procedures. Essentially, the impression is conveyed that the need to be dependent, feelings of guilt, mourning and perception of the future as being futile are the major conditions precluding positive motivation for treatment.

Grossman (6, pp. 849-852) points out that the patient's desire to get well is related to his degree of fulfillment of dependency needs. He states that the more dependent are not as likely to invest as much energy in the treatment process as the more independent. Similar observations are made by Barnes (1, pp. 106-112) in his discussion of the major problems of rehabilitation. He suggests that the most acute problems concern the conflicts over becoming dependent on the hospital and rehabilitative personnel. Nemiah (16, pp. 771-774), while writing about the relationship between emotional factors and motivation for treatment, relates that those individuals who allow themselves to be passively

taken care of and do little to take care of themselves are poor rehabilitative risks, generally. Again Nemiah (17, pp. 143-147), in an article concerning the psychiatrist's rehabilitation responsibilities, says the threat to self-esteem produced by a serious injury or illness may cause an individual reactive anxiety and depression and therefore retard treatment progress. For some persons the psychic pain may be denied and prevent acceptance of the disability. For others the disability may foster the free expression of latent dependency needs, prolonging hospitalization and treatment success.

Nagler (15, pp. 49-55), while discussing the psychiatric aspects of spinal cord injury, considers the frequent negative effects of anxiety and depressive reactions, indifference and dependency reactions and the less frequent psychotic and psychopathic reactions. He states that the "normal" reaction is marked by an acceptance of the disability, good insight, adequate sublimation and constructive plans for the future. Mueller (13, pp. 151-158), writes about a number of factors which contribute to the success or failure of the attainment of maximum rehabilitation for paraplegics. Reactive depression, dependency, and autistic thinking all prevent progress during the early stages of injury. Pretraumatic personalities, particularly if they are non-adaptable, offer added burdens. Attitudes toward specific physical functions,

such as bowel and bladder, and extra-hospital adjustments, in terms of social, economic and vocational factors, all may curtail or advance rehabilitative progress. Also, says Mueller (12, pp. 189-192), in an article dealing with the adjustment of the spinal cord injured, that the handicaps are largely psychological in nature. Since many do not readily accept the disability, there develops a conflict between desires and inability to perform. There also develops an ambivalence toward life which produces indecisiveness, feelings of insecurity and lack of emotional control. Sometimes there are conflicts in the psychosexual sphere. Depression, dependency and unrealistic thinking are the most outstanding features of the behavior of those individuals who do not make advancements. Kern (8, pp. 302-314), in talking of the paraplegic, states that the immediacy of the injury does not allow the ego enough time to absorb the shock; anxiety, depression and dependency may develop so seriously that many months are needed to help the patient on the course of positive recovery.

Snow (22, pp. 249-255), when discussing disabilities in general, reports that patients need adequate time for making adjustments. They will have periods of self-pity, resentment, depression and fear which sometimes are slow to be rectified; psychiatric interviews may be necessary. Another writer, Reichel (19, pp. 307-310), stresses the significance of

depression, mourning, dependency in relation to their effects upon achieving maximum physical function. He says that even trivial physical complaints may be of great importance to a disabled person, accentuating these characteristics and focusing his attention on the pathology instead of rehabilitative efforts.

It appears, then, that the poorest rehabilitative prognoses concern those patients who are the more dependent, docile, depressed, anxious, autistic and self-abasing. While those who have the more adequate motivation for treatment are more aggressive, less dependent, more positively cooperative, more persistent, and probably have a greater desire for objective achievement. The latter points are implicit in most of the foregoing although the major emphasis for most of the articles is on the negative factors.

For the most part these conclusions are based upon clinical observation, although there has been some systematic research which provides additional data. Keeler (7, pp. 293-296) reports on a study in which the progress of 139 patients was evaluated by staff judgments. They were members of an out-patient population in a community rehabilitation center. Those subjects who were less inclined to get involved with others, who lived in homes which fostered dependence, who had more education, who were over 50 years of age, and who did not pay their own fees did not make optimal progress.

In Nemiah's article (16, pp. 771-774), reference is made to some research, done by Grayson, Powers and Levi,* which revealed that patients who had 60 to 100 per cent anatomical responses on the Rorschach had difficulty in treatment, that card rejection on the Rorschach was related to lack of success with treatment, and that a neurotic personality structure, as measured by the Rorschach, was related to maximum progress in treatment. It is concluded that the individual who declines to participate aggressively in a treatment program makes negligible progress.

Davis (2, pp. 1262-1263), when studying the relationship between frustration tolerance in paraplegics and success in rehabilitation, found the most efficient of subjects characterized by his psychologists' ratings as easy-going, congenial, warm, generous, hard-boiled, poised, frank, conscientious, responsible, painstaking, dominant, ascendent and self-assertive. Those who were less efficient were viewed as being inflexible, cold, timid, hostile, shy, emotionally dependent, impulsive, self-effacing and submissive. He determined frustration tolerance by controlled administrations of the Digit Symbol Test and the Minnesota Rate of Manipulation Test. His efficient and inefficient rehabilitation

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*M. Grayson, A. Powers and J. Levi, "Psychiatric Aspects of Rehabilitation," Rehabilitation Monograph II, New York Institute of Physical Medicine and Rehabilitation, New York University—Bellevue Medical Center, 1952.

groups were chosen from the upper and lower quartiles of the rankings of forty-eight patients. The Wechsler Bellevue Intelligence Scale, the California Test of Personality, and the Rosenzweig Picture Frustration Test were also administered to the two groups, but no differences resulted.

Goldsmith (5, p. 1504) explored the personality characteristics of paraplegic patients who showed different degrees of rehabilitation improvement. Thirty male patients were divided into much improved and little improved groups by therapists' judgments, and the Rorschach and a sentence completion test were administered and diagnostic interviews were performed. Each patient was considered in the light of eleven personality characteristics while he underwent three and one-half months' treatment. The much improved patients had strong aggressive feelings, had a need to take action in the face of upsetting situations and were optimistic about rehabilitation outcomes. The little improved had much internalized aggression, strong dependency needs, needs for self-punishment and pessimistic attitudes about rehabilitation.

Manson and Devin (10, pp. 65-66) studied twenty-five amputees in order to determine what personality attributes were related to good and poor adjustment. Sixteen of these men were considered to have good adjustment and nine poor adjustment. It was concluded that the poorly adjusted were

more insecure, inadequate, immature, neurotic and psychopathic; they were more impulsive, drank alcohol more, and were more sensitive to pain. Those with good adjustment had noticeably less of these characteristics, were younger and better educated, more were married and there were fewer divorces.

Rabinowitz (18, pp. 799-807) tested four hypotheses in a pilot study which was designed for the purpose of finding psychological indices which discriminated between well motivated physically disabled people. A social psychological viewpoint was chosen. The principal interview data and observation revealed that the better motivated had more real and clearly defined goal-striving aspirations, accepted more suitable value standards and behavioral patterns in terms of societal expectancy, demonstrated adequate tolerance for frustration-producing experiences and showed an increasing degree of autonomy, as suggested by more equilitarian feelings toward the hospital staff.

There does not appear to have been any research which related motivation for treatment to an objective assessment of its logical personality correlate, <u>needs</u>. Certainly these constructs are given reference in the previous discussion, but there appears to have been no research performed which attempted to relate objectively defined individual needs to evidence of progress in the various physical therapies.

The purpose of the present study was to investigate some possible relationships between the degree of patient motivation for some aspects of physical rehabilitative treatment and objectively measured needs of patients.

Statement of the Problem

This study was concerned with the relationship between patient motivation for treatment in three of the various therapy sections of the Physical Medicine and Rehabilitation Service of the Veterans Administration General Medical and Surgical Hospital, Long Beach, California, and needs as measured by the Edwards Personal Preference Schedule. Of the six therapies under the direction of the Physical Medicine and Rehabilitation Service consideration was given to the following: Occupational Therapy (OT), Physical Therapy (PT), and Corrective Therapy (CT). These sections are similar in that the emphasis is directly upon the physical aspects of treatment.

Hypotheses

1. There would be consistency across therapies, no interactions, for any of the needs Achievement, Endurance, Deference, Succorance, and Abasement. That is, in terms of the definition of motivation used here, and its operational counterpart, it was expected that individuals in this setting had generalized attitudes toward treatment.

2. There would be a relationship between Achievement and motivation for treatment. There would be a significant difference between the High Motivation Group and the Low Motivation Group, with the High Motivation Group having the higher mean score.

3. There would be a relationship between Deference and motivation for treatment. There would be a significant difference between the High Motivation Group and the Low Motivation Group, with the High Motivation Group having the higher mean score. It was felt that prominent in the "Need Hierarchy" of positively cooperative individuals would be found a moderately deferent attitude which was necessary for satisfaction in a joint endeavor, therapist and patient, such as the one which was under consideration here.

4. There would be a relationship between Endurance and motivation for treatment. There would be a significant difference between the High Motivation Group and the Low Motivation Group, with the High Motivation Group having the higher mean score.

5. There would be a relationship between Succorance and motivation for treatment. There would be a significant difference between the High Motivation Group and the Low Motivation Group, with the Low Motivation Group having the higher mean score.

6. There would be a relationship between Abasement and motivation for treatment. There would be a significant difference between the High Motivation Group and the Low Motivation Group, with the Low Motivation Group having the higher mean score.

The needs Achievement, Endurance, Deference, Succorance and Abasement were considered specifically because they appeared, in terms of their face validity, to be directly related to the conclusions about the positive and negative personality factors which were derived from the literature.

In an exploratory manner, the ten additional "Manifest Needs" measured by the Edwards Personal Preference Schedule were investigated to see if differences existed between patients with different degrees of motivation and whether differences were consistent across therapies. For each of these needs the null hypothesis was tested. Based on the theory from which the major hypotheses were developed, it was felt that none of these ten additional needs were related logically to the conclusions evolved by the authors and investigators in the general field who were studied.

Definitions of Terms

1. Motivation.—In this study motivation referred to the degree to which a given patient's efforts to utilize treatment procedures was consistent with that which was expected in terms

of his maximum improvement. It had meaning in relation to the standards set by the professional personnel who provided the treatment under consideration.

2. High Motivation Group (HMG).—Within each therapy the sample of subjects studied which was above the median of ratings, selected on the basis of receiving ratings on the Motivation Rating Scale.

3. Low Motivation Group (LMG).—Within each therapy the sample of subjects studied which was below the median of ratings, selected on the basis of receiving ratings on the Motivation Rating Scale.

4. In-Patients.—Those patients who were actually residing in the hospital and taking treatment.

5. Physical Medicine and Rehabilitation Service (PMRS).—"The Service aids in the rehabilitation of patients by restoring them to the highest functional level which their physical, mental, and emotional state permits. The Service consists of six Sections and has administratively assigned to it at the Orthopedic Shops" (11, p. 39).

6. Physical Therapy (PT).—". . . provides, on prescription, diagnostic procedures, definitive treatment and functional rehabilitation through scientific and purposeful physical measures such as heat, water, electricity and therapeutic exercise. The treatment is designed to prevent

deformity and to attain optimum physical and mental health. It also provides training in extremity prosthetic equipment" (11, p. 39).

7. Occupational Therapy (OT).—". . . treats disease, disorder, or injury by the scientific use of remedial, creative and manual activity. The general aim of Occupational Therapy is to provide, on individual prescription by a physician, planned, purposeful, graded activity to promote recovery by (a) improving muscle strength and function and range of joint motion, (b) diminution of mental and emotional stress and strain, (c) motivation back to normal life" (11, p. 39).

8. Corrective Therapy (CT).—". . . provides, on prescription, definitive treatment and rehabilitation measures through the application of activity of an exercise and a self-care nature. Exercise and mechanical equipment are employed to restore normal neuro-muscular function, including gait training and lower extremity prosethetic equipment" (11, p. 39).

9. Motivation Rating Scale (MRS).—This scale was developed on the order of that considered by Ferguson (4, pp. 291-296). (See Appendix A.) It is composed of nine numerical steps, have "9" at the high end, and "1" at the low end, with a qualitative statement and explanation for each. The upper and lower quartiles are bracketed in order to give anchoring points for forcing extreme scores.

In order to insure common frames of reference for rating by the personnel within each therapy, each of the three therapies was asked to formulate and to submit a list of what was considered to be behavioral evidence of patient motivation for treatment in the respective services. From these lists have been chosen eleven items which refer directly to the patient's active participation in the treatment process. A new list composed of these items has been made a part of the rating scale (See Appendix A.), and it was used for reference when the subjects were rated.

10. Edwards Personal Preference Schedule (EPPS) (3).--This instrument was selected because it related closely, by the definitions of some of its subscales, to the dynamic, psychological qualities the presence of which the literature revealed as necessary for success at physical rehabilitation. This device is a paper-and-pencil personality inventory designed to measure fifteen "Manifest Needs." It is theoretically oriented in that the needs being measured are tied to a work done by H. A. Murray and his co-workers (14). A description of the subscales and a summary of pertinent research can be found in Appendix B.

Limitations

1. This study was limited to a sample of male "in-patients" who were taking treatment under the direction of PMRS, and who had been under treatment for at least two weeks.

These persons had a basic neuro-muscular and/or orthopedic condition not confounded by brain pathology or disabling mental or emotional disturbance.

2. In order to eliminate partially the effect of the normal aging process on motivation for physical activity, it was planned to obtain patients under forty-five years of age. In all except seven instances out of ninety this was accomplished.

3. It was not expected that the results found here would necessarily generalize to other therapies which are less directly oriented toward physical treatments.

4. Since this research was done with a Veteran population it was not necessarily assumed that the results would generalize to other kinds of rehabilitative settings with older, or younger, patients.

5. Too, it was not expected that the results would necessarily generalize to extra-hospital activities.

Basic Assumptions

1. It was assumed that degree of disability, as a variable, would not have to be controlled when treatment procedures were adapted to the individual case.

2. It was felt that motivation for treatment in any of the specific therapies being studied was distributed normally within the populations of the patients utilizing each of these services.

3. It was believed that each therapist was qualified to judge whether or not a given patient was making optimal progress in terms of that which was expected.

4. The Edwards Personal Preference Schedule serves the purposes for which it was being used in this study (See Appendix B).

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CHAPTER II

METHODOLOGY

Subjects

The subjects for this study were obtained from the population of patients who were taking treatment under the direction of the Physical Medicine and Rehabilitation Service at the Veterans Administration Hospital, Long Beach, California, during the months from April to November of 1962. The study was limited to a sample of male "in-patients," each of whom had been under treatment at least two weeks, a time period which allowed for each therapist to become adequately acquainted with his respective patients.

Each subject had a basic neuro-muscular and/or orthopedic disability which was not confounded by brain pathology or a disabling mental or emotional condition. In some instances there were histories of encephalopathy resulting from illness or injury, but in no case of this nature was this damage considered functionally debilitating by the medical or therapeutic staff, as revealed by information from patients' charts or consultation with the treatment personnel. Evidence for serious mental or emotional disturbances was also sought by recourse to the charts and consultation. There was none representing manifest psychological disturbances.

Procedure

Prior to the assignment of the ratings which were used in this study, each therapy section was met separately during a scheduled staff meeting for the purpose of discussing the use of the rating scale and for directing a trial study of it. During these discussions, all efforts were made to avoid any reference to the research design or hypotheses. All therapists were instructed to think of each patient only in terms of his progress while attending their services and relative only to the list of behavioral evidences of motivation which was attached to each rating scale. Each item of this list was not rated separately, but the group of items was considered globally as ratings were made. Any attempt to deviate from this course was corrected when identified.

It was proposed to do a trial rating of twenty-five subjects within each therapy section at the time of this first conference, but it was discovered that, at these times, there were not that many within each group who met the criteria for inclusion in the study. Ratings were done for those who were available.

The ratings were determined by open discussion and consensus. Each therapist was provided a scale with attachments and a list of names of patients to be rated and asked to consider each patient's rating with mutually interested therapists and the investigator. In most cases only two or three therapists were familiar enough with the individual to make a

rating, in some cases only one therapist knew him well enough. In the latter instance, the raters were questioned more closely with relation to the criteria. The OT raters were all female therapists; the PT were female, with one exception; and the CT were all male therapists.

From the beginning it was felt that the majority of the ratings could be considered reliable, because of the nature of the scale and the fact that each patient and each therapist were in intimate, one-to-one contact during the whole course of treatment. Due to the fact that each patient was required to be in treatment two weeks before being rated, provision was made for adequate familiarity between the two. Reliability was not determined statistically, but it was observed that, where two or more therapists rated a patient concurrently, the initial ratings did not deviate over more than a range of three points. In all instances they fell with the same half of the scale, unless the middle three points were used. After some discussion, a specific point was decided, most often the midpoint of the ratings.

Although it was originally planned to perform all rating during these staff meetings, this procedure was found impractical because each therapy section needed those periods for departmental business and for in-service training, and because not more than three therapists, of a group of seven to twelve, concurrently knew any one patient well enough to rate him. In view of the latter point, to hold the total

group during any specific rating period would be a waste of man hours, and possibly result in a loss of cooperation from these professional personnel. After the primary explanation of the purpose of the scale and the first use of it, during the staff conferences, the therapists concerned were met at their convenience in groups of two or three, and individually in some instances, for the giving of ratings to eligible subjects.

In order to prevent the introduction of a bias in the design of the research, it was necessary to consider a patient to be a member of only one of the therapies even though he might have been attending any two, or all three, of them during any one time interval. Because it was possible for a person to be participating in at least two groups, it was decided to collect ratings and perform testing for one therapy section at a time in order to avoid confusion and excessive overlap. The Occupational Therapy Section was done first, followed by Physical Therapy, then the Corrective Therapy.

After the initial ratings, the service in question was contacted approximately every other day to see if new patients, who would be considered eligible as subjects in the future, had begun treatment. As they became available the therapists made ratings in the manner described above. When only one rater was present, the procedure was observed very closely in an attempt to insure maximum validity. After making three

or four ratings, the therapists appeared to become very confident in the use of the instrument.

For purposes of the administration of the EPPS and the gathering of personal data the patients were contacted individually and in groups, whichever was feasible in line with their routines and schedules. This contact was made within three days of rating in order to minimize any changes which might occur with reference to the patient's interaction with therapeutic procedures, or changes in him personally which might affect his reaction to the EPPS. When it was impossible to do this testing within this three-day period, the therapists were asked to re-rate within three days prior to the time when contact was to be made. Only in two instances of the approximately ten cases when this was necessary did the scores vary from the first rating, and then only by one point for each.

During the first two weeks of testing, the patients were called by making arrangements with the ward nurses, and other ward personnel, for sending them to the testing room of the Counseling Psychology Section of the Hospital Psychology Service during their non-treatment time. This operation was soon found ineffective and very cumbersome. Too often the ward personnel failed to schedule the patients for one reason or another; or the patient, if he were scheduled, failed to attend because he forgot the appointment, because he was

unable to get assistance if he could not bring himself, or because he decided not to attend due to fatigue, unwillingness, etc. It became obvious that another approach had to be developed.

The various Section Chiefs, of OT, PT and CT, agreed to allow the testees to visit the examiner during the times assigned for one or two of their scheduled treatment sessions. In this way the subjects were contacted directly, a condition which guaranteed greater enlistment of cooperation, and they were not given the added burden of having to use free time for impersonal activities, for the more severely disabled this proved to be an important consideration.

Of the 118 individuals who were approached, there were 13 who refused to take the test. In seven of these cases they were persons who were considered to have low motivation for treatment, six were rated as highly motivated. Because of the severity of disabilities, five patients had to receive oral administrations of the EPPS. The testee read the items silently and indicated which of the alternative choices he preferred. Two prospective subjects were found to be unable to read when confronted with the measure, so they were eliminated.

As proposed, it was explained that the procedure was for research purposes only; that the test data and results would not identify individuals; and that the information would not be used in any way detrimental to any patient.

Descriptions of Subgroups

Initially, plans were made to secure 210 subjects across therapies, 35 who were to be considered highly motivated for treatment in each of the three therapies, and 35 for each who were thought to have low motivation for treatment. The ratings of 7, 8 and 9 were to represent those with high motivation, and the ratings of 1, 2 and 3 were to represent those with low motivation. Due to an unanticipated, rapid patient turnover and time limitations imposed by the training requirements, only ninety subjects were obtained, fifteen in each motivation group. This condition resulted from a misjudgment about the number likely to be available, based upon the previous rolls of the therapies, and the failure to take into account the fact that a large number of patients participate in more than one therapy at a time, creating a large amount of overlap. Rather than using the extreme scores for classifying two motivation groups, the groups were formed by making the high-low split at the median rating point for the eligible sample of each therapy. Table I is a summary of the biographical data for the six subgroups.

At first an attempt was made to obtain subjects who were under forty-five years of age so that the effects of the normal aging process on physical activity could be partially controlled. Because of the problems involved in obtaining the originally proposed number of subjects, it was necessary to

accept seven over forty-five, but under fifty. Four of these individuals were considered to be highly motivated and three were rated as having low motivation for treatment. Too, it was found that because of the limitations imposed by the age factor, the majority of subjects were patients hospitalized on the Spinal Cord Injury Service. Of the groups of individuals taking treatment under the Physical Medical and Rehabilitation Service this one is normally composed of the largest number of young members.

TABLE I

SUMMARY OF BIOGRAPHICAL DATA FOR THE SIX MOTIVATION GROUPS

Categories	OT		PT		OT	
	HMG	LMG	HMG	LMG	HMG	LMG
Mean age	32.60	33.93	33.00	36.80	36.87	34.67
SD age	7.08	7.69	9.51	6.40	6.63	8.13
Mean education	11.80	10.73	11.87	12.00	11.00	10.14
SD education	1.72	3.31	2.22	2.25	2.45	1.07
Mean months of disability	27.77	31.53	23.27	41.40	21.00	53.79
SD months of disability	38.93	35.34	17.19	44.94	20.19	65.91
Range months of disability	4-156	2-140	5-129	6-183	2-66	2-192
Severity of disability						
Extreme quadriplegic	6	8	2	5	1	4
Quadriplegic	3	0	3	1	5	1
Paraplegic	3	6	4	9	7	10
Others	3	1	6	0	2	0
Type of disability						
SCI	6	11	9	15	13	15
Polio	2	2	0	0	0	0
Others	7	2	6	0	2	0

TABLE I --Continued

Categories	OT		PT		OT	
	HMG	LMG	HMG	LMG	HMG	LMG
Non-service connected	9	12	9	14	14	11
Service connected	6	3	6	1	1	4
Marital status						
Single	5	5	4	5	3	5
Married	6	5	9	6	10	4
Divorced	3	3	2	3	0	3
Separated	1	2	0	1	2	3

Note: The row "Mean months of disability" refers to the average of the duration of months of disability, for each patient, for each group, at the time that ratings were made. Under "Severity of disability," an "Extreme quadriplegic" was an individual who had almost complete immobility of his arms, trunk and legs as a result of a spinal cord injury or some neurological disease, such as Polio. A "Quadriplegic" was an individual who had a high level neurological injury or pervasive illness, which involved arms, trunk and legs, but who could carry on many of his necessary daily activities, i.e., pushing his chair, feeding himself, standing, etc. A "Paraplegic" had only lower extremity involvement of varying degrees. "Others" included disabilities which were less extreme than the above: fractures, gun shot wounds, light cases of arthritis, and so on. The heading "SCI" is an abbreviated form of spinal cord injury. Under "Type of disability," "Others" referred to any disability not resulting from Polio or a traumatic spinal cord injury. "Non-service connected" means that the disability under consideration was known not to have resulted from active military service. "Service connected" means that the disability was incurred while on active duty and is worthy of monetary compensation.

From Table II it can be observed that differences between motivation groups within therapies are not significant for Age, Education, or Months of Disability. There is no reason to assume that these factors have affected the results to be considered in the next chapter. Even though no statistical tests were used to compare each pair of the six subgroups

on the other data, by inspection there appear to be no differences which could have influenced the results extremely in relation to the major objectives of this study.

TABLE II

SIGNIFICANCE OF DIFFERENCES BETWEEN THE MEANS OF MOTIVATION GROUPS WITHIN THERAPIES FOR AGE, EDUCATION AND MONTHS OF DISABILITY

Therapies	Age			Education			Months of Disability		
	t	df	P*	t	df	P	t	df	P
OT	.47	28	NS	1.07	28	NS	.27	26	NS
PT	1.22	27	NS	.87	28	NS	1.38	28	NS
CT	.76	28	NS	.72	25	NS	1.74	26	NS

*NS means no significance, assuming the 5 per cent level as the minimum acceptable point.

The subjects who were considered eligible rated subjects for each Therapy, and who were not tested with the EPPS, were classified as the "Rated Sample." Those who were tested were classified as the "Tested Sample."

In order to test for possible differences between each Rated Sample and the respective Tested Sample, t tests were run for each combination. The independent group formula was used since none of the patients within the groups rated for each therapy were placed in more than one sample, the Rated or the Tested. Table III presents the specific data for the Rated and Tested Samples and t test results for each therapy.

TABLE III

NUMBER, MEANS, STANDARD DEVIATIONS, RANGES, MEDIAN INTERVALS AND RESULTS OF t TESTS FOR THE VARIOUS RATED AND TESTED SAMPLES

Statistics	OT		PT		CT	
	Rated	Tested	Rated	Tested	Rated	Tested
Number	23	34	52	38	25	33
Mean	5.26	5.44	6.12	6.34	4.80	5.69
Standard Deviation	1.35	2.32	2.02	2.39	1.51	1.96
Range	1-9	1-9	1-9	2-9	2-8	2-9
Median Interval		5.5-615		6.5-7.5		5.5-6.5
df	55		88		56	
t	.37		.46		1,89	
F	NS		NS		NS	

It can be seen from Table III that there were no significant differences between the various Rated and Tested Samples for the distributions of ratings. Both samples came from the same population.

The obvious skewness of the PT samples as compared to the OT and CT groups warrants some explanation. It could be argued that this group of patients was unique in being more highly motivated, and therefore in reality different from the usual PT population. It might be said that the paremeter is actually near the given value, and PT patients, as a group,

express their motivation differently from those of the other therapies; in terms of the behavioral standards used for rating, they actually differed from the others. It is difficult to rationalize either of these alternatives absolutely because many of the PT patients were also taking therapy in one, or both, of the other treatment sections. Of course, the nature of PT with its relatively more passive activities, and comforting procedures, may have an effect in favor of higher motivation, a solution in favor of the second possibility. There is a third suggestion which, of course, may have merit. It might have been that the raters manifested a consistent bias toward the higher end of the scale due to their personal motivations. To some extent this has meaning in that one rater was married to a patient who had a disability similar to those of many persons whom that therapist treated, although concrete evidence of this behavior was not observed. Two PT therapists did 80 per cent of the ratings of the PT patients included in this study, so if there were this tendency, it could have operated fairly constantly. It is thought that the results discussed here probably reflected some combination of all three partial explanations. Regardless of the cause, the effects appear to have been greatly controlled by dividing all three groups at the respective medians.

Statistical Analysis

Complex analysis of variance with a 2 x 3 cell arrangement, two motivation groups within each of three therapies,

was the technique chosen for the testing of the major hypotheses, the interaction hypotheses and the additional null hypotheses for the ten additional EPPS need scales.

As a means of exploring possible differences between groups which might have been of significance for this study, since the anticipated N was not obtained, deviations of each subgroup, motivation group, mean from the mean of the adult male standardization group means for each need on the EPPS were investigated by *t* tests.

Again, since the anticipated N was not obtained, it was decided to attempt to tease out additional statistical data of importance by utilizing Gingerelli and Butler's profile analytic technique (1). It was applied to investigate the possibility of differences in subgroup EPPS test patterns which might be of significance.

The first step in using this technique is to reduce each subgroup average ranks of the subgroup members to an ordinal profile and determine by formula whether or not the given subgroup profile is significantly different from a horizontal line. Those nosological groups which do deviate significantly can be compared in terms of average profiles. In this performance the "Characteristic Permutation" (average profile) of one subgroup is used for making all comparisons. By formula each member of each subgroup receives a profile index number by using the characteristic permutation decided upon. For each

subgroup the means and standard deviations of profile indices are figured, and appropriate *t* tests are run between subgroups.

CHAPTER BIBLIOGRAPHY

1. Gingerelli, J. P. and P. V. Butler, "A Method for Comparing the Profiles of Several Population Samples," The Journal of Psychology, XL (1955), 247-268.

CHAPTER III

RESULTS

In order to test the major hypotheses and the main effects and interaction hypotheses for the additional ten EPPS needs, the statistical technique of choice was complex analysis of variance. Table IV summarizes the quantities resulting from this procedure. Table V contains the means and standard deviation yielded from all six subgroups for all needs.

TABLE IV

RESULTS OF THE ANALYSES OF VARIANCE FOR TESTING THE MAJOR HYPOTHESES, THE INTERACTION HYPOTHESES AND THE TEN ADDITIONAL NULL HYPOTHESES FOR THE EPPS SUBSCALES

Source of Variation	df	Sum of Squares	Mean Squares	F	P
		ACHIEVEMENT			
Therapies	2	18.15	9.08	.52	NS
Motivation groups	1	1.86	1.86	.11	NS
Interaction	2	108.15	54.08	3.07	.06
		DEFERENCE			
Therapies	2	79.01	39.51	2.82	NS
Motivation groups	1	1.11	1.11	.08	NS
Interaction	2	1.18	.59	.04	NS
		ENDURANCE			
Therapies	2	9.86	4.93	.18	NS
Motivation groups	1	5.38	5.38	.19	NS
Interaction	2	15.04	7.52	.27	NS

TABLE IV --Continued

Source of Variation	df	Sum of Squares	Mean Squares	F	P
		SUCCORANCE			
Therapies	2	11.82	5.91	.26	NS
Motivation groups	1	9.34	9.34	.42	NS
Interaction	2	8.91	4.46	.19	NS
		ABASEMENT			
Therapies	2	70.19	35.10	1.19	NS
Motivation groups	1	.55	.55	.02	NS
Interaction	2	12.82	6.41	.22	NS
		AGGRESSION			
Therapies	2	10.06	5.03	.24	NS
Motivation groups	1	19.60	19.60	.93	NS
Interaction	2	6.08	3.04	.14	NS
		HETEROSEXUALITY			
Therapies	2	57.86	28.93	.68	NS
Motivation groups	1	8.10	8.10	.19	NS
Interaction	2	183.22	91.61	2.16	NS
		CHANGE			
Therapies	2	15.19	7.59	.41	NS
Motivation groups	1	14.20	14.20	.77	NS
Interaction	2	52.09	26.05	1.41	NS
		NURTURANCE			
Therapies	2	6.15	3.08	.19	NS
Motivation groups	1	1.34	1.34	.09	NS
Interaction	2	2.45	1.23	.09	NS
		DOMINANCE			
Therapies	2	58.82	29.41	1.06	NS
Motivation groups	1	19.61	19.61	.71	NS
Interaction	2	88.48	44.24	1.59	NS
		INTRACEPTION			
Therapies	2	129.42	64.71	.72	NS
Motivation groups	1	21.51	21.51	.24	NS
Interaction	2	47.31	23.66	.26	NS
		AFFILIATION			
Therapies	2	1.26	.63	.04	NS
Motivation groups	1	1.34	1.34	.09	NS
Interaction	2	3.92	1.96	.13	NS

TABLE IV --Continued

Source of Variation	df	Sum of Squares	Mean Squares	F	P
		AUTONOMY			
Therapies	2	17.26	8.63	.59	NS
Motivation groups	1	4.90	4.90	.33	NS
Interaction	2	42.48	21.24	1.14	NS
		EXHIBITIONISM			
Therapies	2	42.46	21.23	1.24	NS
Motivation groups	1	.40	.40	.03	NS
Interaction	2	.89	.45	.03	NS
		ORDER			
Therapies	2	59.35	29.68	1.43	NS
Motivation groups	1	.55	.55	.03	NS
Interaction	2	50.17	25.09	1.21	NS

Note: The Sums of Squares for Total, Between Groups and Within Groups can be found in Appendix C, Table XII.

It was stated in the first hypothesis that there would be no significant interactions between any of the therapies and the respective motivation groups for the needs Achievement, Deference, Endurance, Succorance and Abasement. There were no significant interactions, although this result has no import in the light of the findings that none of the other hypotheses were supported. There was a tendency toward an interaction for need Achievement, F was 3.07, with P at approximately the 6 per cent level of significance. Table V reveals that there was a trend toward a relationship between Achievement and motivation for Corrective Therapy. These CT

subgroup means differed noticeably from each other, whereas there was little difference between the subgroup means for other therapies.

In the second hypothesis it was predicted that there would be a relationship between Achievement and motivation for treatment. There was no support for this hypothesis.

In the third hypothesis there was predicted a relationship between Deference and motivation for treatment. This was not supported. However, Table V shows there was a tendency for the OT subjects, in both subgroups, to consider themselves as having less need Deference than those of the other therapies.

Clearly there was no substantiation of the fourth hypothesis. For these groups there were no relationships between the need Endurance and motivation for treatment.

Contrary to the fifth hypothesis, there was no relationship between motivation for treatment and Succorance. The OT Low Motivation Group had a higher mean score than the related High Motivation Group, a possible tendency toward an interaction between low motivation for OT and Succorance.

In contrast to the prediction made in the fourth hypothesis there was found no relationship between the need Abasement and motivation for treatment.

TABLE V

MEANS AND STANDARD DEVIATIONS OF THE SIX SUBGROUPS FOR ALL FIFTEEN NEEDS

Needs	OT HMG		OT LMG		PT HMG		PT LMG		CT HMG		CT LMG	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
ACH	14.80	3.95	15.53	3.93	15.07	3.93	16.80	4.82	16.53	4.68	13.20	2.71
DEF	11.80	4.28	11.93	2.99	13.53	3.81	13.53	3.68	13.80	3.93	14.33	3.49
END	16.80	5.68	15.73	8.42	15.27	6.18	15.93	5.36	16.87	4.60	15.80	5.27
SUC	8.73	4.42	10.27	6.01	8.60	4.44	8.80	4.99	9.33	3.88	9.53	4.19
ABA	13.40	5.47	13.53	3.70	13.40	4.46	12.33	4.76	14.27	6.89	15.67	5.47
AGG	11.60	3.79	13.27	4.63	12.80	4.32	13.33	4.98	12.00	5.05	12.60	3.67
HET	16.07	5.71	14.53	5.30	15.80	6.77	12.27	5.78	11.73	8.11	15.00	5.65
CHG	17.07	3.02	14.67	4.06	16.00	4.29	14.93	4.45	14.33	4.09	15.40	4.83
NUR	15.27	3.13	15.13	3.65	15.27	4.09	15.93	5.08	15.73	3.55	15.93	3.21
DOM	13.73	6.12	14.07	4.70	14.07	4.49	14.67	5.34	14.33	4.67	10.60	4.87
INT	15.93	4.08	17.80	4.09	13.13	3.22	15.27	3.77	17.13	3.40	16.07	6.18
AFF	14.67	3.59	14.47	3.91	13.93	2.69	14.73	3.69	14.53	4.47	14.67	3.81
AUT	15.60	4.11	13.20	2.86	13.80	3.69	14.13	3.69	13.00	3.67	13.67	3.99
EXH	13.13	3.14	12.73	4.37	14.33	4.08	14.27	3.39	12.73	4.63	12.80	4.15
ORD	11.60	4.41	13.07	4.67	14.93	3.96	13.00	4.29	13.67	3.84	14.60	5.02

In all cases for the additional ten need scales the main effect null hypotheses and the interaction null hypotheses could not be rejected. There were some trends of interest which will be discussed more meaningfully when considering the exploratory findings.

In an effort to ferret out other relationships which might prove of predictive value, each subgroup mean, for each need, was compared to the respective adult male standardization population means. Table VI presents the results of these ninety comparisons.

TABLE VI

COMPARISONS BY t TESTS BETWEEN SUBGROUP MEANS AND STANDARDIZATION GROUP MEANS FOR ALL FIFTEEN NEEDS ON THE EPPS

Needs	OT				PT				CT			
	HMG		LMG		HMG		LMG		HMG		LMG	
	t	p	t	p	t	p	t	p	t	p	t	p
ACH	.009	NS	.69	NS	.36	NS	1.88	NS	1.63	NS	1.49	NS
DEF	2.39	.05	2.24	.05	.65	NS	.65	NS	.39	NS	.14	NS
END	.13	NS	.98	NS	1.34	NS	.74	NS	.08	NS	.92	NS
SUC	1.68	NS	.42	NS	1.79	NS	1.62	NS	1.19	NS	1.02	NS
ABA	.89	NS	.79	NS	.89	NS	1.69	NS	.24	NS	.81	NS
AGG	1.23	NS	.18	NS	.22	NS	.23	NS	.99	NS	.39	NS
HET	2.44	.05	1.67	NS	2.31	.05	.53	NS	.26	NS	1.90	.07
CHG	2.60	.05	.65	NS	1.73	NS	.86	NS	.37	NS	1.24	NS
NUR	.31	NS	.42	NS	.31	NS	.20	NS	.05	NS	.20	NS

TABLE VI --Continued

Needs	OT				PT				CT			
	HMG		LMG		HMG		LMG		HMG		LMG	
	t	p	t	p	t	p	t	p	t	p	t	p
DOM	.57	NS	.32	NS	.32	NS	.13	NS	.13	NS	2.87	.05
INT	1.54	NS	3.18	.01	.92	NS	.96	NS	2.59	.05	1.66	NS
APP	.14	NS	.04	NS	.52	NS	.20	NS	.02	NS	.14	NS
AUT	1.40	NS	.73	NS	.19	NS	.09	NS	.90	NS	.31	NS
EXH	.37	NS	.02	NS	1.53	NS	1.48	NS	.02	NS	.05	NS
ORD	2.45	.05	1.29	NS	.19	NS	1.34	NS	.81	NS	.07	NS

It was only for the needs Deference, Heterosexuality, Change, Dominance, Intraception and Order that the comparisons yielded *t*'s at or beyond the 5 per cent level of significance. An examination of Tables VI and VII, and a review of V, shows that the means for Deference for both the OT High Motivation and Low Motivation Groups were significantly less than the standardization group means, with *t*'s of 2.39 and 2.24, both beyond the 5 per cent level. The OT and PT High Motivation Groups had means which were significantly greater than that of the standardization norms for the need Heterosexuality; the *t*'s were 2.44 and 2.31, respectively. The OT High Motivation Group had a highly significant *t* of 2.60 for Change, with the mean in the higher direction. The CT Low Motivation Group had a mean score on Dominance much lower than that of the norm group; a *t* of 2.87 resulted. For the need Intraception

there resulted t's of 3.18 and 2.59 for the OT Low Motivation Group and the CT High Motivation Group; both means were in the higher direction. For Order a significant t of 2.45 was yielded from the comparison with the OT High Motivation Group; the mean was less than the norm group mean.

TABLE VII

STANDARDIZATION GROUP MEANS, STANDARD DEVIATIONS AND STANDARD DEVIATION OF THE MEANS FOR THE FIFTEEN EPPS NEEDS

Needs	Standardization Pop. M	Standardization Pop. SD	SDm
ACH	14.79	4.14	1.07
DEF	14.19	3.91	1.01
END	16.97	4.90	1.27
SUC	10.78	4.71	1.22
ABA	14.59	5.13	1.33
AGG	13.06	4.60	1.19
HET	11.21	7.70	1.99
CHG	13.87	4.76	1.23
NUR	15.67	4.97	1.28
DOM	14.50	5.27	1.36
INT	14.18	4.42	1.14
AFF	14.51	4.32	1.12
AUT	14.02	4.38	1.13
EXH	12.75	3.99	1.03
ORD	14.69	4.87	1.26

Also, for the purpose of obtaining additional information the technique of profile analysis developed by Gingerelli and Butler (1) was utilized to compare the various subgroups. The first step was to demonstrate statistically by means of a chi square test that each of the six subgroups had a patterned profile of the fifteen needs that differed significantly from

a null profile, i.e., a profile for which deviations from a horizontal line could not be attributed to chance factors.

TABLE VIII

TESTS OF EDWARDS AVERAGE PROFILES FOR ALL SUBGROUPS

Subgroups	N	Chi Sqr.	df	P
OT-HMG	15	33.09	14	.01
OT-LMG	15	18.31	14	.20
PT-HMG	15	19.04	14	.20
PT-LMG	15	15.90	14	.50
CT-HMG	15	11.80	14	.70
CT-LMG	15	23.03	14	about .06

Table VIII shows the chi squares obtained for each group. The OT High Motivation Group had a chi square which was significant beyond the 1 per cent level. The CT Low Motivation Group had one which was at about the 6 per cent level; whereas, none of the others approached significance.

TABLE IX

SIGNIFICANCE TEST FOR THE EPPS MEAN PROFILE INDICES BETWEEN THE OT HIGH MOTIVATION GROUP AND THE CT LOW MOTIVATION GROUP

Sub-groups	M	S^2	df	t	P
OT-HMG	-222.49	12434.48	28	3.57	.01
CT-LMG	- 58.26	15740.21			

Even though the CT Low Motivation Group had a profile which did not quite reach the accepted 5 per cent level, it was compared to that of the OT group by *t* test. Table IX shows a resulting *t* of 3.57 from the comparison of the two mean profile indices which is significant beyond the 1 per cent level. The profile patterns of the two groups, OT-HMG and CT-LMG, are very different and unique.

In summary, the statistical analysis of the results supported none of the major hypotheses. Nor were there significant results from the analyses of variance of the additional ten subscale scores of the EPPS for the six subgroups, although some trends were noted. The comparisons between each subgroup and the standardization group norms for each need yielded some positive results. Only two groups were compared by profile analysis, but they differed significantly.

Discussion

It is possible that more positive results in terms of the hypotheses could have been attained if larger numbers of subjects had been available, but there is no basis, after studying the data, for considering that event a probability. A scanning of the data points out, quite clearly, that within groups variability was so great in many instances that distinctive differences between groups could not be anticipated.

It is not to be overlooked that the reliability of the ratings could have contributed to the findings. Although all of the ratings were directed, and the same procedures were used for each session, it is not impossible that some day-to-day variability within raters could have offered erroneous results in some cases. This contingency is not apt to have occurred influentially though, because increasing experience with the use of the scale probably minimized variability of this type.

Since the background theory upon which the major hypotheses were built resulted from clinical observation principally, it is quite possible that the instrument used here, the EPPS, is not sensitive enough to the subtleties of some of the behavior considered in this study. The kinds of behaviors observed may be of such a nature that the patients would not refer to them while giving any form of conscious description of themselves, whether by inventory or spontaneously during interviews. There, of course, is ample evidence that such socially unacceptable traits as dependence and abasement are not readily admitted by most men in our culture. This may hold true particularly for persons who are realistically forced into inferior social and interpersonal roles by disabilities of various kinds.

The above mentioned factors no doubt played an immense part in the action of the variables under discussion, but it

remains that there were some findings even though unanticipated, which might prove of practical significance.

The case of a near significant interaction for Achievement for the CT therapy could have been a result of importance from the standpoint of the major hypotheses. This result might have meant that the activities and treatment procedures for CT are of such a strenuous nature that the patients would have needed strong achievement motivation to succeed with them. It could have meant that patients with strong achievement motivation are more aware of the necessity of mastering walking, standing and of staying in good physical condition in order to attain various kinds of success at other endeavors.

Looking at the comparisons between the subgroup means and the respective norm group means it is found that there are some results of interest. That which is most striking is the fact that the PT and OT High Motivation Groups had significantly higher mean scores on the need Heterosexuality. It will be remembered that practically all of the therapists in these two sections were female. There was no evidence that the highly motivated patients were rated high because the therapists were aware that they had unusual need strength in this area. It is likely, of course, that because of this propensity, these men were more apt to behave in the ways which reflected high motivation as it was operationally

defined in this study. It can be seen from a review of Table I that marital status obviously did not influence this result; in both cases there are more married than single individuals, and the divorced and separated categories did not differ appreciably between the motivation groups. Another supporting factor for the importance of this finding is that there was a clear difference between the CT motivation group means on Heterosexuality, in favor of the Low Motivation Group. Too, the CT High Motivation Group mean is considerably less than the other subgroup means.

The fact that both the High Motivation Group and the Low Motivation Group for OT had significantly lower mean scores for Deference than the norm group defied clear explanation in relation to the objectives of this research. It is possible that these groups portrayed themselves as less deferent than the physically normal, adult, male standardization group and the other subgroups because they were composed of noticeably more severely disabled persons, "Extreme Quadriplegics" (see Table I). It could have been that those subjects preferred to deny their perceived inferior positions in dealing with others.

Too, the significantly higher mean score for Change for the OT High Motivation Group as compared to the norm group had no obvious explanation. The kinds of items of which this subscale is composed might relate to the kinds of

behaviors considered to represent high motivation for treatment. For instance, that one partial definition of Change (see Appendix B), ". . . to experience novelty and change in daily routine, . . . " could have had meaning in this respect in that OT provides activities which are very different from the majority of treatment procedures. They tend to be more of a hobby or recreational nature.

The fact that the CT Low Motivation Group had a significantly lower mean score on Dominance than the norm group probably was indirect reflection of the frames of reference of the exclusively male therapists who did the rating in these instances. They obviously considered the kind of aggressive behavior to which the need refers (see Appendix B, No. 9) to be a correlate of high motivation. If a patient lacks some noticeable degree of interpersonal aggression, he might not be a good candidate for success with CT.

The higher mean scores on Intraception for the OT Low Motivation Group and the CT High Motivation Group as compared to the norm group no doubt exemplified some specific interactional circumstances of differential significance. It may be that the OT group was composed of persons who preferred to deal with the subtleties of interpersonal interaction rather than work with things and detail, for whatever reason, escape from responsibilities, or a preference for more intellectual or active pursuits. It is difficult to make a

reasonable inference about what this result meant for CT. Possibly this need expression was related to an undergirding motivation for mastery, as might have been the case for Dominance.

The significant difference between the OT High Motivation Group and the norm group for Order was perplexing. There is no readily available explanation of value, unless a lower amount of this need reflected a kind of creative spontaneity which was expressed as high motivation for the activities provided by OT.

The OT High Motivation Group had a significant profile pattern, which if replicated, might provide a basis for predicting the success of given individuals with the activities of OT. Extreme within group variance prevented the attainment of characteristic patterns for the other groups. The CT profile could prove reliable on further testing, but it did not offer the apparent stability necessary for making predictions. The total rankings for the various subgroups can be found in Appendix C.

The results just previously discussed indicate some trends which lend support to a prediction that there might be interactional relationships between some needs and degrees of motivation for treatment in some specific therapies and different relationships for other therapies. Even though all of the various treatment sections contribute to the future

well-being of patients, and have the same ultimate goals, they probably influence patients in different ways. Certainly the treatment procedures are different. "Motivation for treatment" must have a number of different meanings, depending upon what treatment is specified and a complex of other factors. Of course, the present results did not offer anything approaching a clear substantiation of this conclusion.

The comparison between the CT Low Motivation Group and the norm group on Dominance and the near interaction between the CT High Motivation Group and the need Achievement suggest that the CT therapists used a frame of reference for viewing patients similar to that from which the hypotheses for this study were derived. Also, the tendency for the CT High Motivation Group, as compared to the norm group, to have a lower mean score on Heterosexuality than the OT and PT High Motivation Groups lends support to this possibility. They possibly valued aggression, mastery, persistence and independent action. It could be that the CT patients who were highly motivated for treatment, more than the other therapy groups, were not very dependent and submissive, but made efforts at ascendency and improvement, patterns similar to those reported in the literature. It is possible, because of the more strenuous and active nature of CT, that this therapy offers the best opportunity for a substantial estimate of motivation to attain maximum physical,

functional capacities when rehabilitating from an injury or disease of the types with which this research dealt. Too, these are the activities which must be surmounted in order to succeed optimally in the extra-hospital environments. Many persons who invest themselves in these treatment procedures will possibly make other personal investments of consequence. It is noteworthy that fewer individuals in the CT High Motivation Group had marital difficulties.

With groups such as those which were under consideration in this study there are situational and circumstantial factors, constant factors, operating which produce common variances across groups, no doubt precluding differences between them on a relatively molar instrument like the EPPS. Similar disabilities, much face-to-face contact, similar treatment and a controlled environment, as most hospitals represent, all contribute to homogeneity in attitudes. It will be remembered also that the motivation groups within therapies did not differ for age, education or months of disability at the time of rating. So there were undoubtedly a number of leveling factors which also contributed to the prevention of the attainment of the predicted differences.

Implications for Further Research

The theory, based upon clinical observation principally, which gave birth to this study seems not to lend itself directly to scrutiny by the kind of measuring device that was utilized. Most any instrument of this nature is subject to

conscious and unconscious distortion, particularly when attempts are made to tap motivations which are not acceptable in all quarters, and when there is an underlying homogeneity in needs which precludes distinct differences between groups which are similar on a number of variables. Probably clinical observations and interviews and the presumably more subtle projective devices are more suitable for this purpose, if relatively objective standards can be agreed upon. Such procedures, too, would no doubt prevent much of the inconvenience to subjects, which was found to be the case in a number of instances for this research, possibly insuring maximum cooperation.

In terms of the standards from which therapeutic personnel of different treatments make their judgments of motivation, it might be advisable to develop a study which teases out these differential sets while having the rated patients held constant across therapies. Obviously, before any definitive rehabilitation staff judgment can be made, it is necessary to agree that the same factors are being considered in very similar ways. This point might be of paramount importance when a given patient's extra-hospital, post-discharge plans are being made. Too, it might be advantageous to control for patient-therapist interaction.

Although therapist perceptions of patients based upon factors other than their objective motivation for treatment

were minimized by close observations of ratings, there is no reason to assume absolutely that this condition did not prevail to some extent. Again, for a tightly controlled study this element should be forcefully dealt with.

Because of circumstances, some "old patients," those who had been hospitalized in the same institution previously, were subjects for this study. This could have influenced the raters, and patient motivation. Future research of this type could be formulated possibly to prevent this occurrence, and deal with persons who had relatively "new" injuries or illnesses. It is evident that there are experiences which could alter circumstances for any particular person during an interim between periods of hospitalization. Too, it is likely that extended periods of hospitalization could alter patient outlook and consequent efforts at rehabilitation.

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CHAPTER IV

SUMMARY AND CONCLUSIONS

This study was designed to test hypotheses relating to hospital in-patient motivation for physical rehabilitation and some specific needs as measured by the Edwards Personal Preference Schedule. It was hypothesized that the needs Achievement, Endurance and Deference were related to high motivation for treatment, that the needs Succorance and Abasement were related to low motivation, and that there were no differences across therapies for three therapy sections, Occupational Therapy (OT), Physical Therapy (PT), and Corrective Therapy (CT) at the Veterans Administration Hospital, Long Beach, California. In an exploratory manner the main effects and interaction null hypotheses for the ten additional EPPS needs were tested. Each of the six subgroup sample means was compared to the standardization population means for all fifteen EPPS subscales by *t* tests. Also, Gingerelli and Butler's (1) profile analytic technique was utilized to locate characteristic subgroup profile patterns if they existed.

A Motivation Rating Scale was developed for the purpose of distinguishing between patients with varying degrees of motivation. It was composed of nine numerical steps, having

"9" at the high and "1" at the low end, with a qualitative statement and explanation for each point; the upper and lower quartiles were bracketed. The therapists involved submitted lists of behavioral evidences of motivation, parts of which were used for reference when ratings were made. All ratings were performed by open discussion and consensus, under direction.

A High Motivation Group and Low Motivation Group, for each therapy, composed of fifteen members each, was formed by doing a median-split for each distribution of patients who were administered the EPPS. In this manner six subgroups were created.

The results of analysis of variance gave no support to any of the major hypotheses; nor were the null hypotheses refuted for the additional ten scales of the EPPS. There was a near significant interaction between Achievement and high motivation for CT. The comparisons with the standardization groups yielded some significant results. There were significant differences between the OT high and low motivation group means and the norm group mean on Deference, with the subgroups means in the lower direction, a finding which possibly resulted from the more severely disabled persons in these groups having consciously denied their perceived inferior interpersonal roles. The OT High Motivation Group and the PT High Motivation Group had significantly higher means for Heterosexuality than the

norm group, a finding which probably revealed the importance of this need for rehabilitation when the therapists are female. The significantly higher mean score than the norm group mean for Change for the highly motivated in OT might have reflected satisfaction with the varied activities of that service. The significantly low Dominance score as compared to the norm group for the CT lowly motivated individuals could have represented personal inabilities to master the strenuous activities of that therapy. The significant difference between the OT Low Motivation Group, and the CT High Motivation Group, and the norm group for Intraception offered no clear explanation. The result of having low need Order, as compared to the norm group and high motivation for OT also had no obvious basis for understanding. The profile analysis yielded only one specific pattern, that for the OT High Motivation Group. The CT Low Motivation Group had a profile which approached significance; none of the other four proved of value. The OT and CT groups differed from each other to a significant degree.

There was some indirect evidence that the general predictions of this study were partially supported if the findings for the CT groups as compared to the norm groups are reliable. The results for Dominance, Achievement and Heterosexuality suggested that the patients with high motivation strove to surmount the obstacles necessary for success at treatment. Since the results were specific to CT it could

be that that service provides the best means of assessing the kind of motivation necessary for optimum rehabilitation.

Because of the specificity of the significant findings, it was concluded that motivation of the type which was considered in this research probably has several different meanings in a setting such as the one in which this study was done. Therapeutic personnel probably should make classifications cautiously.

There appeared to have been enough common variance among the six subgroups on the EPPS distributions to prevent the occurrence of noticeable differences between groups. In a hospital environment with persons having similar disabilities it might be advisable, when comparing groups of this type, to resort to stringent controls, avoiding the additional sources of variation which obviously affected this research.

Those doing further research might want to use measuring devices or interviews which tap the more subtle motivations. It could be advantageous to control therapists' sets toward patients beyond those sets concerning the behavior under observation. Also, it might prove wise to study persons who are newly disabled, avoiding changes which might occur as a result of intermittent periods of hospitalization or extended hospitalization. The study of therapist-patient interaction also might prove of value.

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APPENDIX A

MOTIVATION RATING SCALE

DIRECTIONS: In making the rating of each person, keep in mind the degree to which he is doing that which is expected in terms of his maximum improvement. Remember to compare him to the others who are taking treatment currently, and rate accordingly. Refer to the list of behaviors which are considered to be evidence of motivation for treatment.

KEY

UPPER 25%

9 If the patient is VERY HIGHLY MOTIVATED, place a "9" in the space beside his name. This rating means that he is more highly motivated than 95% of the patients whom you treat.

8 If the patient is WELL MOTIVATED, place an "8" in the space beside his name. This rating means that he is more highly motivated than 90% of the patients whom you treat.

7 If the patient is MODERATELY WELL MOTIVATED, place a "7" in the space beside his name. This rating means that he is more highly motivated than 75% of the patients whom you treat.

6 If the patient is SLIGHTLY ABOVE THE AVERAGE in motivation, place a "6" in the space beside his name. This rating means that he is more highly motivated than 60% of the patients whom you treat.

5 If the patient is AVERAGE in motivation, place a "5" in the space beside his name. This rating means that he is more highly motivated than 50% of the patients whom you treat.

4 If the patient is SLIGHTLY BELOW THE AVERAGE in motivation, place a "4" in the space beside his name. This rating means that he is less well motivated than 60% of the patients whom you treat.

LOWER 25%

__3__ If the patient is MODERATELY BELOW AVERAGE in motivation, place a "3" in the space beside his name. This rating means that he is less well motivated than 75% of the patients whom you treat.

__2__ If the patient is WELL BELOW THE AVERAGE in motivation, place a "2" in the space beside his name. This rating means that he is less well motivated than 75% of the patients whom you treat.

__1__ If the patient is EXTREMELY LOW in motivation, place a "1" in the space beside his name. This rating means that he is less well motivated than 95% of the patients whom you treat.

EVIDENCE OF MOTIVATION FOR TREATMENT

1. Has regular attendance.
2. Reports to treatments on time.
3. Shows willingness to follow new prescription ideas.
4. Asks questions, shows active interest in treatment.
5. Finds and devises new ways to do things.
6. Watches other patients, learns new techniques from them.
7. Makes known his desire to be self-sufficient.
8. Works within limits set by disability.
9. Assumes responsibility for what he is supposed to be doing.
10. Schedules other activities so that they will not interfere with treatment.
11. Gives evidence of pride in what he is doing.

Nine steps and the bracketing of the upper and lower "pseudo" quartiles were used to force the kind of spread in ratings necessary for obtaining extreme groups. The listing

of the names of all the subjects on the same "Rating Sheet" allowed for relative rating.

APPENDIX B

The Edwards Personal Preference Schedule is a paper-and-pencil personality inventory designed to measure fifteen "Manifest Needs." It has its theoretical underpinning in the basic work done by H. A. Murray and his co-workers.

The basic needs being measured are:

1. ach Achievement: To do one's best, to be successful, to accomplish tasks requiring skill and effort, to be a recognized authority, to accomplish something of great significance, to do a difficult job well, to solve difficult problems and puzzles, to be able to do things better than others, to write a great novel or play.

2. def Deference: To get suggestions from others, to find out what others think, to follow instructions and do what is expected, to praise others, to tell others that they have done a good job, to accept the leadership of others, to read about great men, to conform to custom and avoid the unconventional, to let others make decisions.

3. ord Order: To have written work neat and organized, to make plans before starting on a difficult task, to have things organized, to keep things neat and orderly, to make advance plans when taking a trip, to organize details of work, to keep letters and files according to some system, to have meals organized and a definite time for eating, to have things arranged so that they run smoothly without change.

4. exh Exhibition: To say witty and clever things, to tell amusing jokes and stories, to talk about personal adventures and experiences, to have others notice and comment upon one's appearance, to say things just to see what effect it will have on others, to talk about personal achievements, to be the center of attention, to use words that others do not know the meaning of, to ask questions others cannot answer.

5. aut Autonomy: To be able to come and go as desired, to say what one thinks about things, to be independent of others in making decisions, to feel free to do what one wants, to do things that are unconventional, to avoid situations where one is expected to conform, to do things without regard to what others may think, to criticize those in positions of authority, to avoid responsibilities and obligations.

6. aff Affiliation: To be loyal to friends, to participate in friendly groups, to do things for friends, to form new friendships, to make as many friends as possible, to share things with friends, rather than alone, to form attachments, to write letters to friends.

7. int Intraception: To analyze one's motives and feelings, to observe others, to understand how others feel about problems, to put one's self in another's place, to judge people by why they do things rather than by what they do, to analyze the behavior of others, to analyze the motives of others, to predict how others will act.

8. suc Succorance: To have others provide help when in trouble, to seek encouragement from others, to have others be kindly, to have others be sympathetic and understanding about personal problems, to receive a great deal of affection from others, to have others do favors cheerfully, to be helped by others when depressed, to have others feel sorry when one is sick, to have a fuss made over one when hurt.

9. dom Dominance: To argue for one's point of view, to be a leader in groups to which one belongs, to be regarded by others as a leader, to be elected or appointed chairman of committees, to make group decisions, to settle arguments and disputes between others, to persuade and influence others to do what one wants, to supervise and direct the actions of others, to tell others how to do their jobs.

10. aba Abasement: To feel guilty when one does something wrong, to accept blame when things do not go right, to feel that personal pain and misery suffered does more good than harm, to feel the need for punishment for wrong doing, to feel better when giving in and avoiding a fight than when having one's own way, to feel the need for confession of errors, to feel depressed by inability to handle situations, to feel timid in the presence of superiors, to feel inferior to others in most respects.

11. nur Nurturance: To help friends when they are in trouble, to assist others less fortunate, to treat others with kindness and sympathy, to forgive others, to do small favors for others, to be generous with others, to sympathize with others who are hurt or sick to show a great deal of affection toward others, to have others confide in one about personal problems.

12. chg Change: To do new and different things, to travel, to meet new people, to experience novelty and change in daily routine, to experiment and try new things, to eat in new and different places, to try new and different jobs, to move about the country and live in different places, to participate in new fads and fashions.

13. end Endurance: To keep at a job until it is finished, to complete any job undertaken, to work hard at a task, to keep at a puzzle or problem until it is solved, to work at a single job before taking on others, to stay up late working in order to get a job done, to put in long hours of work without distraction, to stick at a problem even though it may seem as if no progress is being made, to avoid being interrupted while at work.

14. het Heterosexuality: To go out with members of the opposite sex, to engage in social activities with the opposite sex, to be in love with someone of the opposite sex, to kiss those of the opposite sex, to be regarded as physically attractive by those of the opposite sex, to participate in discussions about sex, to listen to or to tell jokes involving sex, to become sexually excited.

15. agg Aggression: To attack contrary points of view, to tell others what one thinks about them, to criticize others publicly, to make fun of others, to tell others off when disagreeing with them, to get revenge for insults, to become angry, to blame others when things go wrong, to read newspaper accounts of violence.(5, p. 11).

The reviews in Buros (3, pp. 113-120), by Barron, Bjerstedt, Fisks, Shaffer and Gustad, make clear the assets and liabilities of the instrument. The facts that it is grounded in theory, that the social desirability factor has been fairly well controlled, that the internal consistency

coefficients are acceptable, that there is low intercorrelation between variables (needs), and that it has been under much technical scrutiny are all favorable with relation to its consideration as a method of personality assessment. There is a question concerning the validity and its use as a counseling or personnel selection instrument. It is suggested that it may prove very helpful in personality-oriented research.

Not many of the PPS scales have been investigated relative to validity. The Achievement subscale has probably been under more consideration than any of the others. Bendig (1, p. 354) compared the technique used by McClelland for measuring "need achievement" and the corresponding scale on the PPS, finding little relationship between the two measures, a correlation barely significant at the .10 level of confidence. Himelstein, Eshenback and Carp (8, pp. 451-452), in a study designed to verify Bendig's findings, found no significant relationships between McClelland's and Edwards' techniques. Melikian (referred to in Phares' article), in seeking to establish a high degree of relationship between the Edwards' and McClelland instruments, was unable to find a significant correlation between the two (9, pp. 341-344). He considers the achievement motive to be very complex. Also, he recognizes that the two methods approach it at different levels and in different ways.

The construct validity of the Autonomy and Deference scales were studied by Bernadin and Jessor (2, pp. 63-67). They were considered to be opposite points on the independency-dependency continuum. Subjects were selected on the basis of differentiation on these two scales and three experiments to force independency and dependency were run. The dependent subjects showed greater reliance on others for approval and help; there were differences between the groups with regard to group conformity. The authors conclude that these subscales have value for personality research. Zuckerman and Gross (referred to in Phares' article) found a negative relationship between scores on a test of suggestability and high Autonomy (9, pp. 341-344). The relationship between Succorance and Deference and suggestability, were not significantly positive as predicted. Givold (6, pp. 445-447) in an attempt to relate the Autonomy and Deference scales to a measure of conformity, using on Asch group situation, found, as predicted, a negative relationship in the case of Autonomy, but no relationship, significantly positive, in the case of Deference. Zuckerman, Levitt and Zubin (10, pp. 316-322), while doing a construct validation study of "dependency," found that direct measures, such as the EPPS, Gough Dominance Scale and the Narvan Dependency Questionnaire, were more related to the criterion, peer ratings among seventy-two nurses, than indirect measure like the Rohde Sentence Completion Test,

the TAT and the Rorschach. The PPS variables, Autonomy, Dominance, Abasement and Deference, were used. Graine (7, p. 300) studied the relationship between Rosenzweig's Group Conformity Rating (GCR) and the PPS Autonomy subscale with results that do not support the expected contrast between conformity and autonomy.

Dilworth (4, p. 486) and other clinicians evaluated ten-story TAT protocols of 20 college students with respect to the relative strengths of the fifteen needs reflected by the PPS also. He found no significant positive correlation between these relative strengths represented intra-individually in both measures.

Phares and Adams (9, pp. 341-344) obtained results in a study of the PPS Heterosexuality scale which gives support to the construct validation. They utilized 170 male college students, separating them into groups of high and lows on the scale. The highs made a greater quantity of hetero-sexual, esthetic judgments of pictures than did the lows. On a test of sex information the highs had a higher retention rate.

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TABLE X

DISTRIBUTIONS OF RATED AND TESTED SAMPLES
FOR ALL THREE THERAPIES

	OT		PT		CT	
Score	Rated	Tested	Rated	Tested	Rated	Tested
9	1	1	6	8	0	1
8	4	7	8	8	1	5
7	1	7	12	6	4	9
6	6	4	7	5	5	3
5	5	3	8	1	5	7
4	1	3	6	3	3	3
3	1	4	1	2	3	1
2	1	3	3	5	4	4
1	3	2	1	0	0	0

TABLE XI

EPPS RAW SCORE FOR ALL SIX SUBGROUPS

Subjects	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
							OT—HMG								
ACH	12	22	11	16	23	13	18	12	13	15	8	17	11	15	16
DEF	7	11	13	15	5	19	17	16	9	8	13	12	15	13	4
ORD	17	11	10	9	6	21	16	18	7	12	12	11	10	5	9
EXH	20	14	14	8	13	11	15	14	10	13	10	13	10	13	19
AUT	10	11	13	19	23	18	10	10	14	15	17	22	17	19	16
AFF	17	19	8	9	12	15	12	17	16	19	16	15	20	10	15
INT	16	19	14	19	12	15	20	15	19	23	16	15	19	11	6
SUC	8	5	10	17	6	6	6	13	14	4	18	6	6	7	5
DOM	10	13	15	6	13	18	20	12	8	17	0	12	19	26	17
ABA	23	17	13	14	3	10	11	11	17	9	25	14	12	7	15
NUR	12	13	17	17	15	12	15	14	19	19	16	12	10	22	16
CHG	22	19	14	14	22	20	13	15	20	17	14	18	17	18	13
END	7	15	21	24	19	18	21	20	19	5	12	18	22	9	22
HET	15	13	22	14	21	9	8	19	18	21	23	9	6	20	23
AGG	14	8	15	9	17	5	8	8	7	12	10	16	16	15	14
							OT—LMG								
ACH	13	18	10	16	10	10	17	16	22	20	20	11	14	16	20
DEF	15	17	9	10	8	8	17	10	9	15	12	14	12	13	10
ORD	20	18	10	7	15	6	15	16	13	21	7	15	10	15	8
EXH	6	13	16	8	5	12	13	12	7	14	19	13	17	18	18
AUT	15	13	14	19	15	10	9	13	13	14	9	18	14	12	10
AFF	12	9	11	9	17	14	20	21	20	17	12	17	15	13	10
INT	9	20	19	20	21	22	16	21	24	17	13	13	16	14	22
SUC	10	7	9	4	10	19	8	6	8	21	12	16	12	7	5

TABLE XI —Continued

Subjects	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
DOM	8	12	13	26	16	14	9	12	13	7	19	11	18	16	17
ABA	19	10	18	11	16	16	21	11	12	7	11	11	12	13	15
NUR	25	12	13	13	15	19	17	10	16	16	15	14	18	10	14
CHG	10	19	15	12	13	16	19	24	11	13	11	19	10	17	11
END	19	15	16	16	15	17	16	19	14	14	13	15	11	18	18
HET	13	10	14	21	15	15	6	10	16	6	22	9	20	21	20
AGG	16	17	23	18	19	12	7	9	12	7	15	14	11	7	12
							PT--HMG								
ACH	14	15	16	14	11	13	14	16	5	15	16	20	15	19	23
DEF	13	9	17	18	15	18	13	17	7	21	9	16	8	10	12
ORD	14	13	15	17	18	9	17	13	11	23	15	20	7	15	17
EXH	19	16	11	16	14	14	17	8	19	7	18	9	20	11	16
AUT	11	18	13	14	13	16	15	12	20	9	14	7	19	17	9
AFF	13	12	16	15	14	15	13	18	17	12	10	14	18	14	8
INT	15	11	12	13	15	17	9	14	11	16	17	8	15	7	17
SUC	7	2	17	4	11	9	11	9	6	10	3	16	8	13	3
DOM	9	11	16	14	14	6	18	11	19	21	10	12	22	11	17
ABA	14	15	12	17	19	15	6	16	8	12	13	18	3	18	15
NUR	17	11	14	19	7	11	20	20	19	13	15	21	15	17	10
CHG	20	18	12	14	25	20	14	19	20	13	16	8	15	10	16
END	14	22	11	15	14	17	18	19	4	26	11	8	8	16	26
HET	17	19	14	15	12	21	9	12	27	4	27	17	22	17	4
AGG	13	18	14	5	8	8	16	6	17	8	16	16	15	15	17

TABLE XI —Continued

Subjects	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
							PT—LMG								
ACH	20	22	8	13	15	21	11	13	23	18	20	22	20	22	12
DEF	14	12	11	20	17	16	21	13	8	10	11	9	12	14	15
ORD	8	16	7	8	9	23	16	12	11	17	17	12	10	13	16
EXH	18	16	17	14	12	9	13	15	16	12	13	18	12	21	8
AUT	13	14	19	12	15	18	8	15	21	14	6	12	17	16	12
AFF	10	10	17	17	11	16	12	15	11	20	19	21	10	17	15
INT	9	13	10	13	16	23	15	15	19	22	14	16	17	12	15
SUC	14	3	7	6	10	4	5	8	12	2	3	13	12	13	20
DOM	20	13	26	15	14	18	10	13	19	16	8	15	14	17	2
ABA	12	11	16	8	8	10	21	16	8	16	9	9	10	8	23
NUR	14	6	16	21	17	12	18	26	17	13	14	25	12	11	17
CHG	19	21	16	11	14	14	18	13	6	18	21	17	16	6	14
END	14	26	13	22	15	15	11	13	19	20	25	6	14	16	10
HET	13	13	3	14	17	2	19	11	6	4	19	11	19	17	16
AGG	12	14	24	16	19	9	12	12	14	8	19	4	15	7	15
							CT—HMG								
ACH	12	11	12	21	18	14	10	20	23	24	14	19	13	23	14
DEF	14	16	13	18	11	14	18	11	14	16	18	11	14	8	11
ORD	9	18	4	12	12	11	14	15	19	15	19	12	14	14	17
EXH	5	15	20	17	16	15	9	7	12	15	6	20	9	11	14
AUT	12	11	10	9	20	5	17	16	10	13	15	17	15	13	12
AFF	14	13	19	22	7	22	17	19	12	11	15	12	11	8	16
INT	17	24	15	23	12	19	16	18	18	13	16	13	17	15	21
SUC	11	6	15	5	14	12	10	7	5	7	4	7	12	17	8

TABLE XI —Continued

Subjects	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
DOM	10	21	5	17	22	15	11	19	10	17	10	15	14	20	9
ABA	25	15	28	8	8	15	9	11	8	1	18	19	16	13	20
NUR	19	16	21	12	19	20	16	14	16	9	20	13	16	10	15
CHG	15	14	13	6	16	13	19	17	20	18	20	7	13	11	13
END	15	25	9	14	15	13	13	14	27	19	22	17	16	16	18
HET	17	1	14	19	1	6	11	10	9	28	0	14	15	25	6
AGG	15	4	12	7	19	16	20	12	7	4	13	14	15	6	16
							CT—LMG								
ACH	14	14	17	12	13	9	12	17	11	9	9	16	14	15	16
DEF	17	13	9	11	18	9	11	15	11	19	18	12	18	18	16
ORD	19	15	1	17	16	13	21	10	16	20	11	19	9	15	17
EXH	14	21	20	10	12	14	10	11	4	12	9	16	16	12	11
AUT	14	20	18	10	10	14	5	11	14	17	13	21	14	12	12
AFF	11	12	13	18	22	19	18	15	18	7	15	11	11	14	16
INT	26	14	6	15	14	10	5	19	14	25	18	12	24	18	21
SUC	0	16	10	10	13	10	10	9	10	14	5	2	12	13	9
DOM	12	21	10	10	6	14	8	6	6	7	7	12	21	13	6
ABA	10	14	9	23	12	23	22	17	20	23	17	6	10	13	16
NUR	16	9	15	18	18	17	19	15	12	19	19	10	20	16	16
CHG	15	8	24	15	15	19	18	17	17	3	14	18	15	13	20
END	21	11	18	18	15	7	25	17	19	9	16	16	8	13	24
HET	10	12	23	13	16	16	15	21	24	12	19	21	9	11	3
AGG	11	10	17	10	10	16	9	10	14	15	20	17	9	14	7

TABLE XII

SUMS OF SQUARES FOR ALL EPPS NEEDS

Needs	Total	Between Groups	Within Groups	Therapies	Motivation Groups	Interaction
ACH	1609.66	128.16	1481.50	18.15	1.86	108.15
DEF	1259.82	81.30	1178.52	79.01	1.11	1.18
END	2325.60	30.28	2295.32	9.86	5.38	15.04
SUC	1916.99	30.07	1886.92	11.82	9.34	8.91
ABA	2546.10	83.56	2462.50	70.19	.55	12.82
AGG	1807.60	35.74	1771.86	10.06	19.60	6.08
HET	3814.10	249.18	3564.92	57.86	8.10	183.22
CHG	1627.60	81.48	1546.12	15.19	14.20	52.09
NUR	1338.32	9.94	1328.38	6.15	1.34	2.45
DOM	2499.96	166.91	2333.05	58.82	19.61	88.48
INT	7802.89	198.24	7604.65	129.42	21.51	47.34
AFF	1260.50	6.52	1253.98	1.26	1.34	3.92
AUT	1304.10	64.64	1239.46	17.26	4.90	42.48
EXH	1480.00	43.75	1436.25	42.46	.40	.89
ORD	1849.46	110.07	1739.39	59.35	.55	50.17

TABLE XIII

MEAN SQUARES FOR ALL EPPS NEEDS

Needs	Between Groups	Within Groups	Therapies	Motivation Groups	Interaction
ACH	25.63	17.63	9.08	1.86	54.08
DEF	16.26	14.03	39.51	1.11	.59
END	6.06	27.33	4.93	5.38	7.52
SUC	6.01	22.46	5.91	9.34	4.46
ABA	16.71	29.32	35.10	.55	6.41
AGG	7.15	21.09	5.03	19.60	3.04
HET	49.84	42.41	28.93	8.10	91.61
CHG	16.29	18.41	7.59	14.20	26.05
NUR	19.88	15.81	3.08	1.34	1.23
DOM	33.38	27.77	29.41	19.61	44.24
INT	39.65	90.53	64.71	21.51	23.66
AFF	1.30	14.93	.63	1.34	1.96
AUT	12.93	14.76	8.63	4.90	21.24
EXH	8.75	17.09	21.23	.40	.45
ORD	22.01	20.71	29.68	.55	25.09

TABLE XIV

TOTAL RANKS FOR THE FIFTEEN EPPS SUBSCALES
FOR ALL SIX MOTIVATION GROUPS

Needs	OT--HMG	OT--LMG	PT--HMG	PT--LMG	CT--HMG	CT--LMG
ACH	9	4	7	1	3	14
DEF	13	15	8	10	14	4
ORD	15	14	4	13	13	5
EXH	6	5	2	2	6	9
AUT	4	11	9	7	11	13
AFF	7	7	10	8	9	7
INT	3	1	13	3	1	2
SUC	14	12	14	14	15	10
DOM	8	8	12	9	8	15
ABA	11	9	11	15	7	6
NUR	10	10	6	6	2	8
CHG	2	3	3	5	4	3
END	5	13	15	12	12	12
HET	1	2	1	4	5	1
AGG	12	6	5	11	10	11

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