

AN EXAMINATION OF THE RELATIONSHIP BETWEEN HOSPITAL
WARD BEHAVIORS AND POST-DISCHARGE BEHAVIORS
IN SPINAL CORD INJURY PATIENTS

A Dissertation
Presented to
the Faculty of the Department of Psychology
University of Houston

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy

By
Melvyn Kalb
May, 1971

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ABSTRACT

This study was an exploration of the relationship between spinal cord patients' non-cooperative and depressive behaviors during their hospitalization and their post-hospitalization behaviors.

The data measuring non-cooperation and depression (the independent variables) were derived from the patient's hospital chart of his first admission to the hospital following his injury. From the reports of the Nurses, Occupational Therapists (O.T.) and Physical Therapists (P.T.), every statement in the hospital chart which indicated a refusal to carry out what was expected of the patient (both therapeutically and custodially), and every statement that reflected a quality of sadness, mourning or a downcast mood, was recorded.

The outpatient data for this study (the dependent variables), came from diaries kept by the patients. The patients recorded all of their activities for one week, the time they occurred and with whom they did them. The diaries were analyzed into eleven outcome variables.

Twenty-four, white, male, spinal cord injured patients who were totally wheelchair dependent served as subjects for this study.

The major findings of this study were:

A significant inverse relationship was found only between the degree of ward non-cooperation and the patient's

involvement in employment/school. All other associations between non-cooperation and the dependent variables were not significant. No significant associations were found between the degree of ward depression and the eleven outcome variables.

When however the patients' data were divided along social class lines the following results were found:

For the middle socioeconomic class (SEC) patient, ward non-cooperation correlated positively and significantly with the patient's range of behaviors (settings, activities and persons encountered). Moreover, all of the associations between the independent and dependent variables tended in a positive direction.

The degree of depression expressed by the middle SEC patient was unrelated to the eleven outcome variables.

For the low SEC patient, depression correlated significantly and negatively with all eleven outcome variables.

Ward non-cooperation for the low SEC patient did not significantly correlate with ten of the dependent variables but did correlate negatively and significantly with the patient's involvement in school/employment.

Social class by itself was not a good predictor of the patient's non-cooperative or depressive behaviors in the hospital, nor of the patient's post-hospitalization behaviors. However, when knowledge of the patient's social class was combined with knowledge of his behavior in the hospital,

predictions could be made to the patient's post-hospitalization behaviors.

No significant differences were found between the three time periods of hospitalization in the amount of non-cooperation expressed.

Similarly, depression was not found to be significantly different for the three time periods of hospitalization. However, patients were not consistent in expressing their depression over the three time periods.

No relationship was found, in either SEC group, between non-cooperative and depressive behaviors throughout hospitalization.

No statistical relationship was found between the level of spinal injury and the amount of non-cooperative and depressive behavior displayed during hospitalization, the range of behavior (settings, activities and people encountered) after discharge, or employment/school participation.

A significant relationship was found between the patient's level of education and employment after discharge. For the spinal cord patient, a college education is an important requirement for employment.

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CHAPTER I

INTRODUCTION AND REVIEW OF THE LITERATURE

In recent years, considerable interest has been paid to the hospital organization as a system maintaining a particular type of social structure (Bloom, 1963; Caudill, 1958; Freeman, Levine & Reeder, 1963; Goffman, 1958, 1961; Greenblatt, Levinson & Williams, 1957; King, 1962; Parsons, 1958; Wessen, 1964). All these reports have discussed the "sick role" that the individual plays as a patient in this hospital organization.

While this sick role varies somewhat as a function of the particular type of hospital setting, certain uniform duties have been ascribed to the position of patient. Chief among these is the obligation of the patient "to cooperate with the doctor in the process of trying to get well (Parsons, 1958)." The patient, as Wilson (1963) noted:

must offer a special and abnormal allegiance to the practitioner; he must relinquish a degree of autonomy.... As potent wielder of social control, the physician's directive role may be epitomized in the popular deferential phrase "you're the doctor" (p. 279).

This allegiance to the doctor has its roots in the helplessness of the patient to understand and/or remedy the situation himself. As such, the patient assumes a passive and dependent role by virtue of the physician's superior knowledge and expertise in the treatment of the illness. The patient, by assuming this position, agrees that he will carry

out everything that is requested of him by the physician in the attempt to get well. Compliance to the medical authorities becomes established in the informal contract between the patient and the physician. If the patient refuses to agree to this type of relationship by not cooperating with the demands of the physician, the contract is usually terminated.

Rosen (1963) and Wessen (1965) have traced this posture of dutiful compliance to the medical authorities to its historical basis. They have noted that almost until the end of the 19th century, hospitals served very few private patients, existing mainly for the poor. The latter were expected to receive their care with deferent gratitude. Wessen noted that "role expectations for the patient became linked with expectations associated with philanthropy and appropriate behaviors of the poor toward their betters (p. 170)." In this sense, the dependent role of the patient served two masters, the physician who was treating him as well as his "benefactors who judged him with respect to his worthiness (p. 170)."

While the sick role has demanded that the patient behave in this cooperative and passive manner in his relationship to the medical authorities, he must at the same time adhere to the rules, regulations and demands of the hospital organization. The patient is told upon admission to the hospital that he must cooperate with all the demands and requests made by the hospital staff. The hospital system establishes this

obligatory compliance to its rules through a series of formal and informal devices, taking such forms as removing the individual's person identity by having him wear hospital clothes similar to the other patients and controlling the patient's behavior through a series of highly regimented "therapeutic" programs. Goffman (1961) and Caudill (1958) discussed these "stripping operations" into patienthood for patients in a mental hospital, although similar indoctrination procedures are operative in general and rehabilitation hospitals as well (King, 1962; Roth & Eddy, 1967; Wilson, 1963).

The consequences for the failure to submit and cooperate to the hospital rules depends on the nature of the institution. In a mental hospital, such resistance is often taken as the sign of the need for additional treatment necessitating further hospitalization. Goffman (1961), for example, stated that:

In a psychiatric hospital--failure to be an easily manageable patient--failure, for example, to work or to be polite to staff--tends to be taken as evidence that one is not "ready" for liberty and that one has a need to submit to further treatment (p. 385).

The patient in a general hospital, however, who does not conform to hospital rules and expectations is seen as a "troublemaker" and if the patient's behavior persists in this direction, he is frequently banished from the hospital. In this case, the helplessness of the patient in remedying his own illness necessitates that he return again to a hospital. In both cases, therefore, the patient is victimized by his

own helplessness and his only recourse is to act in accordance with "good patient behavior" as defined by the hospital.

Good Patient Behavior--Good For Whom?

While good patient behavior is sought by both the physician and the hospital staff, the question arises as to whether such behavior is also good for the patient. Might it be in disorders where psychological needs affect the outcome of treatment, that hospital-staff demands of compliance are in opposition (or even detrimental) to the psychological needs of the patient? Meyerson (1957), for example, noted in discussing the physically disabled that:

In the process of promoting physical recovery, the physician may pay little attention to psychological conditions. There may be the erroneous belief that as physical recovery occurs, psychological recovery will inevitably occur also.... Perhaps in these cases [the physically disabled] it is not obtaining limited physical improvement which is important now, but rather it is psychological adjustment.... To the degree that they [the hospital staff] prevent the patient from making an [psychological] adjustment to permanent disability by accenting physical recovery, they may be considered harmful (p. 132).

The crux of the issue becomes, therefore, one of how well does "good patient behavior" in the hospital predict the nature of post-hospital adjustment. If "good patient behavior" is required for the patient to do well in his post-hospital adjustment, then the degree to which such behaviors are present play a crucial role in determining how successful the patient will be in his adjustment after discharge from the hospital. On the other hand, if such behaviors are not

essential or are unrelated to the patient's post-hospital adjustment, then their presence or absence should not affect behaviors in the patient's post-hospitalization period.

In a rehabilitation hospital, the variables of patient depression and non-cooperation provide an excellent focal point in this issue. For both variables, the patient's psychological needs, as defined in the literature, are in direct opposition to the needs of the staff-hospital administration. The best interests of the hospital staff are not served by the patients being non-cooperative and depressed, while the best interests of the patients are not met (according to the literature), by being compliant and avoiding the expression of depression.

Depression

A. The Patient's "Need to be Depressed." Depression is seen in the psychological literature as a necessary occurrence in the physically disabled patient if he is to successfully adjust to his post-discharge status. This statement usually appears in an almost axiomatic manner with the literature containing many articles--usually anecdotal and theoretical in nature--to support this position.

Nemiah (1957) and Litin (1957) report that depression in the physically disabled patient must be gone through before adjustment can be considered complete. They point to the necessity for a "working through" of painful affect and warn of the dangers of the mechanism of denial which "poses

serious blocks in the course of the patient's treatment and rehabilitation (Nemiah, 1964)."

Lindemann (1944) has similarly pointed to the effects of unexpressed grief in burn patients. He has maintained that the individual must go through the process of "grief work" as it provides for the individual a method of emancipation from the loss. As a result of this process he hypothesized that new alternative methods of living become instituted. Caron (1959) reports a similar finding in his work with cardiac patients in that patients who denied their illness, who refused to believe that they were ill, were predisposed to excessive disability and other maladaptive reactions to the illness. Patients, on the other hand, who expressed their depression were found to be able to mobilize their energies for learning new patterns of behavior which, in turn, enabled them to live successfully with their disability.

Shands (1955) has described the characteristic phases that patients suffering from cancer undergo in response to their illness. He asserts that the crucial phase in this development is the grieving reaction as it is essential for replacing the initial alien outlook with a more constructive one. In addition, Shands, in a similar fashion to his colleagues, warns of the dangers of denial of depression, stating that:

Where the grieving is blocked for any reason, the patient has to adopt some precarious defensive sort of adaptation rather than attempting to make a new construction with the materials at hand (p. 405).

Janis and Leventhal (1965) follow suit, maintaining after a review of the literature on the work of mourning that:

Poor adjustment during convalescence and subsequent emotional disturbance are more likely to ensue if the period of grief is postponed or evaded by means of continuous denial attempts (p. 1364).

Masterman (1961) also noted that physically disabled patients who were described as highly depressed by the hospital staff before the rehabilitation program began were associated with improved rehabilitation status upon discharge from the hospital. Neff and Weiss (1965), in discussing the psychological aspects of disability, note that "experience has shown the absence of mourning to be negatively related to recovery (p. 805)."

Finally, McDaniel and Sexton (1970) in a recent journal article, echoed similar phrases:

Indeed it has been commonly accepted in rehabilitation that depression or mourning is equated with the realization of loss and facilitates treatment while denial is the antithesis and interferes with rehabilitation (p. 118).

B. Depression and the Hospital Needs. At odds with the apparent therapeutic necessity for the expression of depression and the dangers involved in its denial are the needs of the hospital administration and staff. Hospital personnel have found patients' depressive behaviors to be especially trying on the hospital staff. King (1962) noted, for example:

The cheerful patient is considered a good patient; hospital personnel do not like depressed patients, those who cry, who bemoan their fate, who

see no future for themselves. Rather than accept these feelings the hospital staff usually try to get the patient to "look on the bright side of things" put his mind on more cheerful subjects and forget his problems (p. 369).

The patient who remains depressed poses special problems for the therapists on the ward. They see the depressed state as opposing their goal of "rehabilitating" the patient (Meyerson, 1957). They want the patient to try hard at all of the exercises prescribed for him and to pay full attention to instructions. The depressed, withdrawn patient becomes, therefore, a source of frustration demonstrating little desire to carry out the requests of the therapists. The depressed patient, rather than focusing on the therapy is more preoccupied with his disability (Dembo, Levitan, & Wright, 1956).

Roth and Eddy (1967) gave numerous examples of such situations in their analysis of a physical medicine and rehabilitation unit. They noted that patients who did not appear motivated were found to be "undesirable" as patients by the treatment staff. These patients were shifted back and forth from therapist to therapist, were ignored and frequently were dropped from the program. Rothschild (1970) similarly noted that:

The staff does not particularly seem to strive to alter the level of motivation in poorly motivated rehabilitants, but instead prefers to work with and obtain results with those already motivated (p. 225).

Furthermore, the patient who is depressed and does not want to help himself get well (a prime requirement in the

sick role [Parsons, 1958]) is a burden to the nursing staff. Nurses have to spend more time dressing, feeding and attending to the patient's personal needs, many of which could be carried out by the patient himself were he not so depressed. Roth and Eddy (1967) noted that patients who refuse to help themselves when they are physically able to are "not likely to last long on a rehabilitation unit (p. 59)."

Depression, therefore, from the point of view of the hospital personnel is clearly seen as interfering with the process of rehabilitation. The patient who is cheerful is set up as the model patient for the other patients to emulate. Efforts to adhere to this model are reinforced by the staff while depressive behaviors, through the various methods discussed, tend to be extinguished.

Non-Cooperation

A. Non-Cooperation and the Hospital Staff. Not only does the hospital staff try to extinguish depressive behaviors, but it also acts at the same time to reinforce behaviors of compliance and conformity to the hospital rules. The compliant patient is likely to be perceived as the "good" patient by the hospital staff whereas the patient who tries to exert his authority is perceived negatively (King, 1962). Wessen (1965) noted that the "good" patient is seen as one who does not complain and is cooperative.

Most importantly, the patient who is hospitalized is told that he must cooperate with the hospital staff if he is

to become "successfully rehabilitated." The patient's successful rehabilitation is, therefore, presented as being contingent on his cooperation and conformity with what is requested of him by the staff. He is told that if he does not cooperate he will not do well on discharge from the hospital. Cohn (1961) commented on this relationship, stating:

Disabled people who are bitter, critical and unmotivated fail to gain maximum benefit from rehabilitation services (p. 16).

This dictum is usually augmented with coercive statements (usually subtly expressed) by the staff in which the patient is told that if he does not cooperate, he will be asked to leave the hospital (Mechanic, 1968; Roth & Eddy, 1967). The notion of "shape up or ship out" is made clear to the patient. Prior to taking this step, however, the hospital staff usually will have assigned certain paramedical staff, e.g., social workers, psychologists, whose job becomes one of helping the patient "adjust" to his life in the hospital.

These attempts at getting the patient to adjust center around the notion that the way the patient is behaving is wrong since it is harmful to himself (Rabinowitz, 1961). This method of indoctrination has been recorded about the mental hospital in the writings of Belknap (1956), Caudill (1958), Goffman (1961), and has even been the topic for a best selling novel (Kesey, 1962). When such attempts at behavior control fail, the patient is either discharged from

the ward and labeled as "unmotivated" and a "troublemaker" or, where this is not possible, the patient's behavior in state mental hospitals becomes subject to abusive attacks from the attendant (Belknap, 1956).

B. Non-Cooperation in the Hospital and the Patient's Psychological Needs. Recent psychological literature and theory report the notion that non-cooperative, oppositional behavior in the hospital may be a necessary stage for the patient to undergo such that its absence is related negatively to recovery. Thus, rather than refusals to comply to hospital demands being viewed as a source of annoyance and irritation and as behavior that should be extinguished, non-cooperation toward the hospital staff is seen as a positive stage toward health.

Silverman (1970), working with emotionally disturbed patients, found that schizophrenics who were prevented from undergoing disruptive and disorganized behavior in the hospital through the use of tranquilizers, did poorer on post-hospital adjustment than those patients who were free to express their bizarre behavior. Silverman concluded that regressed and disorganized behavior may be an essential part of the schizophrenic problem-solving process. He noted that:

Such reactions appear to be a natural reaction to stress, a spontaneous process into which persons may enter when their usual problem solving techniques fail to solve such basic life crises as occupational or sexual inadequacy. If this natural process is interrupted by well-intended psychotherapy or by antipsychotic medication the effect may be to detour the patient away from the acute schizophrenic episode, away from a process as natural and benign as fever (pp. 63-64).

A similar viewpoint was expounded in a recent work by Laing (1967). Laing viewed the disruptive, bizarre, acting out behavior of the schizophrenic as a necessary stage which leads to reorganization and personality growth. The disorganization becomes an essential preliminary step which leads, not to a breakdown, but to a breakthrough in psychic functioning. The schizophrenic world is converted in Laing's writings from its traditional negative connotation into a positive therapeutic disorder. Laing (1967) stated, for example, that:

Schizophrenia is itself a natural way of healing our own appalling state of alienation called normality (p. 116). ...Madness need not be all breakdown, it may also be breakthrough. It is potentially liberation and renewal as well as enslavement and existential death (p. 93).... It is not an illness to be treated, but a "voyage." Socially, madness may be a form in which often through quite ordinary people, the light begins to break through the cracks in our all too closed minds (p. 90).

While Laing and Silverman have written of the need for acting-out behavior in the schizophrenic patient, Busse (1963), in his discussion of spinal cord patients noted that passive behavior in the spinal cord patient during his hospitalization is not a good sign. He stated, "To be ready to fight during a crisis is a healthy attitude. The nurse who recommends an attitude of total acceptance is recommending apathy (p. 11)."

Similarly, Dembo, Levitan, and Wright (1956) found that during the early post-traumatic period in a disability, primitiveness of conduct and emotional lability in the hospital

could in fact be an important adaptive stage during which the disabled person prepares himself for organized, affirmative action. Goldsmith (1956) lent empirical support for this contention in his study of the progress of hospitalized paraplegics undergoing physical rehabilitation. He found that those patients who expressed strong aggressive feelings (as measured by the Rorschach, Sentence Completion Test and a diagnostic interview) were rated as having made more progress in their rehabilitation program in the hospital than patients who "internalized their aggression."

Echols (1962) also reported a similar finding in his evaluation of the medical, social and rehabilitation factors of 5,836 persons discharged from the state tuberculosis hospitals in Florida. Echols found that the patients who appeared to benefit most from the rehabilitation services were those who were discharged against medical advice.

It remains, therefore, a viable hypothesis according to the literature, that non-cooperation in the hospital by the physically disabled patient may be a stage which would aid successful post-hospital adjustment. Such a theory would dictate that those patients who were more non-cooperative would be doing "better" on the outside than the patients who conformed passively to the demands and expectations of the hospital staff. Rabinowitz (1961), in discussing the motivation of the disabled patient, suggests just such a hypothesis, noting:

It may be highly profitable to study the

social conditions under which it could be helpful to permit or even direct and facilitate the manifestation of regressive conduct as an aid to recovery (p. 805).

Custodial-Therapeutic Split

It is apparent, therefore, that with respect to depression and non-cooperation, the psychological needs of the patient are not in keeping with the needs of the hospital staff. Not only are they not harmonious, but what is best for the hospital staff is at the expense and, even perhaps, detriment of the patient.

This conflict between therapeutic care and custodial needs has appeared in the literature mostly in connection with mental hospitals. Belknap (1956), Caudill (1958), and Goffman (1961) spoke of this as the "staff-inmate split," Strauss (1964) as the conflict of "treatment versus institutionalization," Rapoport (1959) as the "value clash" in hospitals.

Belknap (1956) described the coercive authority that exists amongst the staff in the mental hospitals. These pressures by the staff are, according to Belknap, designed to accomplish the daily housekeeping, cleaning and physical care of the patient on the ward as well as to help organize patient behavior in routines which hold the ward to a secure level of orderly conduct. The total emphasis on custodial rather than therapeutic goals are for Belknap the trademarks of the mental hospital.

Strauss (1964), in a detailed exposition of the relationship between treatment and custodial care in the mental hospital, sounded a pessimistic note. He stated:

Ideally, according to all the therapeutic ideologies espoused by the professionals, therapy and management should be combined. Good management should be therapeutic and therapeutic considerations should guide management. Indeed, if each professional could have complete control over the locale in which he worked, therapy and management could doubtlessly be fused. But this fusion can never happen. Because of inescapable institutional limitations and the invariably differing perspectives of others on the scene, the reconciliation of therapeutic designs with institutional conditions is a perpetually recurring problem (p. 363).

These social investigators have further indicated that the resolution of this conflict in the mental hospital is achieved by a sort of masquerade in that what gets presented to the mental patient as "therapeutic" is in actuality merely custodial in nature. Custodial concerns of the administration are falsely disguised as "therapeutic goals." Goffman's (1961) work deals with this exaggerated deception in the mental hospital, where he noted, that what gets defined and passed off as good for the patient serves only the conveniences and biases of psychiatrists and the hospital organization.

The question becomes whether this "custodial-therapeutic split," as discussed in the mental hospital is applicable to patients who have incurred a physical disability and are hospitalized in a physical medicine unit. While Roth and Eddy (1967) report that this same conflict is operative from

their observations of a rehabilitation ward, empirical verification remains lacking.

By examining the relationship between non-cooperation and depression in the hospital on the one hand and post-discharge behaviors on the other, some light may be shed on the custodial-therapeutic split as it relates to the rehabilitation hospital.

Specifically, this study is designed to answer the following questions:

1. What is the relationship between the degree of non-cooperative behavior on the hospital ward and post-discharge behavior, e.g., student or employment status; number of settings, activities and people encountered?
2. What is the relationship between the degree of depression as an inpatient and post-discharge behavior?
3. What is the relationship between depressive behavior and non-cooperative behavior on the hospital ward?
4. What is the relationship between the degree of severity of the spinal cord injury and (a) the amount of depression expressed; (b) the degree of non-cooperative behavior displayed on the ward; and (c) post-discharge behavior?
5. Is there patient consistency in the degree of non-cooperative behaviors between disciplines, e.g., is the patient who is non-cooperative in O.T. also non-cooperative in P.T.?

6. What is the relationship between the different types of non-cooperative behaviors?

7. Is there consistency in the amount of patient depression (and non-cooperation) across the different time periods of hospitalization, e.g., is the patient who is non-cooperative during the first third of his hospitalization also non-cooperative during the second third of his hospitalization?

CHAPTER II

METHODS

This study set out to examine the relationship between spinal cord patients' non-cooperative and depressive behaviors during their hospitalization and post-hospitalization behaviors. In the service of this goal, methods were sought to measure the patients' behaviors both in the hospital and outside the hospital that were objective, reliable and free from the distortions of memory and social desirability factors.

In the former case, it was decided that such a measurement of the patients' non-cooperative and depressive behaviors during their hospital stay would best be met by utilizing the patient's hospital chart. This choice was dictated by the fact that the various therapeutic services such as Nursing, Physical Therapy, and Occupational Therapy, record in the hospital records the behaviors of the patient (both in their interaction and observation of them) in extensive detail. It became, therefore, possible to utilize these copious behavioral notes to extract behaviors which indicated non-cooperation and depression.

Thus, for the purposes of this study, non-cooperation was defined as behaviors listed in the hospital chart which indicated the patient's refusal to comply with the requests of the hospital staff, while depression was defined as behaviors recorded in the hospital chart which reflected a quality

of sadness, mourning, or a downcast mood in the patient.

An objective method of measuring the patients' post-hospitalization behaviors was found in the use of diaries. It was felt that if the patient would record all of his activities for one week, the time they occurred and with whom he did them, the material provided would be an excellent source of behavioral data.

The choice of the diary as a method of data collection was prompted by its non-threatening and innocuous nature such that social desirability factors and resistance to participation would be minimized. Moreover, this method would elicit data that would tend not to be plagued by errors in recall. In addition, the data provided by the diaries would be in the form of objective behavioral statements that would allow for ease of measurement.

It was also decided that this source of data could most profitably be analyzed if the following behaviors were measured: (a) the extent and variety of the patient's range of behaviors (e.g., settings and activities); (b) the degree of interpersonal contact both within and without the family; (c) the degree of involvement in employment or in school; and (d) time spent in the wheelchair. These variables were chosen as they were not only of interest to those involved with the rehabilitation process but provided a comprehensive analysis of how the patient spends his day.

Subjects

The subjects for this study were white, male, spinal-cord injured patients who had been hospitalized at the Texas Research Institute for Rehabilitation and Research (TIRR). In addition, all of the subjects met the following criteria: (a) they had incurred a traumatic spinal cord injury lesion rendering them wheelchair-dependent; (b) their admission to TIRR was not longer than three months after the onset of the injury; (c) they were between the ages of 16 and 45 on admission to TIRR; (d) they were living in Harris County, Texas; (e) they had been discharged from their first hospitalization at TIRR for at least six months prior to inclusion in this study; and (f) they had been hospitalized at TIRR between the years 1964-1970.

Twenty-four subjects met the above criteria and were contacted and all participated in this study.

Table 1 describes the subjects in terms of their ages at admission, number of days of hospitalization, number of months since discharge, their vocational and educational status at the time of the injury, their socioeconomic class (SEC), and their level of injury.

Procedures

Outpatient Data

All of the patients were first contacted by mail (Appendix A) and then followed up by telephone. The patient

TABLE 1
SUBJECTS

N: 24

Age at Admission
to TIRR

16-18: 12

19-21: 4

22-24: 2

25-27: 1

28-30: 3

31-34: 0

35-39: 0

40-43: 2

Number of Days of
Hospitalization

1-75: 5

76-100: 5

101-125: 2

126-150: 4

151-175: 4

176-200: 2

201-225: 2

Number of Months Since
Discharge

7-10: 1

11-20: 2

21-30: 2

31-40: 3

41-50: 4

51-60: 7

61-70: 4

71-80: 1

Status at Injury

Employed: 9

School: 15

Social Class

Middle: 10

Low: 14

Level of Injury

Quadriplegics = 15

Paraplegics = 9

was told both in the letter and on the telephone that TIRR was interested in learning what it could in order to improve the rehabilitation process and that little was presently known about what happens to the patient after he leaves TIRR. The patient's assistance was requested to help TIRR in acquiring this information. Each patient was then visited in his home by the investigator and given a booklet (Appendix B) which contained a manual of instructions and seven diary sheets.

Daily Activities Record (Diary Sheets). The patient was instructed to keep a record of his daily activities for the period of one week from the time he got up until he went to bed each day. The instructions given to the patient for this task were the following: "Each evening, as near to bedtime as possible, you are to list all your activities and with whom you did them from the time you get up until you go to bed. In addition, you are to list the times that these activities occurred. Also, please record the number of hours per day you spent in your wheelchair. This record must be kept for seven complete days using one record sheet for each day."

A sample diary sheet was enclosed in the instruction booklet and the instructions were repeated to insure that the patient understood the task.

In addition to the issuance of the diary sheets, a brief interview was conducted in the patient's home to determine

the nature of his employment and/or student status since his first discharge from TIRR (Appendix C). A complete vocational or student history was taken from each patient to determine his present status and the number of months the patient had been working or going to school since his first discharge from TIRR.

The patient was assured that all information provided would be kept strictly confidential and that he would be referred to by a code number to assure anonymity. Moreover, the patient was assured that the information would in no way affect his treatment at TIRR. Finally, the patient was instructed to mail his seven daily activities record sheets back to the investigator in a self-addressed envelope provided.

Inpatient Data

The inpatient data for this study (the independent variables) were the non-cooperative and depressive statements recorded in the hospital chart of each patient's first admission at TIRR. From the reports in the hospital chart of the Nurses, Occupational Therapist (O.T.) and Physical Therapist (P.T.) the following types of statements were extracted:

A. Non-Cooperative Statements. Statements in the hospital chart from the Nurses, O.T. and P.T. notes referring to the patient's behavior on the ward and in the therapy areas which indicated a refusal to carry out what was expected of him as a patient (both therapeutically and custodially) were

recorded; e.g., "patient refused to go to P.T.," "patient refused to be turned," "patient refused to wash." Every refusal was coded as to the day the refusal occurred (in the Nursing Notes) or the week (in the O.T. and P.T. reports) and the service reporting the refusal.

In addition, every non-cooperative statement from the Nursing Notes was further subdivided into three categories.

1. Refusals to carry out the treatment program, e.g., refusals to go to P.T. or O.T.

2. Refusals to comply with daily hospital ward routine in carrying out activities of daily living, e.g., refusals to eat, bathe.

3. Refusals to take prescribed medication and/or carry out bedside nursing care, e.g., refusals to be turned, accept I.P.P.B. treatment.

B. Depressive Statements. Every statement made in the Nursing Notes regarding the patient's depressive affect was recorded. Depressive statements were defined as behaviors which reflected a quality of sadness, mourning, or a downcast mood, e.g., "patient placed towel on his head and was crying," "patient cried throughout the night." Only Nursing Notes were used in the recording of the patient's depression during his hospitalization since 77.9% of the patient's time occurs on the ward compared to 6.9% in O.T. and 7% in P.T. (Willems & Vineberg, 1969). In addition, both O.T. and P.T. services provided only weekly notes on the patient's behavior, while

Nursing provided highly detailed and extensive daily accounts of the patient's behaviors on the ward.

Analysis of the Data

A. Inpatient Data (Independent Variables)

1. Non-Cooperation. The following non-cooperative ratios were derived to measure the degree of non-cooperative behavior during the patient's hospitalization:

a. Nursing:

$$\frac{\text{Total number of non-cooperative statements in the Nursing Notes}}{\text{Number of days of hospitalization}}$$

b. O.T.:

$$\frac{\text{Total number of non-cooperative statements in the O.T. Notes}}{\text{Number of weekly O.T. evaluations in the hospital chart}}$$

c. P.T.:

$$\frac{\text{Total number of non-cooperative statements in the P.T. Notes}}{\text{Number of weekly P.T. evaluations in the hospital chart}}$$

2. Depression Ratio Score. Each depressive statement recorded in the Nursing Notes was rated on a scale from 1 to 5 to determine the degree of depression. Items given the value of 1 were statements showing a very slight degree of depression while items ranked as 5 were statements reflecting a very marked degree of depressive affect. The total depression score for each patient was then computed by the following ratio:

$$\frac{\text{The sum of the ratings}}{\text{Number of days of hospitalization}}$$

B. Outpatient Data (Dependent Variables). The outpatient data for this study were composed of 11 dependent variables, 10 of which were derived from the patients' diaries.

1. Student/Employment Ratio - computed from information obtained from the patient on interview. This ratio, designed to measure the degree of patient involvement in school or in employment since discharge from TIRR, was computed in the following manner:

$$\frac{\text{Total number of months employed or going to school since discharge}}{\text{Number of months since discharge}}$$

The remaining 10 variables were all computed from the information in the patients' diaries:

2. Mean number of hours per day spent outside the home. This variable was computed by summing and then dividing by seven all of the hours the patient recorded in his diary as having spent outside his home for the entire week. For example, two hours were recorded for the notation: "9-11, studied in the U. H. library."

3. Mean number of hours per day spent with people other than family or attendant. This variable was computed by summing and then dividing by seven all of the time the patient recorded in his diary as having spent with people who were not family members nor attendants. For example, four hours were recorded for the notation: "8-12, at a party with six friends."

4. Mean number of hours per day spent in the wheelchair.

This variable was computed by summing and then dividing by seven all of the time the patient recorded in his diary as having spent in his wheelchair. For example, four hours were recorded for the notation: "8-12, was in wheelchair studying."

5. Number of discrete settings entered per week. This variable was computed by summing the number of discrete settings the patient recorded in his diary as having entered for the week. Thus, for example, if a patient recorded that he went to his home, then to the A&P, and then home again, two discrete settings--home and A&P were recorded.

6. Number of times settings were entered per week. This variable was computed by summing the total number of times the patient entered settings. Thus, for example, if a patient recorded in his diary that he went to his home and then to the A&P, and then back home again, the number of times settings were entered by the patient was recorded as three.

7. Number of genotypes entered during the week. Genotypes are defined by Barker (1968) as "methods of identifying categories of equivalent behavior settings (p. 33)" and are determined by the degree to which different settings are interchangeable with one another. Thus, A&P, Weingartens and Food Giant (local supermarkets) would be recorded as one genotype "supermarket."

8. Number of discrete activities engaged in during the

week. This variable was computed by summing the number of different activities the patient engaged in during the week. Thus, if a patient recorded in his diary that he studied, then watched TV and then studied again, two discrete activities would be recorded--studying and watching TV.

9. Number of times activities were performed. This variable was computed by summing the number of times the patient performed activities. Using the example provided in variable 8 the number of times the patient performed activities would be recorded as three.

10. Number of different people interacted with during the week. This variable was computed by summing the number of different people the patient interacted with as recorded in his diary. If, for example, the patient noted that he had breakfast with his friend Tom in the morning and then Tom returned for lunch, only one person, Tom, would be recorded.

11. Number of times people were interacted with. This variable was computed by summing the number of times interaction with people occurred. In the example provided in variable 10, people were interacted with twice.

C. Reliabilities

1. Number and Types of Statements. A judge was asked to "pick out from the patient's chart all of the statements which indicated non-cooperative (depressive) behaviors." The judge did not know the name of the patient. Three records were randomly picked.

The following formula was utilized to measure the proportion of agreement between the investigator and the judge:

$$\frac{\text{Number of items both agreed upon}}{\frac{\text{Number of items selected by investigator} + \text{number of items selected by judge}}{2}}$$

Table 2 reports the proportion of agreement for the number of depressive and non-cooperative statements in the hospital chart.

In addition, this judge was requested to "sort the non-cooperative nursing notes into three types: type I - refusals to attend therapy, e.g., refusal to attend O.T.; type II - refusals to comply with hospital ward routine in carrying out activities of daily living, e.g., refusal to eat; type III - refusals to take medication and/or carry out bedside nursing care, e.g., refusal to be turned."

The following formula was used in computing the proportion of agreement for the types of ward non-cooperation:

$$\frac{\text{Number of items both (investigator and judge) agreed upon as belonging to type I} + \text{number of items both agreed upon as belonging to type II} + \text{number of items both agreed as belonging to type III}}{\frac{\text{Total number of items selected by the investigator} + \text{the total number of items selected by the judge}}{2}}$$

Table 2 reports the proportion of agreement for the different types of ward non-cooperation.

2. Depression Scale. The depressive statements that were agreed upon by both the investigator and the judge, were ranked on a scale from 1 to 5 by the investigator and an

TABLE 2

RELIABILITY STUDIES ON THE NUMBER OF NON-COOPERATIVE AND
DEPRESSIVE STATEMENTS RECORDED IN THE HOSPITAL CHART
AND ON THE TYPES OF WARD NON-COOPERATIVE STATEMENTS

| Item | Total Number of Items Identified by Judges | Total Number of Items Both Judges Were in Agreement | Proportion of Agreement |
|--|--|---|-------------------------------|
| I. Number of Ward Non-Cooperative Statements | | | |
| A. Patient 1 | 125 | 60 | .92 |
| B. Patient 2 | 35 | 17 | .97 |
| C. Patient 3 | 37 | 18 | .96 |
| Mean Proportion of Agreement | | | .95 |
| II. Number of P.T. Non-Cooperative Statements | | | |
| A. Patient 1 | 8 | 4 | 1.00 |
| B. Patient 2 | 0 | 0 | 1.00 |
| C. Patient 3 | 6 | 3 | 1.00 |
| Mean Proportion of Agreement | | | 1.00 |
| III. Number of O.T. Non-Cooperative Statements | | | |
| A. Patient 1 | 4 | 2 | 1.00 |
| B. Patient 2 | 0 | 0 | 1.00 |
| C. Patient 3 | 4 | 2 | 1.00 |
| Mean Proportion of Agreement | | | 1.00 |
| IV. Types of Ward Non-Cooperation | | | |
| A. Patient 1 | 53 | 26 | .97 |
| B. Patient 2 | 71 | 35 | .97 |
| C. Patient 3 | 73 | 35 | .96 |
| Mean Proportion of Agreement | | | .96 |
| V. Number of Ward Depressive Statements | | | |
| A. Patient 1 | 29 | 13 | .89 |
| B. Patient 2 | 35 | 17 | .97 |
| C. Patient 3 | 42 | 20 | .96 |
| Mean Proportion of Agreement | | | .94 |

advanced graduate student in clinical psychology. The student was asked to "rank the degree of depression of each statement on a scale of one to five, with rank one indicating a very slight degree of depression and five indicating a very marked degree of depressive affect."

A Spearman rank correlation coefficient was then computed between the ranks given by the graduate student and the investigator for each depressive statement. A mean correlation (r_s) of the three hospital records ranked for depression was .93. The r_s for the three case records was .89, .95 and .94.

In addition, as a further check on the validity of this method for measuring depression, two members of the staff of TIRR, a medical social worker and a vocational counselor, ranked for depression all the patients used in this study, on the same ranking scale, using their memory and clinical notes on the patients from their first hospitalization periods. A mean rank score for each patient was then computed from the rankings of these two judges and correlated with the score obtained from the depression ratio. A Spearman rank correlation of .94 was obtained.

3. Outpatient Data. Reliability measures for each of the dependent variables that were computed from the patient's diary appear in Table 3.

Other Data

A. Social Class. Social class ratings for the purposes

TABLE 3
RELIABILITY STUDIES ON THE 10 DEPENDENT VARIABLES
COMPUTED FROM THE DIARY

| Dependent Variable | Total Number of Items Identified by Judges | Total Number of Items Both Judges Were in Agreement | Proportion of Agreement |
|--|--|---|-------------------------------|
| 1. Number of Discrete Settings Entered | | | |
| A. Patient 1 | 31 | 15 | .97 |
| B. Patient 2 | 26 | 13 | 1.00 |
| C. Patient 3 | 23 | 11 | .96 |
| 2. Number of Times Settings Were Entered | | | |
| A. Patient 1 | 166 | 81 | .98 |
| B. Patient 2 | 111 | 53 | .96 |
| C. Patient 3 | 109 | 52 | .96 |
| 3. Number of Discrete Activities Engaged In | | | |
| A. Patient 1 | 41 | 20 | .98 |
| B. Patient 2 | 42 | 21 | 1.00 |
| C. Patient 3 | 35 | 17 | .97 |
| 4. Number of Times Activities Were Engaged In | | | |
| A. Patient 1 | 201 | 95 | .94 |
| B. Patient 2 | 181 | 86 | .95 |
| C. Patient 3 | 162 | 78 | .96 |
| 5. Number of Genotypes | | | |
| A. Patient 1 | 25 | 12 | .96 |

(Table continued on next page)

TABLE 3 (Continued)

| Dependent Variable | Total Number of Items Identified by Judges | Total Number of Items Both Judges Were in Agreement | Proportion of Agreement |
|--|--|---|-------------------------------|
| B. Patient 2 | 22 | 11 | 1.00 |
| C. Patient 3 | 17 | 8 | .94 |
| 6. Number of Different People Interacted With | | | |
| A. Patient 1 | 24 | 11 | .92 |
| B. Patient 2 | 12 | 6 | 1.00 |
| C. Patient 3 | 19 | 9 | .94 |
| 7. Number of Times People Were Interacted With | | | |
| A. Patient 1 | 69 | 33 | .96 |
| B. Patient 2 | 95 | 45 | .95 |
| C. Patient 3 | 62 | 29 | .94 |
| 8. Mean Number of Hours Per Day Spent Outside the Home | | | |
| A. Patient 1 | 20 | 10 | 1.00 |
| B. Patient 2 | 18 | 9 | 1.00 |
| C. Patient 3 | 16 | 8 | 1.00 |
| 9. Mean Number of Hours Per Day Spent With People Other Than Family | | | |
| A. Patient 1 | 20 | 10 | 1.00 |
| B. Patient 2 | 22 | 11 | 1.00 |
| C. Patient 3 | 12 | 6 | 1.00 |
| 10. Mean Number of Hours Spent In the Wheelchair | | | |
| A. Patient 1 | 16 | 8 | 1.00 |
| B. Patient 2 | 24 | 12 | 1.00 |
| C. Patient 3 | 24 | 12 | 1.00 |

of this study were based on the Hollingshead two-factor scale (1957) of social class. Hollingshead derived social class from the sum of the weightings of education and occupational levels. A list of occupations and their respective weightings are provided by Hollingshead as well as the weightings for the level of education achieved.

If the patient had been independent and was engaged in an occupation prior to his injury, then his social class was derived from his education and occupation. If the patient was a student at the time of the injury and had not yet established himself in an occupation, the patient's social class was computed on the basis of the patient's father's education and occupation.

Since only two of the patients fell into Class I (the highest social class) and none of the patients fell into Class II, it was decided to combine Class I and III as representative of the middle class and Class IV and V as representative of the low class.

Statistical Analysis

In the analysis of inpatient behavior and post-discharge behavior, Pearson correlation coefficients were employed. In this analysis, ward non-cooperation was selected as the measure of non-cooperative behavior in the hospital. This choice was dictated on the basis of the findings of Willems and Vineberg (1969) as discussed in an earlier section of this chapter. In addition, this choice was made on the basis of

the fact that non-cooperative behavior on the ward as recorded daily by the nursing staff, was more detailed and more extensive than the weekly recordings of the non-cooperative behavior made by the occupational and physical therapist.

Point bi-serial correlations (r_{pb}) were used in the analysis of the relationship of social class to inpatient and outpatient behaviors.

Chi-square analyses were used on the relationships between demographic factors and post-discharge behaviors and between the level of spinal injury and working status.

A factor analysis was also computed on 7 dependent variables. All factors whose eigenvalues were greater than one were selected out and rotated for maximum distance.

Finally, t tests were used to determine the effects of the different time periods of hospitalization on the independent variables.

CHAPTER III

RESULTS

This study is an examination of the relationships between spinal cord patients' non-cooperation and depression during the hospitalization period (the independent variables) and their post-discharge behaviors (the dependent variables), consisting of eleven outcome variables.

In addition, this study was designed to examine how the variables of non-cooperation and depression related to the various time periods of hospitalization, the types of hospital settings and the severity of the spinal cord injury.

Finally, an investigation was made into the relationship between non-cooperation and depression during the various periods of the patient's hospitalization.

A. The Relationship Between the Independent and Dependent Variables

The correlations between the independent and dependent variables for the combined group (all patients) are shown in Table 4. A significant inverse relationship was found only between the degree of non-cooperative behavior displayed on the ward and the patient's student/employment ratio ($r = -.42$, $p < .05$). All other associations in the combined group between non-cooperation and the dependent variables were not significant, being only slightly positive or slightly negative in direction.

Similarly, no significant associations were found between the degree of depression and the eleven outcome variables in the combined group, although ten of the eleven variables correlated in a negative direction.

It was then decided to re-examine these data in terms of the patient's socioeconomic class (SEC) on the basis that such an analysis might possibly cast the results in a different light.

When the patients' data were divided along social class lines, the extent and directionality of the relationships between the independent and dependent variables became markedly different. Table 4 shows that the direction of the relationships for the middle SEC patients generally goes in the opposite direction to the relationships for the low SEC patients. When the data, therefore, are combined for both SEC groups, the associations either cancel each other out or are weighted slightly in the direction of the group with the stronger association.

1. The Middle Class Patient. Table 4 reveals that for the middle class patient, ward non-cooperation during hospitalization correlated positively and significantly with: (a) the number of different people interacted with ($r=.68$, $p<.05$) in the week; (b) number of times people were interacted with in the week ($r=.65$, $p<.05$). Moreover, a positive trend ($p<.10$) was found between the degree of ward non-cooperation and: (c) the number of discrete settings entered in the week

($r=.56$); (d) the number of genotypes ($r=.55$) entered in the week. In addition, all of the associations between the independent and the dependent variables tended in a positive direction.

Table 4 also points out that the degree of depression expressed by the middle class patient was statistically unrelated to the eleven (outcome) dependent variables investigated. None of the associations was significant or even approached significance.

2. The Low SEC Patient. In contrast to the results obtained for the middle class patient, the degree of depression for the low SEC patient correlated significantly and negatively with all of the eleven outcome variables, including the patient's ecological range (the extent and variety of his activities, settings and genotypes), the extent ($r=-.68$) and variety ($r=-.71$) of interpersonal contact and the degree of involvement in work or school ($r=-.54$).

For the low SEC patient, non-cooperation on the ward was not significantly correlated with ten of the dependent variables, but significantly correlated negatively with student/employment ratio ($r=-.61$). In addition, 8 of the 11 dependent variables correlated negatively with ward non-cooperation.

A more graphic illustration of these results is found in Table 5. A factor analysis was performed separately on seven dependent variables of the low SEC patients, and again, for the same seven dependent variables of the middle SEC patients.

TABLE 5
CORRELATION BETWEEN FACTOR SCORES FROM THE FACTOR ANALYSES
OF THE DEPENDENT VARIABLES AND THE INDEPENDENT
VARIABLES BY SOCIAL CLASS

| Social Class | % of Variance Factor | Factor Name | INDEPENDENT VARIABLES | |
|---------------------|-------------------------|--------------------------------------|--------------------------|--------------------|
| | | | Ward Non- Cooperation | Ward Depression |
| Middle (10 pts.) | .51 | Factor I (People Contact) | .27 | .00 |
| | .18 | Factor II (Degree of Activity) | .32 | .12 |
| Low (14 pts.) | .68 | Factor I (People Contact) | .24 | -.56* |
| | .06 | Factor II (Degree of Activity) | -.47 ^a | -.48 ^a |

*p < .05

^ap < .10

The seven dependent variables were: (1) the mean number of hours per day spent outside the home; (2) the mean number of hours per day spent with people other than the family; (3) the number of times people were interacted with during the week; (4) the number of times activities were performed during the week; (5) number of discrete settings entered during the week; (6) mean number of hours per day spent in the wheelchair; and (7) the student/employment ratio. The independent variables were then correlated with the two factor scores for each patient (Appendix D). These factor scores were computed from a complete estimation method of predicting the two factors.

These two factors accounted for 74% of the variance of the dependent variables in the low SEC patients, and 69% of the variance for the middle class patients. With both samples, the two factors were rotated to an approximation of simple structure. The factor loadings are found in Appendix E.

Factor I for both social classes loaded from those dependent variables which measured the mean number of hours spent outside the home, the mean number of hours spent with people other than the family, the number of times people were interacted with during the week, while Factor II loaded from those dependent variables that dealt with number of times activities were performed, number of discrete settings entered and student/employment ratio. Factor I was thus

given the title "people contact" while Factor II was called "degree of activity."

Table 5 indicates that for the low SEC spinal cord patient a significant negative correlation exists between the degree of ward depression and Factor I (people contact, $r = -.56$, $p < .05$), and a trend ($r = -.48$, $p < .10$) exists in a negative direction between ward depression and Factor II (degree of activity). In addition, a negative trend also exists between ward non-cooperation and Factor II ($r = -.47$).

For the middle SEC patient, ward non-cooperation and depression during hospitalization were not statistically significantly related to either "people contact" or "degree of activity." Moreover, Table 5 points out that while the correlations were not statistically significant for the middle SEC patients, positive correlations occurred in three of the four associations.

B. The Relationship Between Social Class and the Dependent and Independent Variables

Since social class was found to be a key factor in differentially distributing the relationships between inpatient and post-hospital behaviors, it was decided to examine the possible differential effects of social class separately upon the independent and the dependent variables.

1. Dependent Variables. When the middle and low SEC patients were divided and compared on the eleven dependent (outcome) variables, it was found that social class correlated

significantly (point bi-serial correlation) with two of these outcome measures (Table 6). The middle class patient enters significantly more settings after discharge ($r_{pb}=.42$, $p<.05$) and spends more hours per day with people other than family members ($r_{pb}=.47$, $p<.05$) than the low SEC patient. None of the other nine measures of outpatient behaviors was significantly associated with social class, though several others tend in the same direction. Middle class patients tend somewhat to engage in more activities and enter more discrete settings than the low SEC patients.

2. Independent Variables. When the middle and low SEC patients' depression and non-cooperative behaviors were compared, the results indicated that social class does not correlate significantly with these inpatient behaviors (Table 7). No statistically significant associations were found between social class and depression on the ward, nor between non-cooperative behavior on the ward and in the therapy areas. A trend did exist however, in the amount of depression found on the ward, with the middle class patient tending to be more depressed than the low SEC patient. Moreover, while not statistically significant, it is interesting to note that the low SEC patient tends to be slightly more non-cooperative than the middle class patient in all the therapeutic settings that were examined in this study.

TABLE 6

MEAN SCORES FOR THE ELEVEN DEPENDENT VARIABLES AND THEIR
POINT BI-SERIAL CORRELATIONS WITH SOCIAL CLASS

| Outpatient Behavior | Social Class | Mean | S.D. | r _{pb} with | |
|---|-------------------------|----------------|----------------|----------------------|--|
| | | | | SEC | |
| 1. Student/Employment Ratio | Middle (10) Low (14) | .73 .53 | .32 .42 | .27 | |
| 2. Mean number of hours per day spent outside the home | Middle Low | 6.14 4.67 | 2.78 3.52 | .10 | |
| 3. Mean number of hours per day spent with people other than family | Middle Low | 6.45 4.27 | 3.04 3.02 | .47* | |
| 4. Number of discrete settings entered per week | Middle Low | 8.30 5.71 | 4.32 3.22 | .34 | |
| 5. Number of times settings were entered per week | Middle Low | 43.80 30.28 | 21.91 16.96 | .42* | |
| 6. Number of different activities per week | Middle Low | 16.70 13.00 | 5.96 4.52 | .35 | |
| 7. Number of times activities were performed per week | Middle Low | 86.20 71.28 | 20.46 20.06 | .36 | |
| 8. Number of different people interacted with per week | Middle Low | 6.10 5.50 | 2.13 1.95 | .17 | |
| 9. Number of times people were interacted with per week | Middle Low | 31.40 29.71 | 11.17 12.49 | .06 | |
| 10. Number of different (discrete) genotypes | Middle Low | 7.10 4.71 | 3.31 2.46 | .40 | |
| 11. Mean number of hours per day spent in wheelchair | Middle Low | 9.73 9.33 | 3.06 5.88 | .02 | |

*p < .05

TABLE 7

MEAN SCORES FOR THE INDEPENDENT VARIABLES AND THEIR
POINT BI-SERIAL CORRELATIONS WITH SOCIAL CLASS

| Inpatient Behavior | Social Class | Mean | S.D. | r_{pb} with |
|-------------------------------------|--------------|------|------|---------------|
| | | | | SEC |
| 1. Nurses' Non-Cooperation Ratio | Middle | .31 | .24 | -.14 |
| | Low | .36 | .42 | |
| 2. O.T. Non-Cooperation Ratio | Middle | .07 | .12 | -.17 |
| | Low | .17 | .27 | |
| 3. P.T. Non-Cooperation Ratio | Middle | .07 | .10 | -.17 |
| | Low | .16 | .26 | |
| 4. Ward Depression Ratio | Middle | .25 | .17 | .37 |
| | Low | .15 | .11 | |

Inpatient Behavior

The characteristics of non-cooperation and depression were deemed to be an important question to explore--how did they relate to settings in the hospital, time, and severity of disability, and how did the different types of non-cooperation relate to one another. In the following section each question will be discussed and results provided.

1. Non-Cooperation and Settings. In an effort to determine the degree of consistency of patient's non-cooperative behaviors in the different settings of the hospital, correlation coefficients were computed on the patient's non-cooperation scores in the different settings.

For all patients, there was a highly significant degree of consistency in non-cooperative behavior from setting to setting (Table 8). Patients who were non-cooperative on the ward were non-cooperative in P.T. ($r=.84$, $p<.001$) as well as in O.T. ($r=.83$, $p<.001$). In addition, a highly significant positive correlation was obtained between patients' non-cooperative behaviors in O.T. and in P.T. ($r=.92$, $p<.001$).

When the data from the middle and low SEC patients were separated, it became clear that the obtained correlations from the combined groups had been established mostly on the strength of the associations in the low SEC patients. For the low SEC groups, a significantly high degree of consistency occurs from setting to setting. Ward non-cooperation correlated significantly with P.T. ($r=.90$, $p<.001$) and O.T.

TABLE 8
CORRELATION MATRIX OF THE SETTINGS IN WHICH
NON-COOPERATION OCCURRED

| Social Class | | Ward Non-Cooperation Ratio | P.T. Non-Cooperation Ratio | O.T. Non-Cooperation Ratio |
|-----------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| Combined (24 pts.) | Ward Non-Cooperation Ratio | --- | .84*** | .83*** |
| | P.T. Non-Cooperation Ratio | | --- | .92*** |
| | O.T. Non-Cooperation Ratio | | | --- |
| Middle (10 pts.) | Ward Non-Cooperation Ratio | --- | .53 | .38 |
| | P.T. Non-Cooperation Ratio | | --- | .97*** |
| | O.T. Non-Cooperation Ratio | | | --- |
| Low (14 pts.) | Ward Non-Cooperation Ratio | --- | .90*** | .92*** |
| | P.T. Non-Cooperation Ratio | | --- | .91*** |
| | O.T. Non-Cooperation Ratio | | | --- |

***p < .001

($r=.92$, $p<.001$) non-cooperation, and non-cooperation in O.T. correlated significantly with non-cooperation in P.T. ($r=.91$, $p<.001$).

For the middle SEC patients, however, patients' non-cooperation on the ward was not significantly related to non-cooperation in P.T. ($r=.53$, $p>.10$) or non-cooperation in O.T. ($r=.38$). A significant correlation was obtained, however, between patient non-cooperation in the therapy settings--patients who were non-cooperative in P.T. were non-cooperative in O.T. ($r=.97$, $p<.001$).

2. Types of Ward Non-Cooperation. It was also decided to investigate the relationship between the different types of non-cooperation found on the ward. Correlation coefficients were computed between the different types of non-cooperation.

Table 9 reveals that, for the middle SEC patients, a negative trend ($p<.10$) exists between refusals to attend therapy and refusals to carry out activities of daily living in the hospital, such as eating, bathing, etc. ($r=-.55$). In addition, a highly significant negative association was found in the middle class patient between refusals to carry out activities of daily living and refusals to take medication and/or to carry out bedside nursing care ($r=-.84$, $p<.01$).

Similarly, for the low SEC patients, refusals to carry out activities of daily living in the hospital were also significantly inversely related to refusals to take medication

TABLE 9
CORRELATION MATRIX FOR THE TYPES OF NON-COOPERATION
BY SOCIAL CLASS

| Social Class | | Type of Non-Cooperation | | |
|-----------------------|--|-------------------------|-------------------|----------|
| | | Type I | Type II | Type III |
| Combined (24 pts.) | Type I (Refusals to go to therapy) | --- | -.35 | -.02 |
| | Type II (Refusals to carry out activities of daily living) | | --- | -.93*** |
| | Type III (Refusals to take medication and/or carry out bedside nursing care) | | | --- |
| Middle (10 pts.) | Type I | --- | -.55 ^a | .00 |
| | Type II | | --- | -.84*** |
| | Type III | | | --- |
| Low (14 pts.) | Type I | --- | -.24 | -.03 |
| | Type II | | --- | -.96*** |
| | Type III | | | --- |

***p < .001

^ap < .10

and/or to carry out bedside nursing care ($r = -.96$, $p < .001$). No statistically significant relationship was found, however, between refusals to go to therapy and refusals to carry out the expectations of the nurses ($r = -.24$ and $r = -.03$) on the ward.

Periods of Hospitalization. The times in which non-cooperation and depression occurred during the hospitalization period was also of interest to this investigator. The patient's hospitalization period was divided into thirds and the number of non-cooperative and depressive statements found in the hospital chart were examined across the three time periods.

Table 10 displays the consistency in patients' non-cooperative behaviors for both SEC groups across the three periods of hospitalization. For the middle class patients, non-cooperative behaviors during the first third of hospitalization tended to be associated with non-cooperative behavior in the second third of hospitalization ($r = .42$, $p < .15$) while being significantly related to the final period of hospitalization ($r = .68$, $p < .05$). Non-cooperative behavior during the second third of hospitalization was also significantly related to non-cooperative behavior in the final period of hospitalization ($r = .74$, $p < .05$).

Similarly, for the low SEC patient, non-cooperative behavior during the first third of hospitalization was significantly related to the second ($r = .91$, $p < .001$) and final

TABLE 10
CORRELATION BETWEEN NON-COOPERATION AND PERIOD
OF HOSPITALIZATION

| Social Class | | Period of Hospitalization | | |
|-----------------------|---|---------------------------|---------|-----------|
| | | 1st 3rd | 2nd 3rd | Final 3rd |
| Combined (24 pts.) | Non-Cooperative behavior during 1st 3rd | --- | .62*** | .74*** |
| | Non-Cooperative behavior during the 2nd 3rd | | --- | .72*** |
| | Non-Cooperative behavior during final period | | | --- |
| Middle (10 pts.) | Non-Cooperative behavior during the 1st 3rd | --- | .42 | .68* |
| | Non-Cooperative behavior during the 2nd 3rd | | --- | .74* |
| | Non-Cooperative behavior during final period | | | --- |
| Low (14 pts.) | Non-Cooperative behavior during the 1st 3rd | --- | .91*** | .80*** |
| | Non-Cooperative behavior during the 2nd 3rd | | --- | .72** |
| | Non-Cooperative behavior during final period | | | --- |

*p < .05

**p < .01

***p < .001

periods ($r=.80$, $p<.001$). The second period was similarly significantly related to the final period of hospitalization ($r=.72$, $p<.01$).

The question of whether the three time periods contain different amounts of non-cooperative behaviors was tested by using t tests. Table 11 reveals that no significant differences were found between the three time periods of hospitalization in the amount of non-cooperation. The number of non-cooperative statements for any one time period were not significantly different from any other time period. These findings were found to be operative for both the middle and low SEC patients.

A somewhat different picture was found with the amount of depression recorded. While no significant differences were found between the three time periods of hospitalization in the amount of depression recorded (Table 12), the amount of patient depression was not consistent over the three periods (Table 13). With only one exception (the amount of patient depression between the first and second periods of hospitalization for the low SEC patient, $r=.74$, $p<.01$), the amount of patient depression did not correlate significantly over the three periods of hospitalization.

4. The Relationship Between Non-Cooperation and Depression. The relationship between the two independent variables posed another interesting question. How do they associate with one another during the different periods of the patient's hospitalization?

TABLE 11

t TEST MEASURING THE DIFFERENCE BETWEEN THE THREE PERIODS
OF HOSPITALIZATION FOR THE NUMBER
OF NON-COOPERATIVE STATEMENTS

| Social Class | Time Period | Mean | S.D. | t |
|-----------------------|-------------|-------|-------|-----|
| Combined (24 pts.) | Time I vs. | 10.80 | 13.29 | .85 |
| | Time II | 14.67 | 18.00 | |
| | Time I vs. | 10.80 | 13.29 | .38 |
| | Time III | 12.04 | 8.94 | |
| | Time II vs. | 14.67 | 18.00 | .64 |
| | Time III | 12.04 | 8.94 | |
| Middle (10 pts.) | Time I vs. | 15.00 | 15.38 | .57 |
| | Time II | 20.00 | 23.22 | |
| | Time I vs. | 15.00 | 15.38 | .26 |
| | Time III | 13.50 | 10.10 | |
| | Time II vs. | 20.00 | 23.22 | .81 |
| | Time III | 13.50 | 10.10 | |
| Low (14 pts.) | Time I vs. | 7.79 | 11.17 | .68 |
| | Time II | 10.86 | 12.74 | |
| | Time I vs. | 7.79 | 11.17 | .87 |
| | Time III | 11.00 | 8.25 | |
| | Time II vs. | 10.86 | 12.74 | .04 |
| | Time III | 11.00 | 8.25 | |

TABLE 12

t TEST MEASURING THE DIFFERENCE BETWEEN THE THREE PERIODS
OF HOSPITALIZATION FOR THE NUMBER
OF DEPRESSIVE STATEMENTS

| Social Class | Time Period | Mean | S.D. | t |
|-----------------------|-------------|------|------|------|
| Combined (24 pts.) | Time I vs. | 6.21 | 1.94 | .52 |
| | Time II | 5.88 | 2.47 | |
| | Time I vs. | 6.21 | 1.94 | 1.54 |
| | Time III | 5.46 | 1.38 | |
| | Time II vs. | 5.88 | 2.47 | .72 |
| | Time III | 5.46 | 1.38 | |
| Middle (10 pts.) | Time I vs. | 7.00 | 1.89 | .28 |
| | Time II | 6.70 | 2.83 | |
| | Time I vs. | 7.00 | 1.89 | 1.58 |
| | Time III | 5.80 | 1.48 | |
| | Time II vs. | 6.70 | 2.83 | .89 |
| | Time III | 5.80 | 1.48 | |
| Low (14 pts.) | Time I vs. | 5.64 | 1.82 | .48 |
| | Time II | 5.29 | 2.10 | |
| | Time I vs. | 5.64 | 1.82 | .71 |
| | Time III | 5.21 | 1.31 | |
| | Time II vs. | 5.29 | 2.10 | .11 |
| | Time III | 5.21 | 1.31 | |

TABLE 13

CORRELATIONS BETWEEN THE NUMBER OF DEPRESSIVE STATEMENTS
FOR THE THREE TIME PERIODS OF HOSPITALIZATION

| Social Class | | Period of Hospitalization | | |
|-----------------------|--|---------------------------|---------|-----------|
| | | 1st 3rd | 2nd 3rd | Final 3rd |
| <hr/> | | | | |
| | <u>Number of Depressive Statements</u> | | | |
| Combined (24 pts.) | 1st 3rd | --- | .39 | .03 |
| | 2nd 3rd | | --- | .21 |
| | Final 3rd | | | |
| Middle (10 pts.) | 1st 3rd | --- | -.10 | .08 |
| | 2nd 3rd | | --- | .04 |
| | Final 3rd | | | |
| Low (14 pts.) | 1st 3rd | | .74** | -.03 |
| | 2nd 3rd | | | .28 |
| | Final 3rd | | | |

**p < .01

Table 14 points out that non-cooperation and depression are two discrete variables that have little association with one another. This finding holds true for both the middle and low SEC patients. At no time during the patient's hospitalization period was there any significant relationship (or even a trend) between the patient's non-cooperative and depressive behaviors.

Methodologically, these results indicate that despite the fact that non-cooperative and depressive statements were both derived from the patients' hospital records, these variables were differentially recorded by the hospital staff.

5. Level of Injury. The final question posed was the relationship between the severity of the patient's spinal injury and his inpatient and post-hospitalization behaviors. Point bi-serial correlations were computed to answer this question.

No significant relationship was found between the level of spinal injury and the amount of non-cooperative ($r_{pb} = -.28$) and depressive behaviors ($r_{pb} = -.30$) recorded during the patient's hospitalization (Table 15). While not statistically significant, quadriplegics displayed less ward non-cooperation and depression than paraplegics. Furthermore, upon discharge from the hospital, no significant relationship was found between the level of the spinal injury and (a) the number of times settings were entered ($r_{pb} = -.01$); (b) the number of times activities were performed per week ($r_{pb} = -.10$);

TABLE 14

CORRELATIONS BETWEEN THE NUMBER OF DEPRESSIVE
AND NON-COOPERATIVE STATEMENTS FOR THE
THREE PERIODS OF HOSPITALIZATION

| Social Class | <u>Period of Hospitalization</u> | | | |
|----------------------|---|---------|------|-------|
| | <u>Depression</u> | | | Final |
| | 1st 3rd | 2nd 3rd | | 3rd |
| | <u>Non-Cooperation During Hospitalization</u> | | | |
| Combined (N = 24) | 1st 3rd | .24 | | |
| | 2nd 3rd | | .15 | |
| | Final 3rd | | | .08 |
| Middle (10 pts.) | 1st 3rd | .28 | | |
| | 2nd 3rd | | -.14 | |
| | Final 3rd | | | -.23 |
| Low (14 pts.) | 1st 3rd | .04 | | |
| | 2nd 3rd | | .19 | |
| | Final 3rd | | | .23 |

TABLE 15
CORRELATIONS BETWEEN LEVEL OF INJURY AND INPATIENT
AND OUTPATIENT BEHAVIORS

| Behaviors | Level of Injury | Mean | S.D. | r_{pb} with level of injury |
|--|-----------------|------|------|-------------------------------------|
| <u>Inpatient Behaviors</u> | | | | |
| Ward Non-Cooperation | Paraplegics | .43 | .46 | -.28 |
| | Quadriplegics | .30 | .26 | |
| Ward Depression | Paraplegics | .21 | .17 | -.30 |
| | Quadriplegics | .18 | .10 | |
| <u>Outpatient Behaviors</u> | | | | |
| Number of times settings were entered per week | Paraplegics | 36 | 15 | -.01 |
| | Quadriplegics | 35 | 23 | |
| Number of times activities were performed per week | Paraplegics | 80 | 19 | -.10 |
| | Quadriplegics | 75 | 23 | |
| Number of times people were inter- acted with per week | Paraplegics | 33 | 15 | -.15 |
| | Quadriplegics | 29 | 10 | |

and (c) the number of times people were interacted with per week ($r_{pb} = -.15$).

On the relationship between the level of spinal injury and the patient's present status in terms of employment or school, a Chi-square analysis, yielded no significant relationship (Table 16). Whether the patient was working or going to school, or doing neither, was unrelated to the level of his spinal injury.

Some More Questions on Employment

Although it was found that social class by itself could not significantly predict the degree of patient involvement in work or school ($r_{pb} = .27$), the question remained whether the patient's present level of education could successfully predict the ability to obtain employment.

A Chi-square analysis of the number of years in school and the patient's current working status (Table 17) produced a significant relationship ($\chi^2 = 7.6$, $p < .05$). While this analysis is hampered by the small number of subjects (14), the fact that only one patient who had not had any college training is presently employed, makes this finding more than suggestive.

Since the amount of education seemed to be a good predictor of employment, it was then decided to observe whether patients continued their education after spinal injury. Table 18 reveals that patients tend to continue their

TABLE 16
LEVEL OF SPINAL CORD INJURY AND PRESENT STATUS

| Level of Injury | Present Status | |
|-----------------|----------------|-----------------------------------|
| | Working/School | Not Working or Going to School |
| Paraplegics | 6 patients | 3 patients |
| Quadriplegics | 11 patients | 4 patients |

Chi-square = .013

TABLE 17
EDUCATION AND PRESENT STATUS BY SOCIAL CLASS

| Education | Working | Present Status |
|--|--------------------------|----------------------------------|
| | | Neither in School Nor Working |
| Graduated college or had some college work | 4 Middle SEC patients | 1 Middle SEC patient |
| | 2 Low SEC patients | 0 Low SEC patients |
| | 0 Middle SEC patients | 0 Middle SEC patients |
| High School Education | 1 Low SEC patient | 3 Low SEC patients |
| | 0 Middle SEC patients | 0 Middle SEC patients |
| 9th Grade or less education | 0 Low SEC patients | 3 Low SEC patients |
| | | |

Note.--Five middle and five low SEC patients were not included in this analysis as they are presently college students and have not, at this point in their college career, sought employment.

$$\chi^2=7.6 \text{ (p} < .05\text{)}$$

TABLE 18

EDUCATIONAL LEVEL (BY SOCIAL CLASS) PRIOR TO INJURY
AND PRESENT EDUCATION LEVEL

| Educational Level Prior to Injury | Present Educational Level |
|--------------------------------------|---|
| College graduate | |
| 3 Middle SEC patients | College degree |
| Attending college | |
| 1 Middle SEC patient | All have completed or are presently attending college |
| 3 Low SEC patients | |
| High School graduate | |
| 1 Low SEC patient | High School degree |
| Attending High School | |
| 6 Middle SEC patients | All attending college |
| 6 Low SEC patients | 4 attending college 2 stopped at High School graduation |
| | |
| Dropped out of High School | |
| 4 Low SEC patients | None returned to school |

education in a manner indicated by their pre-injury status. Those who were students at the time of their injury continued their education upon discharge; those who had dropped out of school prior to the injury did not return following discharge.

CHAPTER IV

DISCUSSION

The results of this study have consistently demonstrated that the relationships between hospital behavior and post-discharge behavior cannot be generalized across social class. The findings for middle class patients are different--sometimes opposite--from those of low socioeconomic class patients. As such, it is imperative that social class be specified in a discussion of these relationships.

The Relationship Between the Independent and Dependent Variables

A. The Middle Class Patient

1. Non-Cooperation. For the middle class patient, it was found that the greater the ward non-cooperation of the patient while hospitalized, the greater the extent and variety of his interpersonal contacts after hospitalization. Similarly, there was a trend in the same direction in the extent and variety of the settings entered. Moreover, all of the associations showed a positive relationship between non-cooperation and outpatient behavior.

These findings run counter to Cohn's (1961) and to the contention of many hospital administrators that cooperation in the hospital is necessary in order for the patient to do well "on the outside." The data in fact, point to the very

opposite conclusion with the more non-cooperative middle SEC patients doing better than their more compliant counterparts.

So entrenched is the notion that non-cooperation is a negative behavioral response in the rehabilitation ward, that numerous investigators (e.g., Benny, 1965; Kerr & Meyerson, 1965; and Prosen, 1965) have designed therapeutic and behavioral programs to end, or at least reduce the patient's non-cooperative behavior. The view of non-cooperation as a "negative" behavioral response in a rehabilitation setting has rarely been questioned, appearing in the literature almost as fiat that its expression reflects a lack of motivation by the patient to get well and that the goal of the staff is to reduce or extinguish its presence (Rothschild, 1969).

The results of this study do not indicate that ward non-cooperation is a necessary or essential stage for the middle class patient to undergo in order to do well after discharge from the hospital. Rather, it indicates that ward non-cooperation for the middle class patient does not constitute a basis for predicting a "therapeutic failure." The results would support the position that, for the middle class spinal cord patients, cooperation with nursing staff is not a necessary or essential antecedent to success in rehabilitation.

Moreover, it can be said that, for middle class spinal cord patients, cooperation with the nursing staff remains an

administrative prescription, based on the custodial needs of the hospital rather than the therapeutic concerns of the patient. The non-cooperative patient remains a problem for the administration and nursing staff of the hospital, but to declare such behavior anti-therapeutic perpetuates the masquerade of custodial needs as therapy. Goffman's (1961) notion that in mental institutions what gets defined as therapy serves merely the conveniences of the hospital organization, would apply equally to the rehabilitation wards if middle class spinal cord patients were pressured into cooperating on the ward.

2. Depression. In contrast to non-cooperation, the degree of ward depression manifested during hospitalization for the middle class spinal cord patient was found to be statistically unrelated to outcome.

This result is in opposition to the theoretical notions which postulate a "need to mourn" as a necessary stage in order for the patient to achieve maximum rehabilitation. The findings of this study suggest that the need to mourn is unfounded and that predictors of outcome for middle class spinal cord patients need to be sought elsewhere.

B. The Low Socioeconomic Class Patient

1. Depression. In contrast to the absence of any statistically significant relation between depression and post-discharge behavior for the middle SEC patient, the low

SEC patient's depressive behavior on the ward was significantly inversely related to his post-discharge status. The greater the depression of the patient, the smaller was his ecological range (extent and variety of settings and activities), the less his involvement in work or school and the fewer his interpersonal contacts.. Conversely, the less the depression manifested during hospitalization the better the patient was doing on the eleven dependent variables investigated.

This inverse relationship between depression and post-discharge behavior again is in contrast to the theoretical notions of a moderate level of depression reputedly necessary for adequate post-discharge adjustment. Litin's (1957) notion, for example, that a "working through of painful affect is required" finds no confirmation in these results. Rather, denial of depression, which is traditionally conceived of as interfering with rehabilitation (e.g., Litin, 1957; Nemiah, 1957), appears from the results to be the best course to pursue for the low SEC spinal cord patients.

The notion that denial of depression rather than its expression could lead to adequate post-hospital adjustment has had some supporters in the rehabilitation literature. Shontz (1962), for example, questioned whether denial is necessarily bad. He noted:

It is a moot question as to whether denial is in all cases and to all degrees unfavorable as an adjustment to especially severe disability. I am inclined to feel that denial is not always undesirable (p. 437).

Dembo (1955) similarly postulated the notion of "hope versus stark reality" and concluded that in many cases it is best to support hope. Wright (1960) was somewhat more cautious in her claims, maintaining that "hope built upon evasion is hardly reassuring although coating reality with hope does not mean living in a world of unreality. Accepting a disability does not mean abandoning hope (p. 303)." Wright has also maintained that the "requirement of the patient to mourn" has been established by the non-disabled to affirm their values placed on optimum physical functioning. Requiring the disabled patient to mourn his disability serves to support the non-disabled's values by declaring that the disabled have lost something which is indeed valuable or important. The absence of mourning by the patient thus comes to represent a threat to the importance of the values chosen and upheld by the non-disabled.

The results obtained in this study between depression and post-discharge behaviors for the low SEC patient do not provide a causal relationship between the variables. Rather, they indicate that, when the low SEC patient becomes depressed, it is associated with poor post-discharge adjustment and that when he shows little or no depression, it is related to good post-hospital adjustment.

It can be speculated that when a low SEC patient exhibits heightened depression he reflects an accurate and realistic appraisal of his bleak future; or perhaps when a

low SEC patient is highly depressed he does not have the familial or financial support to help him offset the debilitating effects of the disability with the result that he often performs unsuccessfully upon discharge. Such contentions remain, however beyond the level of the data presented and remain strictly at the level of speculation.

2. Non-Cooperation. The relationship between non-cooperation and post-discharge measures was found to be different for low SEC patients than for middle SEC patients. While non-cooperation was statistically unrelated to ecological range (settings, activities) and interpersonal contact for low SEC patients, a significant negative relationship was obtained between non-cooperation and involvement in school or employment. Thus, the low SEC patient who refuses to cooperate with the hospital staff can be said to have a higher probability of not working or going to school than his more compliant, low SEC counterpart.

An examination of the case records of all low SEC spinal cord patients who received high non-cooperative scores during their hospitalization revealed that all were having difficulty in their adjustment to society prior to their injury. All had dropped out of school, had relatively unstable work histories and had histories of acting out behavior. Their behavior in the hospital can thus be viewed as an extension of their premorbid behavior. Brown (1961), Shontz (1961) and Wright (1960) have written of this relationship, speculating

that a patient's response to his disability may be a function of his premorbid personality.

These highly non-cooperative low SEC patients not only behaved in the hospital in a manner consistent with their premorbid personalities, but continued to act similarly upon discharge.

For the low SEC patient, given the data obtained, it can be said that the degree of non-cooperation remains a good predictor of the patient's future employment or educational goals. The passive, compliant patient will tend to do well either in school or vocationally while the acting out, negativistic patient will do poorly in vocational and educational areas. Here, unlike middle class patients, the concerns of the hospital administration and the therapeutic goals of the patient (as defined by middle class society) would appear to complement rather than oppose one another.

Social Class and Inpatient and Outpatient Behavior

The results of this study have indicated that, in general, social class by itself is not a very good predictor of a patient's behavior either in the hospital or after discharge. The variability in patients' behaviors for both social classes was quite marked. This study does indicate however, that a good predictor of the patients' post-hospitalization behaviors can be made if the knowledge of his social class is combined with the knowledge of his behavior in the hospital.

This result is therefore in opposition to the "sociological" hypothesis which maintains that sociological factors are the key determinants of how a patient will fare after discharge (Felton, 1968; Graham, 1963; King, 1962; Rothschild, 1969; Silver, 1967 and Sussman, 1965). Concomitantly, this result would also conflict with the "psychological" hypothesis which maintains that the psychological or "internal" make-up of the patient constitutes the dominant factor in determining post-discharge status.

The results of this study indicate that an interactional factor is operative in determining post-discharge behaviors, drawing upon both psychological and sociological factors.

A Method of Prediction

The results of the Factor Analysis on the (outpatient) dependent variables and their relationship to hospitalized behavior provide evidence that the more non-cooperative the middle class patient is on the ward the greater will be his involvement with others and his engagement in activities. The low SEC patient, however, follows a different pattern. The greater his depression in the hospital, the less frequent his contacts with people and the less intense his activities after discharge. Moreover, in contrast to the middle class patients, the more non-cooperative the low SEC patient is in the hospital, the less involved is he in activities after discharge.

On the basis of these results, it is possible to predict from a knowledge of the patient's social class, depression and non-cooperation score, how he will fare upon discharge from the hospital, both in the extent of his interpersonal contact and the volume of activities in which he will engage. For example, knowing that a spinal cord patient is a member of the low SEC and is highly depressed in the hospital, it can be predicted that upon discharge he will probably have little contact with others and a limited range of activities.

This predictive equation could be utilized to identify patients who would appear to have a poor prognosis after discharge from the hospital (both in the extent of contact with others and in the volume of activities). Various paramedical staff could intervene in an attempt to stave off a probable negative outcome. Social workers, for example, could work very closely with these patients, giving them extra help in contacting vocational and education agencies.

In addition, since social workers' time is limited, a more practical utilization of their services could prove to be a major contribution. When decisions have to be made over which patient to work with, patients who have a poor prognosis would be chosen over those whose chances for success after discharge are quite good without any assistance.

The Inpatient Behaviors--Non-Cooperation and Depression

In addition to gaining an understanding of the relationship between hospital behaviors and post-discharge behaviors,

the various characteristics of patient non-cooperation and depression were explored.

A. Settings

It was found that for the low SEC patient there was a high degree of consistency for non-cooperation across all settings. The low SEC patient who was, for example, highly non-cooperative on the ward was also non-cooperative in O.T. and P.T. This was not found to be true of the middle class patients, as non-cooperation on the ward was statistically unrelated to non-cooperation in P.T. or O.T. The middle class patients who were non-cooperative on the ward were more cooperative in P.T. and O.T. For both SEC groups however, non-cooperation in P.T. was very highly associated with non-cooperation in O.T.

B. Types of Ward Non-Cooperation

For the middle class patients the results of this study indicate an inverse relationship ($p < .10$) between refusals to go to therapy and refusals to carry out activities of daily living. Refusals related to such activities as eating, sleeping, bathing were associated with cooperative behavior in requests to attend therapy. This result augments the data obtained on the settings in which non-cooperation occurred. On the ward, the middle class patient who frequently refused to carry out activities of daily living was cooperative in his adherence to requests to attend therapy (he willingly

agreed to go) and furthermore when he was in the therapeutic settings (O.T. and P.T.) he behaved cooperatively.

The results also show that for both SEC groups of patients there exists a highly significant inverse relationship between the types of nursing non-cooperation displayed on the ward. It appears that non-cooperation on the ward was selectively expressed for all patients, with patients being non-cooperative in carrying out some of the tasks requested of them by the nursing staff, rather than resisting all requests made of them. Patients were non-cooperative either in performing activities of daily living or in carrying out specific nursing instructions and taking medication but not in both areas.

C. Times of Non-Cooperation and Depression

For both SEC groups of patients, there was consistency across time in the degree of non-cooperation displayed on the ward. Patients, for example, who were non-cooperative on the ward in the first third of their hospitalization were generally non-cooperative in their second and final period of their hospitalization.

Moreover, no significant differences were found between the three different time periods of hospitalization in the amount of non-cooperation displayed.

Similarly, the amount of depression was not found to be significantly different for the three time periods of hospitalization. This result supports the recent findings of

McDaniel and Sexton (1970). They also found, in investigating spinal cord patients' behaviors, that no significant differences occurred between the three periods of hospitalization in the amount of depression.

While no significant differences were found between time periods in the amount of depression, patients were not consistent in expressing their depression over the three time periods. Knowledge of a patient's depression score during the first third of hospitalization does not enable predicting the amount of depression for his second and final periods of hospitalization.

The absence, however, of any significant differences between the three time periods for both independent variables, coupled with the high variability in patients' non-cooperation and depression scores, indicates that non-cooperation and depression cannot be solely accounted for by the initial reaction to the hospital setting or the stress of impending discharge (Rothschild, 1969). Rather, such behavior appears to be more a product of an interaction between a personality characteristic and the period of hospitalization.

Non-Cooperation and Depression

No relationship was found between non-cooperation and depression for both the middle and the low SEC patients throughout hospitalization. The knowledge that a patient is depressed does not support any predictive statements on his

non-cooperation at any time during hospitalization.

This independence of non-cooperation and depression is in opposition to the psychoanalytic theoretical position that depression is the consequence of the inward turning of aggression toward the self (Abraham, 1911; Freud, 1917). From this theoretical position one would have predicted an inverse relationship between depression and non-cooperation --i.e., the greater the overt expression of aggression the less the internalization of aggression and therefore the less the depression. Similarly, the notion advanced by Janis and Leventhal (1965) that the depressed physically disabled patient withdraws into himself and refuses to comply with external demands, appears equally unfounded according to the results of this study.

It would appear rather that refusals to comply with the hospital staff depends on factors other than depression in the patient. For the low SEC patient, cooperation in the hospital more likely depends on his premorbid relationships with authority figures. If, for example, prior to the injury, the patient had been typically submissive to authority figures, it would appear likely that such compliant behavior would continue in the hospital.

This notion, to account for the data by the congruence of behavior with the patient's predisability personality receives some support in this study only for the low SEC patients. According to hospital records, all of the low SEC

patients who received high non-cooperative scores on the ward had premorbid histories of acting-out behavior. No mention, however, of any premorbid dyssocial behavior was noted in the hospital records of the middle class patients who scored high in non-cooperation on the ward.

These results would indicate that the factors responsible for producing non-cooperative behavior on the hospital ward are not the same for the middle and low SEC patients. Behavioral consistency between predisability personality and hospital ward behavior seems to occur only in the low SEC, confirming the writings of Shontz (1962) and Wright (1960). Factors related to middle class non-cooperation do not emerge from the data of this study. Reports of pre-injury behaviors do not provide clues as they do for low SEC patients.

Level of Injury and Outpatient Behavior

According to the results of this study, there is no statistical relationship between the level of the spinal injury (paraplegic or quadriplegic) and the patient's educational or vocational status. Moreover, it was found that there is no relationship between the level of the spinal injury and the number of times settings were entered, the number of times activities were performed and the number of different people interacted with.

These findings, between the level of spinal injury and post-discharge behavior, confirm previous studies in this

area. Runge (1966), in her follow-up study of traumatic spinal cord injury patients reported that:

The employed people were scattered throughout the motor levels and were not at all found in the lower levels as might be expected. We therefore concluded that employment was not related to injury (p. 249).

The literature on all types of disabled--not merely the spinal cord injured--indicates that severity of disability is not a factor in differentiating the employed from the unemployed. Reed (1967), studying the orthopedic, cardiovascular and neurologically disabled, Harrison and Mitchell (1960) studying patients with poliomyelitis, and Benjnarowicz (1967) studying the amputee, all point to sociological and psychological factors rather than physiological limitations as the key determinants of employment.

According to the results of this study also, vocational and educational involvement is a function, not of the patient's severity of disability, but of an interaction between sociological (social class) and psychological factors.

Level of Education and Present Status

A significant relationship was found between the patient's level of education and employment after discharge. Only one patient who did not go to college is presently working, while all of the patients who had attended college (with one exception) are presently employed. These results would, indicate that for the spinal cord patient, a college education

is an important requirement to possess if he is to find employment.

This finding is in complete accord with the literature. A Vocational Rehabilitation Administration report (1968) on the service needs of paraplegics and quadriplegics noted:

It seems as if unemployment is not common for the disabled who possess a college education.... If a paraplegic or quadriplegic is going to compete successfully in the future labor market, the feasibility of furthering his education must be thoroughly investigated by those who appraise his abilities (pp. 33-34).

Bejnarowicz (1967), Felton (1968), Jousse (1963), and Kallen (1968) found a similar relationship between education and employment, maintaining that the patient who has not attended college is virtually eliminated from competitive employment. Rusk (1963) in a study of paraplegics and quadriplegics, found that the largest number of employed spinal cord patients were in the professional and managerial fields, areas which demanded a higher education.

Furthermore, patients who were employed in manual, blue-collar jobs (the lower educated patients) prior to their injuries are most seriously affected by their spinal cord injuries. In contrast, the educated patients who were previously employed in work that demands cognitive rather than physical skills, can either return to their former job or seek employment in allied fields. Of the six patients in this study who have attended college and are presently working, four have returned to the jobs they held prior to their injury.

From these findings it appears that the task of the vocational counselor must be, as Sussman (1965) noted "to bring his client to the point where he is saleable in the economy." The first step in this direction would be to upgrade if possible, the patient's educational level.

This prescription for vocational success would appear to be very difficult to achieve. This study found a strong relationship between the patient's pre-injury and post-injury educational status. Patients who were students at the time of their injury continued their education after discharge, those who had dropped out prior to injury did not return to school following discharge from the hospital. Thus, it would seem unlikely that a patient who had not attended college prior to his disability will return to school upon discharge, even though it is this step that is essential for vocational success.

Previous attempts at upgrading patients' education have not been entirely successful. The Vocational Rehabilitation Administration report (1968) noted that:

while prior to employment considerable vocational retraining is necessary for the spinal cord injured who previously worked at unskilled jobs, ...some individuals will not enter retraining programs or will achieve only limited success in such programs because the work may not possess the same meaning or status as prior occupations (p. 41).

London and Wenkert (1964) also point out that vocational training programs for the uneducated person have two main obstacles that prevent success. These workers do not value

"bookish learning" but rather learning on the job and they tend to be intimidated by any school-like activity because of the usual early disillusionment with school and their poor performance in it.

Some Limitations and Possible Directions

Before concluding this discussion, some mention should be made of the possible limitations arising from methodological factors in the study and the directions which future research might take.

The subjects for this study were white, traumatic-spinal cord injured males who were rendered wheelchair dependent. Generalizing from the results of this study to other types of disabled patients and/or to hospitalized non-disabled patients cannot be assumed. Replication of these findings in other groups of hospitalized patients, both disabled and non-disabled would be required before such generalizations could be made.

The data on non-cooperation and depression were obtained from staff notes. A question arises about the basis on which entries are made (and not made) by the Nurse, O.T. or P.T. worker. Moreover, are these services applying criteria (whatever they might be) uniformly to all patients or are certain types of patients being selectively chosen? This study operated from the assumption that the notes in the hospital charts reflected uniform criteria in note-taking for all patients and that non-cooperative and depressive

behaviors were recorded accurately and objectively. To date no study exists which has compared the relationship between patients' behaviors and staff entries in the hospital record. This study, however, has taken this relationship as a given, with the extensiveness, extreme detail and uniform comments of the observations recorded in the hospital chart serving as the only validation of such a contention.

A similar question may also be raised as to the validity of the patients' diaries. Are the patients accurately recording their daily activities? Although no formal check was possible, it was assumed that the subjects honestly represented their daily events in the diaries. It is believed that the non-threatening nature of the task gave the patients little need or desire to falsify the data. The fact that all of the patients who met the criteria for this study agreed to participate might be some testimony to the absence of threat in the task.

Finally, it is hoped that this study will serve as a base for further studies of the relationship between hospital behavior and post-discharge behavior. One possible outgrowth of this research would be the design of a study which examines up close the occurrence and the nature of non-cooperation and depression--the interactions which precede, accompany, and follow them. Such a design might, for example, entail the encouragement of certain moods or behaviors on the ward. Measures would then be designed to examine whether patients

follow the encouragement. On one ward, for example, the staff would encourage patients to exhibit depressive behaviors while in another ward the staff would do everything possible to extinguish any signs of depressive behaviors.

The establishment of such experimental groups, coupled with adequate control groups, would seem to be a most productive topic to pursue in the light of the results obtained in this study. It would also seem imperative that if rehabilitation agencies are going to further their understanding of "how to rehabilitate a physically disabled individual," then controlled experimental studies, glaringly absent at present (Rothschild, 1969; Shontz, 1970) must be established. The hospital, the first social setting which the patient encounters as a disabled person, would be the most likely place to begin.

CHAPTER V

SUMMARY

This study was an exploration of the relationship between spinal cord patients' non-cooperative and depressive behaviors during their hospitalization and their post-hospitalization behaviors.

The data measuring non-cooperation and depression (the independent variables) were derived from the patient's hospital chart of his first admission to the hospital following his injury. From the reports of the Nurses, Occupational Therapists (O.T.) and Physical Therapists (P.T.), every statement in the hospital chart which indicated a refusal to carry out what was expected of the patient (both therapeutically and custodially), and every statement that reflected a quality of sadness, mourning or a downcast mood, was recorded.

The outpatient data for this study (the dependent variables), came from diaries kept by the patients. The patients recorded all of their activities for one week, the time they occurred and with whom they did them. The diaries were analyzed into eleven outcome variables.

Twenty-four, white, male, spinal cord injured patients who were totally wheelchair dependent served as subjects for this study.

The major findings of this study were:

A significant inverse relationship was found only between the degree of ward non-cooperation and the patient's

involvement in employment/school. All other associations between non-cooperation and the dependent variables were not significant. No significant associations were found between the degree of ward depression and the eleven outcome variables.

When however the patients' data were divided along social class lines the following results were found:

For the middle socioeconomic class (SEC) patient, ward non-cooperation correlated positively and significantly with the patient's range of behaviors (settings, activities and persons encountered). Moreover, all of the associations between the independent and dependent variables tended in a positive direction.

The degree of depression expressed by the middle SEC patient was unrelated to the eleven outcome variables.

For the low SEC patient, depression correlated significantly and negatively with all eleven outcome variables.

Ward non-cooperation for the low SEC patient did not significantly correlate with ten of the dependent variables but did correlate negatively and significantly with the patient's involvement in school/employment.

Social class by itself was not a good predictor of the patient's non-cooperative or depressive behaviors in the hospital, nor of the patient's post-hospitalization behaviors. However, when knowledge of the patient's social class was combined with knowledge of his behavior in the hospital,

predictions could be made to the patient's post-hospitalization behaviors.

No significant differences were found between the three time periods of hospitalization in the amount of non-cooperation expressed.

Similarly, depression was not found to be significantly different for the three time periods of hospitalization. However, patients were not consistent in expressing their depression over the three time periods.

No relationship was found, in either SEC group, between non-cooperative and depressive behaviors throughout hospitalization.

No statistical relationship was found between the level of spinal injury and the amount of non-cooperative and depressive behavior displayed during hospitalization, the range of behavior (settings, activities and people encountered) after discharge, or employment/school participation.

A significant relationship was found between the patient's level of education and employment after discharge. For the spinal cord patient, a college education is an important requirement for employment.

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APPENDICES

APPENDIX A
COVER LETTER TO PATIENTS

TEXAS INSTITUTE FOR REHABILITATION AND RESEARCH
IN THE
TEXAS MEDICAL CENTER
1333 MOURSUND AVENUE
HOUSTON, TEXAS 77025

TELEPHONE

P. O. BOX 20098

Dear Mr. [REDACTED]

TIRR continues to be interested in learning whatever it can in order to improve the rehabilitation process. Occasionally, we call upon our former patients to assist us in this task.

At present, much knowledge has already been gathered about the patient while he is in the hospital. Much less, however, is known about what happens to the patient after he leaves the hospital. We would like to ask your cooperation in one such study which is now being conducted. Your part in this study will take only about five to ten minutes each evening for a period of one week and will involve merely recording your daily activities. It is completely understood that all information you give will be kept completely confidential. To further assure anonymity, a code number will be assigned to you.

To collect this information, Mr. Melvyn Kalb will visit your home and the homes of other outpatients. Mr. Kalb is currently working with Dr. Vineberg of the TIRR staff. Before making the visit, Mr. Kalb will call to arrange an appointment with you.

We sincerely hope that you will find it possible to participate in this important study. If you have any questions, please do not hesitate to call Dr. Vineberg's office, [REDACTED].

Yours truly,

[REDACTED]

R. Edward Carter, M.D.
Director, Patient Care Services

APPENDIX B

ACTIVITIES AND WHEELCHAIR USE SURVEY--MANUAL OF
INSTRUCTIONS AND DIARY SHEETS

ACTIVITIES AND WHEELCHAIR USE SURVEY
TEXAS INSTITUTE FOR REHABILITATION AND RESEARCH

The purpose of this booklet is to find out what former TIRR patients do after discharge from the hospital. Specifically, we are interested in finding out:

- (a) How you spend the day, and
- (b) How frequently or infrequently you use your wheelchair to assist you in your daily activities.

To obtain this information this booklet contains seven daily activities record sheets. We would like you to fill out these sheets as stated in the directions below. It is estimated that this will take you 5 - 10 minutes each evening.

It is most important to remember that all information that you provide will be kept completely confidential. Notice that you are NOT to put your name on this booklet. Instead, a code number will be assigned to you to assure anonymity.

Daily Activities Record

Enclosed you will find seven daily activities sheets. Each evening, as near to bedtime as possible, you are to list all your activities and with whom you did them from the time you got up until you go to bed. In addition, you are to list the approximate time that these activities occurred. Also please record the number of hours per day you have spent in your wheelchair. This record must be kept for seven complete days--one record sheet for each day.

On the following page you will find an example of a completed daily activities record sheet for one day.

DAILY ACTIVITIES RECORD SHEET

Code Number: 247

Day of Week: Monday

[illegible]

This booklet contains seven daily activities sheets (one for each day). When the week is over and you have completed all seven activity sheets please mail these sheets back to me in the self-addressed envelope provided. A total of 8 sheets should be returned.

If you have any questions at any time, no matter how unimportant you may think them to be, please do not hesitate to call me at either of the following numbers:

TIRR: [REDACTED]

HOME: [REDACTED]

Your cooperation is greatly appreciated. I can assure you that your assistance in this task will make a valuable contribution to the rehabilitation process.

Melvyn Kalb

Day of Week: _____

APPENDIX C

STUDENT INFORMATION INTERVIEW AND EMPLOYMENT INTERVIEW

STUDENT INFORMATION INTERVIEW

A. Is the patient presently a student? Yes No

If yes:

Nature of present academic status _____

Curriculum load _____

Full or part time attendance _____

B. Academic history since discharge:

(1) First semester attended school since first admission discharge from TIRR:

Dates _____ Number of
Status _____ Courses taken _____

(2) Second Semester

Dates _____ Number of
Status _____ Courses taken _____

(3) Third Semester

Dates _____ Number of
Status _____ Courses taken _____

(4) Fourth Semester

Dates _____ Number of
Status _____ Courses taken _____

(5) Fifth Semester

Dates _____ Number of
Status _____ Courses taken _____

EMPLOYMENT INTERVIEW

A. Is the patient presently employed? Yes No

If yes:

Nature of employment _____

Salary _____ Starting date _____

Full-time or Part-time _____

Length of time it took to find this job _____

B. Has there been any previous employment(s) since discharge? Yes No

If yes:

Nature of employment(s) _____

Salary _____ Starting and termination dates _____

Full-time or Part-time _____

Length of time it took to find this job (s) _____

C. Did the patient receive any vocational counseling or training either as an in-patient or out-patient from TIRR? Yes No

From other agencies? Yes No

Nature of agency _____

D. Employment prior to the onset of injury:

Nature of employment _____

Salary _____ Duration _____

Number of months employed _____ = _____
Number of months discharged

APPENDIX D

FACTOR SCORES AND THE SCORES OF THE INDEPENDENT VARIABLES

TABLE 19
 FACTOR SCORES AND THE SCORES OF THE INDEPENDENT VARIABLES
 MIDDLE SEC SAMPLE

| <u>Patient Factor Scores</u> | | <u>Independent Variables</u> | |
|------------------------------|-----------|-------------------------------------|--------------------------------|
| Factor I | Factor II | Ward Non-Cooperation Ratio Score | Ward Depression Ratio Score |
| .109 | -.117 | .65 | .17 |
| .684 | 1.438 | .63 | .45 |
| 1.219 | .370 | .55 | .25 |
| 1.045 | .316 | .30 | .21 |
| -.254 | .455 | .22 | .10 |
| -1.847 | -.886 | .39 | .28 |
| -.219 | -.385 | .33 | .17 |
| .576 | -1.479 | .01 | .01 |
| -1.604 | -1.540 | .03 | .29 |
| .291 | -1.252 | .06 | .60 |

TABLE 20
 FACTOR SCORES AND THE SCORES OF THE INDEPENDENT VARIABLES
 LOW SEC SAMPLE

| <u>Patient Factor Scores</u> | | <u>Independent Variables</u> | |
|------------------------------|-----------|-------------------------------------|--------------------------------|
| Factor I | Factor II | Ward Non-Cooperation Ratio Score | Ward Depression Ratio Score |
| -.645 | 1.261 | .07 | .13 |
| -1.064 | 2.075 | .21 | .13 |
| -1.134 | -1.028 | .37 | .27 |
| -.991 | -1.273 | .13 | .40 |
| .540 | .932 | .01 | .07 |
| -.288 | .737 | .26 | .16 |
| .432 | 1.232 | .07 | .03 |
| -.268 | -.280 | 1.00 | .08 |
| -.966 | -.675 | .06 | .15 |
| -.875 | -1.195 | .96 | .30 |
| 1.105 | -.296 | .20 | .21 |
| 1.442 | -.595 | .31 | .17 |
| .785 | .082 | .15 | .00 |
| 1.928 | -.976 | 1.37 | .00 |

APPENDIX E

ROTATED FACTOR LOADINGS FROM THE TWO FACTOR ANALYSES
OF THE DEPENDENT VARIABLES

TABLE 21
 ROTATED FACTOR LOADINGS FROM THE TWO FACTOR ANALYSES
 OF THE DEPENDENT VARIABLES

MIDDLE SEC SAMPLE

| Variables | Factor I | Factor II |
|--|----------|-----------|
| Mean number of hours per day spent with people other than family members | .279 | -.043 |
| Mean number of hours per day spent outside the home | .270 | -.036 |
| Mean number of hours per day spent in the wheelchair | .191 | .162 |
| Number of times people were interacted with during the week | .158 | -.040 |
| Number of discrete settings entered during the week | -.021 | .278 |
| Number of times activities were performed during the week | -.050 | .278 |
| Student/Employment Ratio | -.317 | .212 |

TABLE 22

ROTATED FACTOR LOADINGS FROM THE TWO FACTOR ANALYSES
OF THE DEPENDENT VARIABLES

| LOW SEC SAMPLE | | |
|--|----------|-----------|
| Variables | Factor I | Factor II |
| Mean number of hours per day spent with people other than family members | .410 | -.267 |
| Mean number of hours per day spent outside the home | .381 | -.229 |
| Number of times people were interacted with during the week | .309 | -.164 |
| Mean number of hours per day spent in the wheelchair | .061 | .142 |
| Number of discrete settings entered during the week | -.053 | .193 |
| Number of times activities were performed during the week | -.062 | .249 |
| Student/Employment Ratio | -.200 | .371 |

APPENDIX F

RAW DATA OF THE INDEPENDENT VARIABLES

TABLE 23
RAW DATA FOR THE INDEPENDENT VARIABLES

| Patient Number | Ward Non- Cooperation Ratio Score | P.T. Non- Cooperation Ratio Score | O.T. Non- Cooperation Ratio Score | Ward Depression Ratio Score |
|-------------------|---|---|---|-----------------------------------|
| 1 | .22 | .20 | .25 | .10 |
| 2 | .33 | .00 | .00 | .17 |
| 3 | .65 | .06 | .00 | .17 |
| 4 | .63 | .18 | .16 | .45 |
| 5 | .07 | .00 | .00 | .13 |
| 6 | .21 | .00 | .25 | .13 |
| 7 | .37 | .13 | .33 | .27 |
| 8 | .13 | .13 | .00 | .40 |
| 9 | .01 | .00 | .00 | .07 |
| 10 | .01 | .00 | .00 | .01 |
| 11 | .26 | .09 | .00 | .16 |
| 12 | .07 | .00 | .00 | .03 |
| 13 | 1.00 | .75 | .75 | .08 |
| 14 | .06 | .00 | .00 | .15 |
| 15 | .06 | .00 | .00 | .60 |
| 16 | .96 | .66 | .50 | .30 |
| 17 | .03 | .00 | .00 | .29 |
| 18 | .20 | .00 | .00 | .21 |
| 19 | .31 | .00 | .00 | .17 |
| 20 | .39 | .00 | .00 | .28 |
| 21 | .30 | .00 | .00 | .21 |
| 22 | .15 | .00 | .00 | .00 |
| 23 | 1.37 | .50 | .67 | .00 |
| 24 | .55 | .25 | .33 | .25 |
| Mean | .35 | .12 | .14 | .19 |
| S.D. | .35 | .22 | .23 | .15 |

APPENDIX G
RAW DATA OF THE DEPENDENT VARIABLES

TABLE 24

RAW DATA FOR THE DEPENDENT VARIABLES

| Patient Number | Number of discrete activities performed | Number of times activities were performed in the week | Number of different people interacted with in the week | Number of times people were interacted with in the week | Number of Genotypes |
|----------------|---|---|--|---|---------------------|
| 1 | 23 | 109 | 6 | 17 | 7 |
| 2 | 14 | 70 | 7 | 30 | 7 |
| 3 | 14 | 85 | 7 | 50 | 8 |
| 4 | 21 | 103 | 11 | 36 | 12 |
| 5 | 16 | 83 | 8 | 35 | 5 |
| 6 | 22 | 106 | 4 | 24 | 6 |
| 7 | 6 | 35 | 4 | 15 | 1 |
| 8 | 8 | 54 | 2 | 14 | 1 |
| 9 | 15 | 94 | 7 | 46 | 7 |
| 10 | 9 | 77 | 3 | 31 | 3 |
| 11 | 17 | 64 | 6 | 29 | 6 |
| 12 | 18 | 81 | 9 | 33 | 8 |
| 13 | 13 | 62 | 5 | 17 | 4 |
| 14 | 10 | 60 | 7 | 21 | 1 |
| 15 | 10 | 66 | 5 | 27 | 3 |
| 16 | 7 | 46 | 4 | 14 | 2 |
| 17 | 25 | 111 | 6 | 25 | 10 |
| 18 | 15 | 82 | 3 | 32 | 6 |
| 19 | 11 | 66 | 6 | 47 | 6 |
| 20 | 10 | 49 | 6 | 20 | 3 |
| 21 | 20 | 99 | 4 | 28 | 7 |
| 22 | 13 | 69 | 6 | 43 | 7 |
| 23 | 11 | 96 | 6 | 46 | 6 |
| 24 | 21 | 93 | 6 | 50 | 11 |
| Mean | 14.54 | 77.50 | 5.75 | 30.42 | 5.71 |
| S.D. | 5.38 | 21.16 | 2.00 | 11.74 | 3.03 |

(Table continued on next page)

TABLE 24 (Continued)

| Patient Number | Student/ Employment | X hours per day spent outside the home | X hours per day spent with people other than family members | X hours per day spent in wheelchair | Number of discrete set- tings entered in the week | Number of times settings were entered in the week |
|----------------|------------------------|---|---|---|--|--|
| 1 | 1.00 | 6.33 | 6.47 | 8.43 | 8 | 31 |
| 2 | .69 | 4.85 | 5.04 | 10.90 | 7 | 34 |
| 3 | .80 | 4.85 | 5.71 | 8.90 | 9 | 44 |
| 4 | .86 | 10.43 | 10.47 | 8.33 | 15 | 82 |
| 5 | .96 | 3.33 | 3.18 | 13.61 | 6 | 24 |
| 6 | .94 | 4.43 | 3.61 | 14.04 | 6 | 41 |
| 7 | .55 | .00 | .00 | 1.13 | 1 | 7 |
| 8 | .00 | .00 | .50 | .00 | 1 | 7 |
| 9 | 1.00 | 6.50 | 5.85 | 12.00 | 8 | 57 |
| 10 | 1.00 | 6.50 | 6.50 | 9.30 | 3 | 31 |
| 11 | .72 | 4.14 | 4.71 | 12.71 | 7 | 34 |
| 12 | .88 | 8.00 | 6.78 | 12.70 | 11 | 52 |
| 13 | .00 | 4.18 | 2.61 | 6.14 | 7 | 36 |
| 14 | .00 | .00 | 1.42 | 1.28 | 1 | 7 |
| 15 | .76 | 6.40 | 6.40 | 11.40 | 3 | 27 |
| 16 | .11 | .57 | .57 | 1.43 | 2 | 8 |
| 17 | .03 | 3.33 | 3.18 | 10.10 | 11 | 42 |
| 18 | .54 | 9.04 | 8.17 | 12.40 | 9 | 36 |
| 19 | .89 | 8.43 | 8.33 | 13.75 | 6 | 38 |
| 20 | .30 | 1.10 | 1.10 | 3.00 | 3 | 15 |
| 21 | .94 | 8.70 | 8.64 | 14.50 | 11 | 79 |
| 22 | .90 | 7.56 | 5.71 | 15.32 | 7 | 37 |
| 23 | .00 | 9.20 | 8.45 | 14.21 | 8 | 40 |
| 24 | .92 | 8.93 | 11.00 | 12.50 | 13 | 53 |
| Mean | .62 | 5.28 | 5.18 | 9.50 | 6.79 | 35.92 |
| S.D. | .39 | 3.25 | 3.16 | 4.83 | 3.86 | 19.92 |