PREDICTION OF IMPROVEMENT IN

PSYCHIATRIC PATIENTS

APPROVED:

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PREDICTION OF IMPROVEMENT IN
PSYCHIATRIC PATIENTS

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By

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CHAPTER I

INTRODUCTION

Since there are so few skilled psychotherapists, and since the demands on their time are so great, psychologists are confronted with the vital problem of learning how to predict which patients are most likely to benefit from psychotherapeutic help. After all, there is little point for highly trained persons to devote many hours to patients who are unlikely to benefit from their assistance while other patients who might benefit go untreated. Furthermore, Parloff says of prediction in psychotherapy, "Society has a very large stake in psychotherapy, but can be expected to continue support at present levels only if the results prove to be worth the cost (23)."

It is thus quite apparent that knowledge of the outcome of psychotherapeutic treatment is of immense importance to both the psychologist and the individual he treats.

Predicting treatment outcome has not been very successful, although most attempts have been met with some positive results (4, 14, 12). Methods and instruments employed have been widely varied: for example, the Minnesota Multiphasic Personality Inventory, the Rorschach Inkblot Test, and a modified form of the Wechsler Adult Intelligence Scale (1),
experimentally induced maladjustment (17), psychological test-retest techniques (8), and self ratings by Q-sort technique (12). Common factors in each technique are those of obtaining information from the individual about his personality structure. Also an attempt was made to discover what facets of the test behavior might be significantly correlated with the criterion improvement and hence might be useful in predicting response to treatment.

Each methodological approach listed above has certain advantages and disadvantages. The test-retest techniques employing the Minnesota Multiphasic Personality Inventory and various adjustment inventories have the advantage of objective scoring; however, this can lead to feelings of unwarranted confidence. A major difficulty in inducing conflict in the subject is that it may be so small as to be really of no significant consequence. The major virtues of self rating techniques lie in their convenience and accessibility. Although reliability is often satisfactory, their validity is difficult to establish.

Thus, the psychologist is in somewhat of a dilemma as to which instrument he should utilize in predicting treatment outcome. An instrument combining some of the above techniques and their advantages with a minimum of disadvantages appears to be desirable.

Snygg and Combs have stressed that the basic human need is for the preservation and enhancement of the phenomenal self.
They assert that "one of the major aspects of the personality is the self, . . . an organism which among its many functions includes the function of observing and knowing . . . ." (28) The self is a thing perceived, and it is also a thing conceived; in both senses it is constantly responded to. A large part of the behavior that constitutes personality is self-oriented behavior (21, p. 497).

Lecky maintains that the whole basis of the self is unity, and through unity of the self, adjustment to one's environment is established. Unity of the self is established through self-concept, a consistent self-picture with the acceptance of all that integrates well with its design, and the rejection of all that proves incompatible with it (18).

Thus, it can be seen that a subjective assessment of one's self-concept by himself should provide a good basis from which to predict improvement or unimprovement in his treatment. This is true because the individual manifests through the instrument aspects of his disintegrated personality and self-concept and the degree to which his self-perception is impaired, thereby providing a basis for prediction.

Statement of the Problem

The problem of this investigation is to determine to what extent a self-concept measure may contribute to predicting which patients in a hospital are most likely to profit from treatment. Many questions might be asked by the psychologist
prior to treatment of the patient. Can this patient profit from therapy enough to make a satisfactory adjustment to his environment? To what degree can improvement in remission of symptoms be expected? What will the approximate duration of the treatment be for this patient? Such questions are of paramount interest to the therapist and also to his patient.

The severity of the patient's condition as reflected in his evaluation of his self-concept would be one determining factor in answering the above questions. Also the various aspects of the patient's self-concept would be important determining factors; e.g., how satisfied is he with his self at the present time? Can he perceive how he behaves, his sense of adequacy in his social interaction, or his feelings of adequacy as a person apart from his relationship to others? At the present time it is not known what effects, if any, these factors would have upon a therapist's prediction of therapy outcome with a particular patient.

Purpose of the Study

There were three major functions of this study. First, an attempt was made to ascertain whether improvement or unimprovement in treatment could be predicted from one's assessment of his self-concept as measured by a self-concept instrument. Second, an effort was made to determine whether the low-self-concept individual is less susceptible to improvement than the high-self-concept individual. Third, testing
was done to determine whether there would be a difference in self-concept scores in the two major classification groups, neurosis and psychosis, and if so, would this difference be manifested as improvement.

Definition of Terms

The term "self-concept" is not an uncommon one. Much has been written about self-concept, but unfortunately not all agree as to its definition. However, for purposes of clarification self-concept will be defined here as the image an individual has of himself, in all aspects of himself: personality, physical looks, behavior, personal and social self. Self-concept will be defined operationally as that which is measured by the Tennessee (Department of Mental Health) Self-Concept Scale.

"Improvement" and "unimprovement" are two broad concepts which, for the purpose of this study, will be narrowed somewhat. The word "improvement" will mean a general change from bad to good in the patient's behavior. Operationally, improvement and unimprovement were defined as (a) a combined rating given by a psychiatrist, clinical psychologist, and a psychiatric nurse and (b) a comparison of test-retest Minnesota Multiphasic Personality Inventories.

Related Research

In the past two decades there has been a vast amount of research conducted in the area of self-concept. However, very
little attention has been directed toward the use of the self-concept as a means of prediction of response to treatment. Lorr, Katz, and Rubinstein (19) conducted a study to test the validity of a predictive test battery on a wider range of clinic cases and to test a series of hypotheses concerning the characteristics that differentiate patients who terminate prematurely from patients who remain in treatment. One of the hypotheses from the standpoint of "remainder characteristics" was that terminators are less dissatisfied with themselves. The measure employed for this particular hypothesis was a Self-Rating scale consisting of eighteen five-point graphic scales. The patient was to rate his actual self and ideal self; the difference between provided a measure of self-dissatisfaction. In the two groups the measure was found to be significantly differentiating in one and in the predicted direction in the other group. Those who were remainers were somewhat less satisfied with themselves than the terminators.

Change in decrease of psychological symptoms as a consequence of six months of psychotherapy was studied in a sample of thirty-three adult psychoneurotics by Barron (1). Changes for the better were summarized as, patients reporting "feeling better," relief or cure of psychosomatic symptoms, and interpersonal relationships established on a more mature basis. Patients were rated as improved by two judges and the
ratings of improvement were then correlated with various psychological tests. It was found that level of personality integration at the beginning of therapy was positively associated with change (i.e., those who are somewhat better off to begin with are likely to improve the most.)

Fey (11) found that those patients who express a marked self-acceptance also express no desire for therapy. He further discovered that individuals who are least interested in therapy are those who express high acceptance of themselves and low acceptance of others. Thus, in order to desire therapy and benefit from it patients need to express an attitude of dissatisfaction with their selves.

An hypothesis explored by Ewing (10) was that improvement in certain problem areas for a client depended upon the client's initial status in that particular problem area. Two groups were utilized, one a counseling group which received therapy and another which functioned as a normal group, which received no treatment. Both experimental and control groups made self-ratings in reference to their self-concepts before counseling began and again when therapy was terminated. The results supported the hypothesis in that those who rated themselves dissatisfied with themselves prior to therapy did improve and rated themselves as more satisfied with themselves after therapy.
Dymond (9) instructed two groups of subjects to sort statements concerning their self-concept both before and after therapy. The control group, however, received no therapy. The improvement criterion was obtained by having two clinical psychologists sort the same statements into two piles, those the well-adjusted person should say are like him and those the well-adjusted person should say are unlike him. The post-therapy sort indicated there was a significant improvement in the experimental group which did not occur in the control group. The results of this study imply that a self-concept measurement might be used as a predictor criterion of treatment even though this was not the major purpose of the investigation. Other studies have had similar implicative findings (3, 15, 16).

McKeever, May, and Tuma (20), using self and ideal self-concept sorts of the Clyde Moody Scale as one of many predictor variables in speed of release from a hospital found that improvement in positive self-acceptance was related to speed of release.

Twenty-two psychoneurotic patients were tested by Cartwright and Vogel (7) at four different time points: (a) when first accepted for therapy and placed on a waiting list; (b) after a waiting time; (c) after therapy had begun; and (d) after therapy ended. The instruments employed were the Butler and Haigh Q-sort and the TAT. It was hypothesized that there would be more change or improvement in the patient during a period of therapy than an equal period of no therapy.
The results confirmed the hypothesis for the Q-adjustment score but not for the TAT. It was noted that those who improved had a significantly higher Q-adjustment score after therapy than before.

Butler and Haigh (5) reported an investigation of client-centered counseling results based on an increase in congruence between self and the self ideal concepts in the client. A major portion of their hypothesis was that this reduction would be particularly prevalent in those cases judged as improved. At the outset the total patient group showed a large discrepancy between self and ideal as measured by Q-sorts. The comparison of pre-therapy and post-therapy sorts indicated a statistically significant change. At the termination of counseling there was less discrepancy between the self and ideal for the majority of clients. It was the authors' opinion that the low correlation between self and ideal was based on a low level of self-esteem related to a relatively low adjustment level and that as a result of counseling there was a rise in the level of self-esteem and of adjustment.

Response to treatment can be in two general directions, improvement or unimprovement. However, the problem that arises is how to determine or measure improvement and unimprovement.

Schofield (24) has pointed out that it is reasonable to employ the same indices that are used to detect personality
disturbances for evaluating the effectiveness of efforts to lessen these disturbances as well. Thus, the Minnesota Multiphasic Personality Inventory variables can lend themselves as worthwhile means of describing changes in personality characteristics following treatment.

Sullivan, Miller and Smelser (29) compared the pre-therapy Minnesota Multiphasic Personality Inventory scores from patients who improved under treatment in a Veteran's Administration mental hygiene clinic with those of patients who were unimproved. The groups differed at a stable level on the F scale and on the clinical scales 1, 2, 3, 4, 7, 8, and 9; on all these scales the improved group was initially less deviant than the unimproved group. These differences were stable over their three samples drawn from different periods.

Barron and Leary (2) compared individual psychotherapy and group psychotherapy for psychoneurotic patients from the same clinic population over a period of at least three months. The results achieved with each of the groups of cases were compared to the effects noted on patients placed on a waiting list for whom psychotherapy was postponed for a comparable period. The three groups were compared in respect to initial mean scores on the Minnesota Multiphasic Personality Inventory. The authors found that the groups undergoing treatment had changed for the better on the terminal administration of the Minnesota Multiphasic Personality Inventory.
The main evidence advanced so far that the Minnesota Multiphasic Personality Inventory provides a sensitive set of measures for evaluating therapeutic change comes from the comparison of ratings of improvement.

W. Simon et al. (27) in comparing four different treatment regimes for schizophrenic patients, found systematic differences in improvement on an independent, objective rating scale. The Minnesota Multiphasic Personality Inventory findings on these four treatment groups were in close accord with the clinical evaluations of change.

Reports on pre- and post-treatment Minnesota Multiphasic Personality Inventory findings on groups of patients subdivided into improved and unimproved indicated that independent assessments of degree of change was in accord with Minnesota Multiphasic Personality Inventory profile change (6, 13, 22, 26). It is interesting to note that in most of these studies the group rated generally unimproved nevertheless did show some reduced levels of Minnesota Multiphasic Personality Inventory scores.

However, there is a pitfall to be recognized in employing psychiatric ratings. Schofield (25) noted a tendency for the psychiatric staff to rate almost every patient improved; this error in such judgements may limit the usefulness of such ratings as criteria in a large number of research settings.
From the knowledge gained from the studies and the theories derived from the data, the following hypotheses were proposed for the present study.

Statement of Hypotheses

1. Patients scoring at or below a T score of 50 on the following sub-tests of the Tennessee Self Concept Scale will improve from treatment received: Self Criticism Score, Behavior Score, Personal Self Score, Defensive Positive Score, Total Variability Score, and Self Satisfaction Score.

2. Patients who make high scores on the sub-tests of the Tennessee Self Concept Scale, as listed above, will attain a greater degree of improvement than will those patients who make low scores on these test variables.

3. Patients who are diagnosed as psychotic will have a lower self-concept as measured by the Tennessee Self Concept Scale than will patients in the diagnostic classification neurotic. Further, there will be a lesser degree of improvement in treatment for patients diagnosed as psychotic than the patients diagnosed as neurotic.
CHAPTER BIBLIOGRAPHY


CHAPTER II

METHOD

Subjects

The subjects of this study were twenty-two male and female patients at the Fort Worth Neuropsychiatric Hospital. Two groups were formed, with the first subject being randomly assigned to Group II while the following subjects were alternately placed in the two groups. These two groups were utilized in the belief that whatever results were found would be more convincing if found in two randomly formed groups than in one total group.

TABLE I

DESCRIPTIVE PRESENTATION OF THE TWO GROUPS

<table>
<thead>
<tr>
<th>Subject</th>
<th>Group I</th>
<th>Group II</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sex</td>
<td>CA</td>
</tr>
<tr>
<td>A</td>
<td>F</td>
<td>30</td>
</tr>
<tr>
<td>B</td>
<td>M</td>
<td>43</td>
</tr>
<tr>
<td>C</td>
<td>F</td>
<td>16</td>
</tr>
<tr>
<td>D</td>
<td>F</td>
<td>46</td>
</tr>
<tr>
<td>E</td>
<td>F</td>
<td>39</td>
</tr>
<tr>
<td>F</td>
<td>F</td>
<td>39</td>
</tr>
<tr>
<td>G</td>
<td>F</td>
<td>41</td>
</tr>
<tr>
<td>H</td>
<td>M</td>
<td>38</td>
</tr>
<tr>
<td>I</td>
<td>M</td>
<td>14</td>
</tr>
<tr>
<td>J</td>
<td>F</td>
<td>41</td>
</tr>
<tr>
<td>K</td>
<td>F</td>
<td>21</td>
</tr>
</tbody>
</table>

*"PD" -- psychotic depression, "D" -- depression, "PP" -- pre-psychotic, "AR" -- anxiety reaction, "S" -- schizophrenic, "AN" -- anxiety neurotic, "MD" -- manic depressive, "ND" -- neurotic depression, "M" -- manic, "PPD" -- post-partum depression
There were eleven subjects in each group. Of these, three were males and eight were females. Also in each grouping, five were diagnosed as psychotic and six diagnosed as neurotic. Each patient was diagnosed by one of three psychiatrists subsequent to an examination immediately after arrival. The age range for Group I was from sixteen to forty-four years of age and for Group II, seventeen to fifty years of age. The mean age for Group I was thirty-three years and for Group II the mean was twenty-nine years.

Description of Criterion Measures

The measures employed to obtain the data for this study were as follows: (a) Tennessee Self Concept Scale; (b) Minnesota Multiphasic Personality Inventory; and (c) a scale devised for staff ratings. A description of relevant characteristics of each is given below.

Tennessee Self Concept Scale

Over recent years many instruments have been employed to measure self-concept. Nevertheless, a need has continued for a scale which is simple for the subject, widely applicable, well standardized, and multidimensional in its description of the self-concept. William H. Pitts developed The Tennessee Self Concept Scale to meet these needs. Since the Scale has multiple utility and is multidimensional
in its description of the self-concept, it was chosen to function as the predictor criterion.

The Scale consists of 100 self-descriptive statements which the patient uses to portray his own picture of himself. There are two forms, the Counseling Form and the Clinical and Research Form, the latter being used in this study. Both forms use exactly the same test booklet and test items. The differences between the forms center in the scoring and profiling system. Seventeen factors are derived from the grouping of the various items. Some of the factors can be combined to form other factors if it is desired. The eleven factors in the Counseling Form are primarily concerned with the behavioral and attitudinal aspects of the self-concept. The six additional factors in the Clinical and Research Form are concerned with the conflict in self perception.

The Scale is self-administered and can be used with patients age twelve or higher and having at least a sixth grade reading level. It is also applicable to the whole range of psychological adjustment. Most patients complete the Scale in ten to twenty minutes (4).

The test-retest reliability coefficients of the seven major scores being utilized in the study, Total Variability, Self Criticism, Self Satisfaction, Behavior, Social Self, Defensive Positive and Personal Self, ranged from .67 to .90 (4, p. 15). In Congdon's (1) study with psychiatric
patients a shortened form of the Scale was used and a reliability coefficient of .88 for the Total Positive Score was obtained.

Statistical analyses were performed by Pitts (4, p. 17) using a large group of psychiatric patients compared with the non-patients of the norm group. In this approach to validity, it was demonstrated that highly significant (mostly at the .001 level) differences existed between patients and non-patients for almost every score that is utilized on the Scale.

Pitts (4, p. 17) also collected data from people characterized as high in personality integration and from a patient group. The results indicated that virtually all scores differentiated between the two groups.

**Minnesota Multiphasic Personality Inventory**

The Minnesota Multiphasic Personality Inventory is widely used in test batteries in clinical settings. It is designed to provide an objective assessment of some of the major personality characteristics. The Minnesota Multiphasic Personality Inventory consists of 566 items to be answered by the patient in a true-or-false manner. The 566 items yield thirteen scales, three validity scales and ten scales descriptive of the patients’ personality.

Test-retest reliability coefficients have generally proven to be quite satisfactory (7, 6, 5, 10). However, no test will perform equally well in all settings; the Minnesota
**Multiphasic Personality Inventory** is no exception. There are various considerations that should be kept in mind while using the test because such variables can affect the accuracy and dependability of the **Minnesota Multiphasic Personality Inventory**.

Although various factors can influence the results of a **Minnesota Multiphasic Personality Inventory**, it has generally proven to be valid (11; 2, p. 478; 8).

**Rating Scale**

A rating scale was constructed to assess the patients' improvement from the time of admission to discharge from the hospital. The instrument devised was a ten-point rating scale having five divisions so as to permit an upper limit and lower limit rating for each division.

<table>
<thead>
<tr>
<th>Rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2</td>
<td>One of the least improved of any patient I have been in contact with.</td>
</tr>
<tr>
<td>3-4</td>
<td>Showed a minimal amount of improvement.</td>
</tr>
<tr>
<td>5-6</td>
<td>Showed some improvement.</td>
</tr>
<tr>
<td>7-8</td>
<td>Showed much improvement.</td>
</tr>
<tr>
<td>9-10</td>
<td>One of the best improved of any patients I have been in contact with.</td>
</tr>
</tbody>
</table>

Staff rating scales of progress made by patients are common practice. However, these kinds of evidences of improvement may be suspect. It may be said, however, that the value of clinical ratings is a function of the clinician.
Rating scales of the type above may be used in an attempt to get at the personal and social adequacy of patients. Some studies with these scales have demonstrated the value of using observations of actual behavior of patients on a hospital ward instead of records of "mental" symptoms. The hospital treatment and training program for psychotics may improve their social behavior so that many are able to do limited work outside; however, the patients' delusions and mental aberrations may not change. A behavior rating scale thus may be indicative of potentiality for improvement even when measures of psychiatric symptomatology are not useful (9).

Fairweather et al. (3) initiated a complicated research project placing eight patients in each of the twelve cells of a three by four analysis of variance design. Three classifications were diagnostic categories and four were treatment techniques.

The criteria of improvement were multiple. One of the criterion was a special ward rating scale on which the patients were rated. It was found that the only measure taken while the patients were in the hospital that correlated with follow-up success was the psychologists' ratings of behavior observed on the ward and in therapy.
Procedure

The data were collected during a four-month period at the Fort Worth Neuropsychiatric Hospital. The patients were informed that they were taking part in a scientific study.

Upon admission to the hospital the patient was asked to be a subject in a thesis study and to take the Tennessee Self Concept Scale. The patient was told to read the instructions in the test booklet and follow them. The patient was also administered the Minnesota Multiphasic Personality Inventory and asked to follow the instructions in the test booklet. The Minnesota Multiphasic Personality Inventory is one of the tests used in the standard battery at the hospital, but is always given prior to the other tests in the battery.

The patient was then subjected to his treatment program. The treatment consisted of electro-convulsive therapy and group therapy three times per week.

Immediately prior to discharge from the hospital the patient was asked to take a repeat Minnesota Multiphasic Personality Inventory. The instructions for taking the repeat test were the same as given at the first testing.

After being discharged, the patient's doctor, a clinical psychologist and a psychiatric nurse were asked to rate the patient as to his degree of improvement from admission to discharge.
CHAPTER BIBLIOGRAPHY


CHAPTER III

RESULTS

The results of the study are presented in the following sequence: (a) the scale differences of the pre- and post-test Minnesota Multiphasic Personality Inventory; (b) presentation of the staff ratings on the patient's progress in treatment; (c) the T values obtained on each of the seven scales on the Tennessee Self Concept Scale and the manner in which those diagnosed psychotic and neurotic scored on the same scales; (d) and the rank difference correlation between the staff ratings and the seven sub-tests employed from the Tennessee Self Concept Scale.

Minnesota Multiphasic Personality Inventory

Fisher's $t$ was used to obtain the significance of the difference between each of the thirteen scales on the pre- and post-test Minnesota Multiphasic Personality Inventory.

Presented in Table II is the summary of the computation of Fisher's $t$ for Group I.

In Group I, two of the scales were significantly different at the .05 confidence level. These two scales were the D or depression and the Sc or schizophrenic scale. The hysteria (Hy) scale and the paranoid (Pa) scale approached
significance. Each of these scales were in the direction of improvement. Four additional scales, although not significant,

**TABLE II**

<table>
<thead>
<tr>
<th>MMPI Variable</th>
<th>Pre Mean</th>
<th>S. D.</th>
<th>Post Mean</th>
<th>S. D.</th>
<th>M. D.</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>4.91</td>
<td>2.31</td>
<td>5.18</td>
<td>1.80</td>
<td>.27</td>
<td>.29</td>
</tr>
<tr>
<td>K</td>
<td>8.45</td>
<td>2.58</td>
<td>8.00</td>
<td>2.73</td>
<td>.45 (a)</td>
<td>.38</td>
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<td>F</td>
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<td>3.32</td>
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<td>6.00</td>
<td>.00</td>
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<td>Hs</td>
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<td>4.14</td>
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<td>.17 (a)</td>
<td>.59</td>
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<td>D</td>
<td>30.00</td>
<td>7.11</td>
<td>23.00</td>
<td>2.92</td>
<td>7.00 (a)</td>
<td>2.88*</td>
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<tr>
<td>Hy</td>
<td>27.72</td>
<td>5.38</td>
<td>23.45</td>
<td>4.66</td>
<td>3.27 (a)</td>
<td>1.90</td>
</tr>
<tr>
<td>Pd</td>
<td>24.27</td>
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<td>23.82</td>
<td>2.82</td>
<td>.45 (a)</td>
<td>.25</td>
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<td>32.27</td>
<td>5.50</td>
<td>.72</td>
<td>-.35</td>
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<td>PA</td>
<td>12.82</td>
<td>3.90</td>
<td>10.91</td>
<td>3.15</td>
<td>1.91 (a)</td>
<td>1.20</td>
</tr>
<tr>
<td>Pt</td>
<td>32.27</td>
<td>8.10</td>
<td>29.82</td>
<td>4.49</td>
<td>2.45 (a)</td>
<td>.84</td>
</tr>
<tr>
<td>Sc</td>
<td>36.55</td>
<td>7.52</td>
<td>30.00</td>
<td>3.57</td>
<td>6.55 (a)</td>
<td>2.49*</td>
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<tr>
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<td>21.55</td>
<td>3.20</td>
<td>21.82</td>
<td>3.93</td>
<td>.27</td>
<td>-.17</td>
</tr>
<tr>
<td>Si</td>
<td>31.18</td>
<td>10.05</td>
<td>31.27</td>
<td>8.86</td>
<td>.09</td>
<td>-.02</td>
</tr>
</tbody>
</table>

*Only significant t's listed
(a) Improvement from pre- to post-test

also indicated improvement by showing a decrease in scale points from the pre- to post-test.

As indicated in Table III, Group II showed a more substantial decrease in symptomatology. Of the thirteen scales utilized, four were significant at better than the .05 level of confidence. Four other scales approached significance. Scales that were significant were the K, depression, psychosthenic, and schizophrenic scale. The hysteria, psychopathic, paranoid, and the social interaction scales were those which approached significance. All
TABLE III

GROUP II MEANS AND STANDARD DEVIATIONS
OF MMPI SCALES AND FISHER’S t

<table>
<thead>
<tr>
<th>MMPI Scale</th>
<th>Pre Mean</th>
<th>S. D.</th>
<th>Pre Mean</th>
<th>S. D.</th>
<th>M. D.</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>4.09</td>
<td>2.75</td>
<td>4.18</td>
<td>1.64</td>
<td>.09</td>
<td>-0.09</td>
</tr>
<tr>
<td>F</td>
<td>7.82</td>
<td>4.65</td>
<td>3.82</td>
<td>2.69</td>
<td>4.00 (a)</td>
<td>2.36*</td>
</tr>
<tr>
<td>K</td>
<td>10.18</td>
<td>3.51</td>
<td>13.27</td>
<td>4.33</td>
<td>3.09</td>
<td>-1.75</td>
</tr>
<tr>
<td>Hs</td>
<td>19.91</td>
<td>5.65</td>
<td>18.00</td>
<td>5.89</td>
<td>1.91 (a)</td>
<td>.74</td>
</tr>
<tr>
<td>D</td>
<td>31.09</td>
<td>8.07</td>
<td>23.00</td>
<td>7.80</td>
<td>8.09 (a)</td>
<td>2.28*</td>
</tr>
<tr>
<td>Hy</td>
<td>28.27</td>
<td>4.39</td>
<td>25.18</td>
<td>4.99</td>
<td>3.09 (a)</td>
<td>1.47</td>
</tr>
<tr>
<td>Pd</td>
<td>26.55</td>
<td>5.03</td>
<td>23.54</td>
<td>4.18</td>
<td>3.01 (a)</td>
<td>1.49</td>
</tr>
<tr>
<td>MF</td>
<td>33.73</td>
<td>6.44</td>
<td>34.64</td>
<td>6.44</td>
<td>.91</td>
<td>-0.32</td>
</tr>
<tr>
<td>PA</td>
<td>12.45</td>
<td>3.34</td>
<td>9.73</td>
<td>2.22</td>
<td>2.72 (a)</td>
<td>2.15</td>
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<tr>
<td>Pt</td>
<td>36.00</td>
<td>5.12</td>
<td>29.91</td>
<td>6.47</td>
<td>6.09 (a)</td>
<td>2.33*</td>
</tr>
<tr>
<td>Sc</td>
<td>36.45</td>
<td>10.00</td>
<td>27.45</td>
<td>6.80</td>
<td>9.00 (a)</td>
<td>2.35*</td>
</tr>
<tr>
<td>MA</td>
<td>19.55</td>
<td>4.83</td>
<td>22.91</td>
<td>3.58</td>
<td>3.36</td>
<td>-1.77</td>
</tr>
<tr>
<td>Si</td>
<td>35.36</td>
<td>11.19</td>
<td>27.36</td>
<td>8.22</td>
<td>8.00 (a)</td>
<td>1.82</td>
</tr>
</tbody>
</table>

*Only significant t's listed
(a) Improvement from pre- to post-test

of the scales mentioned above indicated a decrease in symptomatology.

It is readily noted that the majority of the scales which were reported above as changing significantly were scales descriptive of rather severe symptomatology. This is opposed to the "character" scales of the Minnesota Multiphasic Personality Inventory.

Ratings

Patients in Group I received a mean improvement rating of 6.12 from the three raters (psychiatrist, clinical psychologist, and psychiatric nurse). The Group II patients had a
mean improvement rating of 7.18. A rating of 6.12 corresponds to the upper limit of "Showed Some Improvement" on the ten-point scale. The 7.18 rating received by Group II corresponds to the lower limit of "Showed Much Improvement."

The largest and smallest single ratings given to patients in Group I were nine and four, respectively; while in Group II they were nine and five, respectively. The largest mean rating for an individual in Group I was 8.33, while the smallest was 4.66. The corresponding figures in Group II were 8.33 and 5.33. The largest amount of variation among the raters for any particular patient was three points.

**Tennessee Self Concept Scale**

Another objective of the study was to ascertain if seven factors chosen from the Tennessee Self Concept Scale could be predictive of improvement in treatment. It was hypothesized that if patients were to improve they should score at or within ten points below a T score of fifty on Self Criticism, Social Self, Behavior, Personal Self, Defensive Positive, Total Variability, and substantially below a T score of fifty on Self Satisfaction.

The following table summarizes the scores on the seven factors and their T scores.

It can be readily noted that only two of the seven factors, Behavior and Personal Self, deviated to any degree
from the hypothesized T values. However, even though there was some deviation it was not a large amount. A most striking result seems to be that involving Self Satisfaction. Upon arriving at the hospital the patients could perceive some discrepancy between how they were acting and how satisfied they were with their behavior. It is evident the patients did not like their current selves. This kind of change in self-satisfaction would seem to be an important ingredient in the assessment of improvement.

**Rank Difference Correlation**

A rank difference correlation between the staff ratings and the seven factors from the Tennessee Self Concept Scale was computed. The correlations in Group I ranged from -.16
(Total Variability) to .81 (Behavior). Group II had a range of from .11 (Self Criticism) to .69 (Self Satisfaction).

It can be noted that how one feels about himself is related to improvement. However, it appears that Factors II (Self Satisfaction, IV (Self Criticism) and V (Total Variability) in Group I do not bear this out. Personal Self, Factor IV, and Defensive Positive, Factor V, in Group II also appear not to be related to improvement.

TABLE V

RANK DIFFERENCE CORRELATIONS BETWEEN STAFF RATINGS AND SUB-TESTS ON THE TENNESSEE SELF CONCEPT SCALE

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>.39</td>
<td>.15</td>
<td>.81</td>
<td>.08</td>
<td>-.16</td>
<td>.35</td>
<td>.40</td>
</tr>
<tr>
<td>II</td>
<td>.67</td>
<td>.69</td>
<td>.49</td>
<td>.11</td>
<td>.22</td>
<td>.50</td>
<td>.68</td>
</tr>
</tbody>
</table>

A trend that seems to be appearing in most of the results is also apparent in the data given in Table V. The correlations in Group II are generally higher than those in Group I. In regard to the specific results it is also apparent that the ability to perceive one's behavior is related to improvement.

Hypothesis I was partially borne out in that the staff ratings did indicate improvement in the two groups. The pre- and post-Minnesota Multiphasic Personality Inventory scales did indicate improvement in a majority of the scales.
Hypothesis II stated that those patients scoring highest would attain a greater degree of improvement, and vice-versa. Four patients in Group I had an average T score of 60 or over, in this instance considered to be high. The staff members rated them in comparison to the other group members on a scale from 1 to 6. Three members in Group II had a mean T score above 60 and they were rated on a scale from 1 to 4.

The Minnesota Multiphasic Personality Inventory scales likewise indicated improvement, or reduction in symptomatology. The four patients in Group I had a mean decline for the thirteen scales of 36 points. The decline was indicative of improvement. The range was from 26 to 47 points. Further substantiating the hypothesis was the fact that the two patients having the two highest ranks also had the largest decline in scale points. The three patients of Group II had a mean decline of 62 scale points, with a range of 24 to 124. Again the decline is indicative of improvement. The two highest ranked patients in this group also had the largest amount of decline. Thus the foregoing analysis would seem to indicate that Hypothesis II was supported. The hypothesis seems to be supported especially since the two lowest ranked patients in each group had some of the lowest scores on the sub-tests of the Tennessee Self Concept Scale and the least Minnesota Multiphasic Personality Inventory scale changes.
There was no significant difference between the mean
Tennessee Self Concept Scale factors of the patients diagnosed as neurotic and psychotic, as shown in Table VI.

**TABLE VI**

_t-RATIOS FOR NEUROTIC VERSUS PSYCHOTIC PATIENTS IN GROUP I_

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Neurotic Mean</td>
<td></td>
<td>49.00</td>
<td>96.17</td>
<td>106.33</td>
<td>36.83</td>
<td>38.83</td>
<td>53.33</td>
<td>64.67</td>
</tr>
<tr>
<td>S. D.</td>
<td></td>
<td>15.06</td>
<td>13.00</td>
<td>9.48</td>
<td>6.31</td>
<td>13.38</td>
<td>10.01</td>
<td>13.85</td>
</tr>
<tr>
<td>Psychotic Mean</td>
<td></td>
<td>49.60</td>
<td>91.80</td>
<td>99.60</td>
<td>34.80</td>
<td>47.60</td>
<td>54.40</td>
<td>55.60</td>
</tr>
<tr>
<td>S. D.</td>
<td></td>
<td>15.63</td>
<td>14.86</td>
<td>11.41</td>
<td>6.85</td>
<td>10.29</td>
<td>9.16</td>
<td>5.68</td>
</tr>
<tr>
<td>Mean Difference</td>
<td></td>
<td>-.60</td>
<td>4.37</td>
<td>5.73</td>
<td>2.03</td>
<td>11.23</td>
<td>-1.07</td>
<td>9.07</td>
</tr>
<tr>
<td><em>t-Ratio</em></td>
<td></td>
<td>.06</td>
<td>-.47</td>
<td>-.97</td>
<td>-.46</td>
<td>-1.39</td>
<td>.17</td>
<td>-1.24</td>
</tr>
</tbody>
</table>

In Group I the trend of the data in Table VI is for those diagnosed as psychotic to have lower scores on the sub-tests of the Tennessee Self Concept Scale. The two diagnostic classifications differed on the Total Variability factor in favor of the neurotic classification.

As shown in Table VII, the results obtained for Group II were quite similar to those in Group I. The trend was again evident for those diagnosed psychotic to have lower scores on the Tennessee sub-tests.

Staff ratings likewise did not discriminate between the two diagnostic classifications. Psychotic patients were rated
as highly as some neurotic patients in degree of improvement in both groups.

TABLE VII

T-RATIOS FOR NEUROTIC VERSUS PSYCHOTIC PATIENTS IN GROUP II

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Neurotic Mean</td>
<td>46.50</td>
<td>86.50</td>
<td>103.67</td>
<td>38.67</td>
<td>62.83</td>
<td>51.50</td>
<td>66.00</td>
</tr>
<tr>
<td>S. D.</td>
<td>13.74</td>
<td>13.74</td>
<td>10.64</td>
<td>2.98</td>
<td>14.44</td>
<td>7.97</td>
<td>11.17</td>
</tr>
<tr>
<td>Psychotic Mean</td>
<td>39.60</td>
<td>87.80</td>
<td>94.80</td>
<td>40.00</td>
<td>49.00</td>
<td>49.80</td>
<td>61.40</td>
</tr>
<tr>
<td>S. D.</td>
<td>8.59</td>
<td>9.58</td>
<td>6.05</td>
<td>4.94</td>
<td>5.18</td>
<td>6.49</td>
<td>5.00</td>
</tr>
<tr>
<td>Mean Difference</td>
<td>7.10</td>
<td>-1.30</td>
<td>8.87</td>
<td>-1.33</td>
<td>13.83</td>
<td>1.70</td>
<td>4.60</td>
</tr>
<tr>
<td>t-Ratio</td>
<td>-.88</td>
<td>.16</td>
<td>-1.50</td>
<td>.50</td>
<td>-1.84</td>
<td>-.35</td>
<td>-.77</td>
</tr>
</tbody>
</table>

Also some neurotic patients were given ratings as low as psychotic patients. Hypothesis III was thus refuted. Although Hypothesis III was not supported it was found that Hypothesis I and II were substantiated. These patients tending to improve did score at the hypothesized T score and those who improved most scored the highest T score. This indicates that patients having a relatively good self-concept tend to have a better chance of improvement in treatment.
SUMMARY AND DISCUSSION OF RESULTS

Two of the seven sub-tests on the **Tennessee Self Concept Scale** deviated markedly from the hypothesized T value of 50. The two factors were Behavior and Personal Self, which had T scores of 40 and 38. **Behavior** on this scale is defined as measuring the individual's perception of his own behavior (1). Such a deviation as indicated above would suggest that the patient, as a result of his mental condition before treatment, is unable to perceive his behavior as it really is.

Originally it was felt that if a patient was going to improve from treatment he should, upon admission, know how he had been acting. The undiscriminating nature of the scores on **Behavior** would seem to indicate that all the patient needs to realize is that he has some gross over-all deviations in his behavior, as opposed to knowing about specific syndromes.

The Personal Self score reflects the individual's feelings of personal worth and adequacy. The results indicated that the patient generally felt inadequate and worthless before treatment. This view was taken in hypothesizing a T score of 50 because it was thought that the patient should feel a fair amount of adequacy. These results further suggest that the Personal Self factor and the Self Satisfaction factor are
somewhat similar. Thus it is possible that the desired T score for Personal Self should be lowered to that of Self Satisfaction.

There was little difference in the factor scores of the patients diagnosed neurotic and psychotic. Most studies have shown differences between these two categories. A likely possibility in this instance seems to be the small number of patients in each group. Also a possible influencing factor might be that many of the patients being diagnosed were not diagnosed by the same psychiatrist. The only instrument discriminating between the two major classifications was the Minnesota Multiphasic Personality Inventory, and even here only specific scales discriminated. Staff ratings ranked some psychotic patients as more improved than some neurotics. This is not to imply that psychotic patients cannot improve as much as or more than neurotics, but that there was simply no general trend for those psychotic to be ranked lower than neurotic patients.

For later studies it might be desired to further delineate the classification categories with specific diagnoses of each classification. The sub-tests on the Tennessee Scale may have been unable to discriminate because of the grossness of the categories. Some of the individual sub-tests might not be specific to either psychotic or neurotic illnesses. An instance would be that of the Total Variability factor, which
represents the total amount of variability for the entire record. Both the psychotic and neurotic patients had comparable scores. It is likely that deviations within the record for both categories would balance out even though the psychotic patients were variable in more categories than the neurotic patients.

There was little variation among the staff raters in their ratings of patients as being improved. The patient's pre-treatment status was compared to his status after treatment. The treatment consisted of group therapy and electroshock therapy. There is generally more variation among the raters than was found in this instance, especially since the three raters were not of very similar academic backgrounds. The psychiatric nurse gave the lowest overall ratings of the three. Possible reasons would seem to be that she was less ego-involved with the patient's improvement than were the psychiatrist and clinical psychologist. Also the nurse was able to observe the patient's behavior more closely than the other two raters.

Unlike many other studies which have employed staff ratings, the present raters were not overly generous. No patient received the maximum score and only three received a score of nine, which was the next to highest score.

Since it was noted that there was little or no difference in the pre- and post-Minnesota Multiphasic Personality
Inventory "character" scale, it might be well in additional comparable investigations to employ two groups and eliminate the "character" scales for one group. It is quite likely that the reason for such differences in the scales sampling psychotic behavior, as opposed to "character," would change more because this is the objective of treatment. The abnormal behavior would be more susceptible to change than would the more entrenched personality traits of the patient. The D or depression scale is a special case. The depression scale can change daily, depending upon how the patient feels. Upon admission in nearly all types of mental illness a certain amount of depression is evident. The mere supportive climate of a hospital can drastically change feelings of depression if they are not severe.

Group II appeared to have been better improved than Group I. Group II, it was noted, had a longer mean hospitalization time than did Group I. The mean for Group I was 14.3 days while the mean for Group II was 17.8 days. It seems possible that longer length of hospitalization could have been an influencing factor. Also, Group II had more Minnesota Multiphasic Personality Inventory scales which showed significant improvements.

After examining the diagnoses it was found that both groups had five psychotic and six neurotic patients. There is the possibility that those in Group II were not as seriously ill as those in Group I.
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BIBLIOGRAPHY

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