LEVEL OF ASPIRATION AND SOME CRITERIA OF ADJUSTMENT IN AN AGED POPULATION

BY

EDWARD L. FRIEDMAN
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IN AN AGED POPULATION

by

Edward L. Friedman

Date: 10 May 1956

Approved:

A thesis
submitted in partial fulfillment of
the requirements for the degree
of Doctor of Philosophy in
the Graduate School of
Arts and Sciences
of
Duke University

1956
Many people have participated directly and indirectly in the preparation of this dissertation. It is impossible to note my debt to each one here, but I wish to express my appreciation to all who have been instrumental in arousing my interest in psychology, in creating conditions in which it was economically feasible to pursue this interest in formal education and in providing the opportunity to conduct this study.

In particular, I would like to express my gratitude to Dr. Louis D. Cohen for his constant guidance, encouragement and patience, to Dr. E. W. Busse, Dr. R. H. Barnes and the other members of the Duke Geriatrics Research Project staff (N.I.M.H. Grant M H 900-C-1) for their cooperation and stimulation and especially to Miss Frances C. Jeffers for collecting and making available the Chicago Activity Inventory data.

I would also like to thank Dr. Charles D. Spielberger for his very helpful suggestions regarding the statistical treatment of the data in this study.

And finally, I would like to express my deep gratitude to my wife for her constant devotion, encouragement and equanimity especially during the course of the preparation of this dissertation.

E. L. F.
## CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preface</td>
<td>i</td>
</tr>
<tr>
<td>Chapter</td>
<td></td>
</tr>
<tr>
<td>I The Problem</td>
<td>2</td>
</tr>
<tr>
<td>II Subjects and Methods</td>
<td>20</td>
</tr>
<tr>
<td>III Results</td>
<td>38</td>
</tr>
<tr>
<td>IV Discussion</td>
<td>50</td>
</tr>
<tr>
<td>V Summary and Conclusions</td>
<td>66</td>
</tr>
<tr>
<td>Appendices</td>
<td>71</td>
</tr>
<tr>
<td>Appendix A - Fisher Maladjustment Scale</td>
<td>72</td>
</tr>
<tr>
<td>Appendix B - Chicago Activity Inventory</td>
<td>77</td>
</tr>
<tr>
<td>Appendix C - Number of Individuals Achieving Scores on Each Item of the Chicago Activity Inventory According to the Criteria Listed in Appendix B</td>
<td>82</td>
</tr>
<tr>
<td>References</td>
<td>83</td>
</tr>
</tbody>
</table>
LIST OF TABLES

I. Population Characteristics Including Source, Age, Sex and IQ, \( N = 77 \) ................................................. 24

II. D Score Grouping Including Cut-off Points and Number of Subjects in Each Group, \( N = 77 \) ......................... 30

III. Success Percent and Percent of Differential Responses to Success and Failure in the Level of Aspiration Task ................................................................. 31

IV. Distribution of Individuals Whose First D Scores were +1.00 or Above and Zero or Less Relative to Their Mean D Scores Being Above or Below the Mean for the Total Distribution .................................................. 32

V. Analysis of Variance of Fisher Maladjustment Scale-Scores in Four D Score Groups: High Positive D, Low Positive D, Low Negative D and High Negative D ........................................... 39

VI. Mean Fisher Maladjustment Scale Scores for Two D Score Groups Separated According to Four IQ Levels, \( N = 77 \) .................................................. 42

VII. Analysis of Variance of Fisher Maladjustment Scale Scores of Two D Score Groups Separated into Three IQ Groups Each .................................................. 44

VIII. Determination of Interaction Between D Scores and IQ Levels by Analysis of Variance of Fisher Maladjustment Scale Scores .............................................. 45

IX. Mean Chicago Activity Inventory Scores for Four D Score Groups, \( N = 73 \) .................................................. 47

X. Distribution of Goal Setting Levels for Four Groups Separated on the Basis of Sex and Social Status, \( N = 77 \) .................................................. 56

XI. Distribution of Fisher Maladjustment Scale Scores by Number of Cases in Low, Medium and High Scoring Groups for Four Social Status Groups, \( N = 77 \) .................................................. 61
XII. Distribution of Chicago Activity Inventory Scores by Number of Cases in Low, Medium and High Scoring Groups for Four Social Status Groups, N = 73

Figure 1. Mean Fisher Maladjustment Scale Scores of Positive and Negative D Score Groups Separated into Four IQ Groups: Below 80, 80-89, 90-109, and 110 and Above
LEVEL OF ASPIRATION AND SOME CRITERIA OF ADJUSTMENT
IN AN AGED POPULATION
Chapter I
THE PROBLEM

Recent increases in the number of senescents in the general population and concomitant increases in the number of medical and social problems among this age group (Greenleigh, 1952), have produced an urgent need for empirical study of the correlates of "successful" and "unsuccessful" aging. One explanation that has been offered for the difficulties encountered by older people in modern civilization is that the shift from an agricultural to an urban economy has eliminated the useful roles served by the older people as grandparents in the home while not offering any substitute useful roles (Pollak, 1948). Another explanation that has been offered for many of the difficulties in old age has been that of physical decline. However, recent studies by Rothschild (1945) and by Busse et al. (1954) have indicated that there is far from a one-to-one relationship between physical status, especially with
regard to the central nervous system, and level of adjustment. Individuals were seen with gross pathology of the central nervous system who did not seem to be having any difficulties in leading satisfactory lives. The results of these studies suggested that social and attitudinal variables might have more direct relationships to adjustment level than any but the most marked physical disorders.

Unfortunately, psychological studies of old age have been mostly concerned with the developmental aspects of aging and have not devoted much attention to the correlates of differential adjustment among the aged themselves. Most investigations were restricted to study of the intellectual and psychomotor aspects of aging (Miles, 1942; Jones and Kaplan, 1945; Granick, 1950). Little attention was paid to personality factors until quite recently. However, the need for information regarding the personality characteristics associated with the aging process and especially of those associated with differentially "satisfactory" aging has been recognized and has resulted in an increasing number of broad range studies devoted to investigation of the relationships of specific personality variables to adjustment level in senescence, e.g., interests, self-concept.

Many of these studies have involved the use of the Rorschach and despite the marked differences in some of the social characteristics of the populations sampled in the Rorschach studies (Klopfer, 1946; Prados and Fried, 1947; Davidson and Kruglov, 1952; Caldwell, 1954), the findings have been very consistent. The conclusions in each study are generally that older people evidence reduced emotional responsiveness, and an increase in
stereotyped thinking, and in intellectual inefficiency. A comparison of community and institutionalized aged by Klopfer (1946) revealed little difference in Rorschach characteristics. However, the institutional population in this study came from a home for the aged where individuals with gross physical or mental difficulties were not accepted so that one may wonder whether any differences were to be expected. A major defect of these studies has been that the results have been interpreted generally in terms of comparison with young adult norms and little attempt has been made to explore the relationships between specific Rorschach characteristics and behavioral attributes of the aged.

The published empirical studies of specific personality characteristics associated with differential adjustment level, using institutionalization or lack of it as the criterion of adjustment, have been devoted almost exclusively to investigation of the affective quality of the self-concept, i.e., positive or negative self-concept. Tuckman, Lorge, Steinhardt and Zeman (1953) found institutionalized aged subjects to report fewer physical and mental symptoms on a health questionnaire than a group of aged subjects living in the community despite the fact that, objectively, the institutional group actually had more symptoms of poor health. The authors explained these findings in terms of the more negative self-concept of the institutionalized aged which allowed them to consider illness in old age as normal and therefore not worthy of mention.

Cavan, Burgess, Havighurst and Goldhamer (1949) devised an Attitude
Inventory which was designed to measure adjustment on the basis of the phenomenological negative or positive self-attitudes of older people. They found high scores on this inventory to be associated with active social participation in family, community, church, et cetera. This suggested that the more socially active the individual, the more positive his self-concept and, using self-concept as a criterion of adjustment, the better his adjustment. Pan (1954) administered this same Attitude Inventory to a large group of women institutionalized in denominational church homes for the aged with the expectation that institutionalization would be related to more negative self-attitudes than community living. Comparing his results with those of Cavan et al., he found that while the institutionalized women reported more negative self-attitudes on some parts of the scale, on other parts, they reported more positive self-attitudes than the non-institutionalized women. Mason (1954), also using the Attitude Inventory as a measure of the positive or negative quality of the self-concept of an institutional versus a community group of aged persons, found the institutionalized group to have more negative self-attitudes. However, she also used the Caldwell Picture Series, a projective technique similar to the Thematic Apperception Test (Morgan and Murray, 1935), and found just the opposite, viz., significantly fewer negative self-attitudes on the part of the institutionalized aged.

Review of these studies reveals that the expectations that institutionalization, as an indication of poor adjustment, would be associated with phenomenologically negative self-concepts have failed to materialize. If these test results of the negative self-attitudes are indicative of the actual
self-concepts of the groups studied, then the theoretical formulations of McDougall (1918), Lecky (1945), Sullivan (1947), Rogers (1950), Dai (1952) and others which have tended to conceive of self-acceptance, self-regard or positive self-concept as a central psychological variable related to satisfactory adjustment, without regard to the age of the individual, will have to be modified or rejected. In addition, the studies of Raimy (1948), Taylor and Combs (1952), Hanlon, Hofstaetter and O'Connor (1954) and others, in which these theoretical formulations were confirmed, will require re-examination. However, before any such conclusions are drawn, it would be well to examine these studies of the self-concept with the aged with regard to some of the assumptions which are made in them.

1) The assumption is made that institutionalization is an adequate criterion of adjustment among the aged. It is well known, among those who work with senescents, that a substantial number of older persons who are institutionalized could continue to live in the community if a relative minimum of support were offered them, such as visiting nurse services or more adequate pensions. There are many who are suffering from disabling physical defects whose personality is relatively unimpaired, e.g., Beall (1944) reported that over 25 percent of the patients over the age of sixty in a state hospital were able to live outside an institution with suitable nursing care. On the other hand, a number of older people continue to live in the community under the sheltering wing of their families, who, on psychiatric observation, would be considered senile. The problem presented here is whether the fact of institutionalization which indicates an inability to continue
living, regardless of the reason, is to be expected to be predictable from psychological variables when socio-economic or physical defects, rather than psychological problems, may be the reason for institutionalization.

2) The assumption is made that the questionnaires which have been used to measure the self-concept among the aged are actually doing so. Hilgard (1954) and Ellis (1953) have criticized the use of questionnaire approaches in personality investigation generally. When the attention-concentration difficulties of the aged are added to the usual problems of getting undistorted self-reports, the task becomes formidable.

It was in light of these considerations that the current study was undertaken in an attempt to establish a more suitable approach to the measurement of adjustment level, in terms of specific behaviors, rather than as indicated by institutionalization, or the lack of it. The self-concept, as previously noted, has long been regarded as a central psychological variable determining behavior. If certain "adjusted" behaviors can be identified, then we would expect the self-concept to predict these behaviors in a consistent manner in the aged as well as in any other group. In the following pages, we will outline the considerations which determined the specific variables that were selected for study and we will state our problem formally.

**Self-Concept**

Investigation of the self-concept is usually undertaken through the use
of questionnaires or through prolonged personal contact such as is provided by psychotherapy or interview settings (Rogers, 1950). Since we have noted the problems raised by questionnaire studies, and since the prolonged contact was impractical in our overall research setting (to be discussed later), it seemed desirable to find some other method of measuring or getting information about the self-concept. Review of the literature suggested the possibility of using a "level of aspiration" procedure which would allow inferences to be made about the subject's self-concept through observation of his goal-setting behavior.

The history of the use of "level of aspiration" methodology for investigation of personality goes back about 25 years to the work of Lewin and his group in Germany. Hoppe (1930) felt that it reflected the ego-level, "the wide-embracing goals of the individual . . . which extend far beyond the single task . . . [and] are related to the self-confidence of the subject."

Frank (1935a) operationally defined the goal-setting level being measured in the "level of aspiration" situation as "the level of future performance which an individual, knowing his level of past performance in that task, explicitly undertakes to reach" (p. 119). He confirmed Hoppe's observations about the consistency of goal-setting behavior in the "level of aspiration" situation and about the generality of this behavior from task to task and also found it to be related to specific personality characteristics, such as narcissism, aggression and emotionality (Frank, 1938).

Frank's work was followed by others, significant among whom were Gould (1939), Sears (1940), Gardner (1940), Rotter (1942b), Cohen (1949),
Bills (1953) and Scott (1953), all of whom explored the relationship between goal-setting and various personality measures. The susceptibility of goal-setting behavior to social influence, to varying instructions, to varying motivation and to other influences has been studied but will not be reported in detail here. Reviews of these studies can be found in Lewin et al. (1944), Rotter (1942a) and Cohen (1949). Only those studies directly relevant to the use of "level of aspiration" procedures for determining self-concept will be discussed below.

**Level of Aspiration and Self-Concept.** Sears (1940) administered reading and arithmetic tests to three groups of children selected on the basis of differential success in school work. She found that most of the academically successful children responded to the "level of aspiration" situation by setting low positive goals, as measured by the goal-discrepancy score (commonly referred to as the D score). She also found that the low positive D score group was rated, on other measures, as having more self-confidence than the high positive and negative D score groups.

Cohen (1949) investigated the goal-setting behavior in a "level of aspiration" situation of asthmatic and hypertensive patients with a view to deriving inferences about the nature of the self-concept, in terms of feelings of adequacy, and about the level of self-acceptance which might be associated with these "psychosomatic" disorders. The criteria of self-concept and self-acceptance were ratings of Rorschach protocols. He found no significant relationship between goal-setting patterns and self-concept but found a
significant curvilinear relationship between goal-setting patterns and level of self-acceptance. The form of the relationship suggested that those who set medium high goals were the most self-accepting while those with excessively high and low goals were least self-accepting.

Bills (1953) using thirty female subjects found a significant relationship between $D$ scores on one task (Rotter Board) in a "level of aspiration" situation and self-acceptance but failed to find the same relationship when other tasks were used. The relationship he found was a rectilinear, rather than a curvilinear, one. Although this did not confirm Sears' and Cohen's findings about the lack of self-esteem of the individual with the excessively high $D$ score, it did confirm the findings of low self-esteem of the individual with the low or negative $D$ score.

Scott (1953) testing the relationship between direct and indirect measures of self-acceptance found no relationship between $D$ scores and self-acceptance. However, he found a relationship, significant at the .05 level, between $D$ scores and anxiety measures. If self-acceptance or self-esteem is as central a variable as has been postulated by Rogers (1950) and others, it would seem reasonable to expect anxiety to be related to measures of self-acceptance and possibly to derive from self-rejection. On the same grounds, it would seem reasonable to expect a systematic relationship between goal-setting level and "self" measures if a reliable relationship exists between $D$ scores and anxiety. This raises once again the problem of the adequacy of questionnaire approaches in the direct measurement of "self" variables.
In brief, then, Cohen (1949), Sears (1940) and Bills (1953) have found self-acceptance or positive self-attitudes to be related to goal-setting behavior in a "level of aspiration" situation. Scott (1953) questioned the directness of this relationship but found goal-setting to be related to anxiety which suggested that the deep attitudes to the self were involved but may not have been elicited by questionnaire methods. The over-all picture suggested that the "level of aspiration" method was likely to yield significant inferences about the self-concept or self-acceptance level of the individual.

We have referred to the self-concept or self-acceptance level above as if they were interchangeable concepts. The self-concept as we understand it involves cognitive and evaluative aspects, i.e., it can refer to perception of qualities, body-image, et cetera and it also implies that the individual considers each of these qualities as desirable or undesirable in terms of some implicit or explicit criterion. Self-acceptance refers to the over-all evaluation of the self-concept in terms of its desirability, as compared with some implicit criterion, such as the ideal self, or as compared with some explicit criterion, such as being able to reach desired goals. The exact amount of overlap between the evaluative aspect of the self-concept and the level of self-acceptance is not clear to us at present nor is the extent to which they are different from each other. For the present, we would prefer to think of them as being merged in the concept, positive self-concept or negative self-concept.

The "level of aspiration" seems to provide inferences about the self-concept on the basis that a positive goal is equivalent to stating "I can do."
while a negative goal is equivalent to stating "I cannot do". It has been suggested that stating "I can do" too vehemently (setting high positive goals) represents a defensive maneuver by the subject to deal with the feeling that he really cannot do.

For purposes of this study, self-concept will be operationally defined as the positive or negative concept of self which is implied by differential goal-setting levels. In general, we would interpret low positive D scores as indicative of positive self-concept, and high positive and negative D scores as indicative of negative self-concept.

Adjustment

Despite the vast number of psychological studies which have been devoted to investigation of the correlates of differential adjustment (e.g., Hunt, 1944), no standard criteria have been established by which an individual may be unquestionably classified as well-adjusted. This is due to the fact that adjustment refers to an end-state which results from the behaviors of an organism in response to changes in internal or external conditions. It would probably be more parsimonious, and possibly more fruitful in the long run, to limit oneself to investigating the relationships between specific behaviors and specific end-states without attempting to classify the end-state or to make a value judgment as to whether it is desirable or undesirable. However, practical considerations require that exploratory efforts be made in the direction of investigating the relationships between certain
behaviors or attitudes and broadly classified end-states. Keeping in mind the dangers involved in drawing any final conclusions as to what constitutes good or poor adjustment, we will specify the adjustment variables that have been used in this study.

Review of some of the literature which has been concerned with clarifying the concept, adjustment, reveals two recurring themes (Sarbin, 1940; Eaton, 1947; Cavan et al., 1949; Anderson, 1949; Klein, 1951). One is that adjustment is achieved when behavior conforms to social norms and expectations; the other is that adjustment is achieved when the individual is happy, satisfied, able to achieve an adequate compromise between inner needs and the demands of the outer world. Although this differentiation has not always been made, and although sociologists as well as psychologists tend to use both notions interchangeably, it is our impression that these two conceptions might be called social adjustment and personal adjustment. Thus, the individual whose behavior conforms to social norms is socially well-adjusted. This carries no necessary implications for his personal adjustment level, e.g., the socially effective executive with numerous intrapsychic conflicts would not be classified as personally well-adjusted.

Similarly, the individual who is relatively free from tension, who is able to express his needs without morbid preoccupation with the effects of his behavior on others, may be considered as personally well-adjusted. Given an unsatisfactory social environment, as is not uncommon among the aged, this individual might be considered as socially maladjusted.
We have already indicated that there is no compelling reason to predict a relationship between self-concept, a psychological variable, and social adjustment unless psychological factors can be shown to be involved in determination of the social adjustment level. From one point of view, it is unlikely that psychological determinants would be completely absent but the degree to which they are present might be the factor which determines whether statistically significant relationships will be found or not. Because the previous studies of self-concept among the aged have used what we have described as a social adjustment variable, we have decided to include a measure of social adjustment as well as a personal adjustment measure in considering the relationship of self-concept to adjustment.

Social Adjustment. We have previously noted the problems presented when institutionalization is used as the sole criterion of adjustment. Insofar as social adjustment is related to the fulfillment of social expectations, institutionalization might be considered as a criterion of social maladjustment. However, in any consideration of a population with differential social adjustment, but who are living outside an institution, other criteria must be found. Unfortunately, there is no simple set of criteria to be established. What is lacking is a clear picture of the expected behavior for the aged. As previously mentioned, the preferred roles for older people have become very unclear and unstable since the shift to an urban economy. Some have chosen to continue in full-time employment, some have taken up travel or trailer-camp existence and still others have retired to a passive-
dependent role. Each role has its proponents and no one can justifiably classify one as any more or less adjusted than the other without evidence regarding the acceptability of each set of behaviors within the particular sub-culture in which the individual resides. Exploratory studies conducted to date (Cavan et al., 1949; Fried, 1949; Havighurst and Albrecht, 1953) suggest that the individual who is socially active is also most adjusted socially, but the sampling has been limited and exceptions have been noted in individual case studies (Havighurst and Albrecht, 1953).

A search for methods of measuring the social adjustment of older people revealed the Chicago Activity Inventory (Cavan et al., 1949) as the most systematic attempt to describe a set of role-behaviors in an objective manner which were also capable of being rated or scored in an objective manner. This inventory consists of nineteen questions (see Appendix B) covering the topics of leisure-time activities, religious activities, intimate social activities, economic activities and health. After some preliminary work with the inventory, the authors developed a scoring system and then correlated the results with ratings of their subjects by informants who knew the subjects personally, on an activities check-list and on a word-portrait matching scale. Both these latter had face validity as criteria of social adjustment. A Pearson r of .65 was obtained between the Activity Inventory scores and the combined ratings of the two independent criteria.

Despite the fact that we have used this inventory, we are aware that it has many shortcomings. It was standardized on a predominantly middle-class group of above average educational background. There is the strong
possibility that the behaviors which constitute acceptable social responses in the standardization group may not be the same behaviors which would be socially acceptable at other socio-economic levels. However, this problem is not unique to this inventory. If we are to carry this concern to the extreme, each individual's behavior would have to be considered in terms of its acceptability within the particular sub-culture in which he lives. This information is usually available in clinical studies because the patient's social maladjustment more often makes him a patient than the fact that he may be an unhappy person within the community. When dealing with a predominantly non-clinical population, this information is not available except through the eyes of the subject or through investigation of the person's role in the community by inquiry of neighbors and family. Because of the difficulty of this latter task, we compromised and adopted for heuristic purposes, a standard which seems applicable to the widest range of people within our culture, viz., middle class standards.

Our operational definition of social adjustment thus becomes the indication of acceptable role behaviors given by the score on the Chicago Activity Inventory.

**Personal Adjustment.** Personal adjustment has been conceived in this study as referring to a state in which the individual is able to effect a satisfactory and realistic compromise between the demands of the environment and his own needs. We have chosen to investigate the personal adjustment level of our subjects by examining a sample of his behavior in a
situation in which the nature of the environmental demands are standardized and in which the response to both personal needs and environmental stimuli are presumed to be susceptible to objective evaluation, viz., the Rorschach Test. This was considered to be superior to a questionnaire approach because of the susceptibility of the latter to distortion, both voluntary and involuntary.

The Rorschach Test, when approached clinically, offers information regarding:

1) The degree and mode of control with which the subject tries to regulate his experiences and actions.
2) The responsiveness of his emotional energies to stimulations from outside and promptings from within.
3) His mental approach to given problems and situations.
4) His creative or imaginative capacities, and the use he makes of them.
5) A general estimate of his intellectual level and the major qualitative features of his thinking.
6) A general estimate of the degree of security or anxiety, of balance in general, and specific unbalances.
7) The relative degree of maturity in the total personality development. (Klopfer and Kelley, 1942)

Until recently, it has been difficult to effect a suitable compromise between the clinical approach and the need for material which could be handled statistically for research purposes. The appearance of the Fisher Maladjustment Scale (Fisher, 1950) has provided an objective method of reporting the relative level of personal adjustment, taking into account "a range of Rorschach signs which are clinically recognized as indicating various degrees of personal maladjustment" (Fisher, 1950, p. 110). This scale has
successfully differentiated normals, hysterics and psychotics in one study (Fisher, 1950) and has also differentiated high and low scorers in a study devoted to examination of some other measures of adjustment on a social attainment scale which was felt to be an adjustment measure (Fine, Fulkerson and Phillips, 1955).

We have decided to define personal adjustment operationally as the score on the Fisher Maladjustment Scale.

Statement of the Problem

We have indicated an intention to examine the relationship between three specific variables: 1) goal-setting behavior in a "level of aspiration" setting, as an indirect measure of the positive or negative quality of the self-concept, 2) scores on the Fisher Maladjustment Scale applied to Rorschach responses, as a measure of personal adjustment, and (3) scores on the Chicago Activity Inventory, as a measure of social adjustment. The general problem is the examination of the relationship between self-concept and adjustment in older people. Our hypothesis is that positive self-concept will be associated with indications of "good" personal and/or social adjustment.

The specific questions and hypotheses we have posed are:

1) Is there a systematic relationship between D scores in a "level of aspiration" setting and scores on the Fisher Maladjustment Scale, derived from the Rorschach Test, in an aged population? If goal-setting is an
indirect indication of the positive or negative quality of the self-concept, and if the self-concept is related to personal adjustment, then there should be a systematic relationship between goal-setting and personal adjustment such that those with low positive D scores should have lower Fisher Maladjustment Scale scores than those subjects who have high-positive or negative D scores.

2) Is there a systematic relationship between D scores in a "level of aspiration" setting and scores on the Chicago Activity Scale in an aged population? The hypothesis is that there will be a systematic relationship between these two variables such that those with low positive D scores will have higher Chicago Activity Scale scores than those with high positive or negative D scores.

3) Is there a systematic relationship between the scores on the Fisher Maladjustment Scale and scores on the Chicago Activity Inventory in an aged population? If both these scales are valid measures of personal and social adjustment respectively, then there should be a significant relationship between them since personal and social adjustment are often conceived of as functionally related.
Chapter II

SUBJECTS AND METHODS

Subjects

The subjects used in this study were drawn from a population of individuals over the age of 60 who volunteered for, or cooperated with, the examinations conducted by the Duke Geriatrics Research Project. A few words about this project will help to clarify the nature of the population sample.

In 1951, at the University of Colorado Medical School, a group of investigators under the leadership of Dr. E. W. Busse, began an inquiry into the effects of old age on the functioning of the central nervous system. In their clinical work, they had noticed a number of individuals of advanced age who presented abnormal electroencephalographic (EEG) patterns but who had no other clinical indications of abnormality. They felt that this
observation warranted empirical study and began to collect data regarding physical, social and psychological functioning from individuals over the age of 60 drawn from four population sub-groups:

1) Institutionalized individuals who were in a psychiatric hospital or ward,

2) Indigent patients who attended a medical clinic for low-income families,

3) Retired middle-class individuals,

4) Individuals over the age of 60 who were still employed full-time.

They found a large number of abnormal electroencephalographic patterns in these groups which was accompanied by other clinical evidence of malfunctioning in the case of those with "diffuse" and "mixed" electroencephalograms. However, a sizable group of individuals, with "focal" electroencephalograms, presented no other indications of abnormality.

In 1954, Dr. Busse and some of the other members of the research group came to Duke University and decided to continue this study in order to explore further the relationship between electroencephalographic patterns and physical, social and psychological functioning and to examine cross-cultural differences that were presumed to exist between the midwestern United States and the southeast. It was at this point that this writer became associated with the Duke Geriatrics Research Project.

An attempt was made to contact groups similar to those which had been studied in Colorado. Subjects were gathered in a nearby state hospital to be compared with group 1 above. The Golden Age Society was contacted
to get subjects comparable to group 3 above. To date, subjects from group 4, who are employed full-time, and from group 2, medical clinic patients, have not been approached. While the sampling here has not as yet included certain groups that were studied in Colorado, it has been extended to include additional groups. The Golden Age Society has both white and colored membership, and we have had an opportunity to study a limited sample of Negroes over the age of 60. In addition, in an attempt to widen the socio-economic and intellectual range of our population sample, a group of retired professional people was contacted and a limited sample of this group, and in some cases their wives, has also been collected. Once these groups were contacted, all who volunteered, or agreed to cooperate, were accepted for study. Thus, the population sample is a random one of all persons in the groups contacted in this geographic area who have volunteered to be studied. However, it is not a representative sample since administrative difficulties have made it impractical so far to contact rural groups or to collect a stratified sample of the community.

For the present report, all subjects who could participate in the "level of aspiration" procedure, and who were studied from the inception of the "level of aspiration" study in April, 1955 until March 1, 1956, were included. Omitted were:

Ten state hospital patients who were too confused to participate in the estimation procedure involved in "level of aspiration" testing;

One state hospital woman who was so disturbed by the "level of aspiration" test that she started crying and testing had to be terminated;
Two community women who were resistant to the psychological testing generally and who refused to cooperate with the "level of aspiration" procedure;

One community man who was too hard-of-hearing to participate in the paired associate learning test which was the task used for "level of aspiration" measurement.

The group to be reported on consists of 77 individuals with the following characteristics, as noted in Table I. There were 30 males, 27 of whom were white and 3 of whom were Negro. Eleven of the white men were patients in the state hospital. There were 47 females, 34 of whom were white, and 13 of whom were Negro. Five of the white women were state hospital patients. The mean age of the total group was 71.23 years with no reliable difference between the mean age of the males and females. The mean IQ, as determined from the full-scale Wechsler Adult Intelligence Scale (WAIS) was 97.38. The IQ's of the males and females separately were 102.93 and 93.83 which difference was significant at the .05 level. This IQ difference seems to result from the fact that a number of the white men come from a group of retired university professors.
TABLE I

Population Characteristics Including Source, Age, Sex and IQ, N = 77

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<tr>
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<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
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<td>White hospital group</td>
<td>11</td>
<td>5</td>
<td>16</td>
</tr>
<tr>
<td>White professional group</td>
<td>12</td>
<td>11</td>
<td>23</td>
</tr>
<tr>
<td>White Golden Age group</td>
<td>4</td>
<td>18</td>
<td>22</td>
</tr>
<tr>
<td>Total white</td>
<td>27</td>
<td>34</td>
<td>61</td>
</tr>
<tr>
<td>Negro Golden Age group</td>
<td>3</td>
<td>13</td>
<td>16</td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td>47</td>
<td>77</td>
</tr>
</tbody>
</table>

Mean age
- 72.80
- 70.23
- 71.23

Age range
- 62-88
- 60-85
- 60-88

WAIS IQ Mean
- 102.93
- 93.83
- 97.38

IQ range
- 68-140
- 69-133
- 68-140
<table>
<thead>
<tr>
<th>#</th>
<th>Name</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>John</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>Alice</td>
<td>25</td>
</tr>
<tr>
<td>3</td>
<td>Bob</td>
<td>30</td>
</tr>
<tr>
<td>4</td>
<td>Jane</td>
<td>35</td>
</tr>
<tr>
<td>5</td>
<td>Mark</td>
<td>40</td>
</tr>
<tr>
<td>6</td>
<td>Lisa</td>
<td>45</td>
</tr>
</tbody>
</table>

- **Notes**:
  - John and Alice are siblings.
  - Bob has a twin brother, Tom.
  - Jane is married to Mark.
  - Lisa is a professional athlete.
Methods

The methods of measurement used in this study are only a part of the total examination procedure to which the subjects in the Duke Geriatrics Research Project submitted themselves. We have used the "level of aspiration" technique, the Rorschach Test and the Chicago Activity Scale to investigate the relationship between self-concept and adjustment. In addition, each subject received:

- Wechsler Adult Intelligence Scale (WAIS)
- Psychiatric interview
- Physical and neurological examination
- Social history interview
- Electroencephalogram (EEG)
- Chest X-ray
- Eye examination
- Examination of bulbar conjunctiva
- Short interview on attitude to aging (Self-Estimate Interview)

The sequence of administration of these procedures varied somewhat with the availability of laboratory facilities for tests like the EEG, and with the availability of other members of the staff who occasionally had other commitments which necessitated changes in the regular schedule. However, the psychological examinations proceeded in a fairly regular manner. They were usually administered in two sessions of one and one-half hours each. The first test given was the WAIS. This was followed by the Self-Estimate Interview, the "level of aspiration" task and the Rorschach in the order listed. The WAIS administration usually occupied the entire first session and the second session was usually devoted to administration of the three other psychological procedures. The effects of serial administration of the
tests is unknown but there is little reason to believe that they would affect each other in any consistent manner.

**Level of Aspiration.** The "level of aspiration" procedure we followed conformed to the practice described by Rotter (1954). "A subject is confronted with some task and, either before or after practice, he is asked to make a statement of how well he will do on the task. After failure or success in reaching this explicitly stated goal, he is asked to make another estimate." (p. 313) The subjects in this study were asked to make an estimate before practice to heighten motivation during the first trial. However, this estimate was not used in computing "level of aspiration" scores to be described in the following paragraphs. Before discussing the scoring system, we will present the instructions and the task itself.

Many tasks have been used in "level of aspiration" studies, some meeting the requirement of ego-involvement better than others. Since much criticism has been leveled at studies of the aged on the grounds of lack of meaningfulness of the test material presented to them and of the questionable motivation of the subjects to deal with the test material (Shock, 1952), special effort was made to find a task which would have appeal for an older population. Consideration of this problem, and personal experience in intelligence testing of this age group, indicated that a task which involved memory testing would be very meaningful for them and strongly motivating. Among the available tests, the one which suggested itself as most apt was the Associate Learning Test in the Wechsler Memory Scale (Wechsler, 1945). However, the task was not long enough to escape being learned in its entirety
in one trial by some of our brighter subjects. This would invalidate its use for "level of aspiration" study. Accordingly, a similar test was devised by this writer consisting of fifteen pairs of words, five of which were "easy" pairs and ten of which were "hard" pairs. The selection of these pairs of words, their order and method of presentation were dictated by the desire to maintain ego-involvement throughout the "level of aspiration" test. It was felt that the ten "hard" pairs would prevent anyone from learning all the pairs in one trial and that the five "easy" pairs would make it possible for everyone to remember at least one pair of words at the end of the first trial. The pairs of words and their order of presentation follows: (The easy items are starred.)

<table>
<thead>
<tr>
<th>in</th>
<th>out*</th>
</tr>
</thead>
<tbody>
<tr>
<td>paper</td>
<td>mood</td>
</tr>
<tr>
<td>rise</td>
<td>fall*</td>
</tr>
<tr>
<td>good</td>
<td>bad*</td>
</tr>
<tr>
<td>cloud</td>
<td>brick</td>
</tr>
<tr>
<td>tree</td>
<td>cart</td>
</tr>
<tr>
<td>bull</td>
<td>winter</td>
</tr>
<tr>
<td>lunch</td>
<td>step</td>
</tr>
<tr>
<td>radio</td>
<td>shoes</td>
</tr>
<tr>
<td>stop</td>
<td>go*</td>
</tr>
<tr>
<td>nail</td>
<td>pass</td>
</tr>
<tr>
<td>odd</td>
<td>begin</td>
</tr>
<tr>
<td>pill</td>
<td>woolly</td>
</tr>
<tr>
<td>door</td>
<td>rainbow</td>
</tr>
<tr>
<td>true</td>
<td>false*</td>
</tr>
</tbody>
</table>

Prior to the administration of the test, the subject was given the following instructions:

I am going to read you a list of pairs of words. I'll want you to listen carefully because when I finish, I'll say the first word of each pair and ask you to tell me what the second one was. For example, if the list went, "East-West, Gold-Silver" and so on, then when I finished, if I said East, I would want you to say West, and if I said Gold, I would want you to say Silver. Do you understand?

Now there are going to be fifteen pairs of words. Some will be easy to remember; some will be very hard to remember. Before we begin, I want you to tell me how many you think you will be able to remember out of the fifteen pairs.
The list was presented after the subject gave his first estimate and after testing his ability to remember the pairs of words, he was told:

You remembered—pairs of words that time. Now I am going to read you the same list of pairs of words again. You remembered—pairs that time. How many do you think you will be able to remember this next time?

The same procedure was followed for five trials. Other "level of aspiration" studies have generally used more trials (Cohen, 1949; Scott, 1953; Bills, 1953) for the purpose of observing the goal-setting behavior over a longer period of time and possibly getting more reliable estimates of the goal-setting tendency of the subject. However, the stressful nature of our task, the fatigability of the subjects and the general time limitations dictated five as the optimum number of trials for this study.

A. Measures and Scores Used. The score most often used as an indication of the individual's goal-setting level is the goal-discrepancy score, more commonly referred to as the D score. This is the mean of the differences between the estimates and the immediately preceding performances expressed algebraically. In this study, the D score was used as the index of self-concept which was compared with the adjustment variables. To indicate the relevance of the D scores as indices of goal-setting level, a number of other scores are reported. These are:

1) Success %—the percent of estimated performance scores which were reached or exceeded.

2) Conforming %—the percent of responses to success or failure which conformed to the usual mode of responding, i.e., the estimate is
raised after success and lowered after failure.

3) Same %--the percent of responses to success and failure which involve no change in the estimate of future performance.

4) Deviant %--the percent of responses to success and failure which involved a raising of the estimate after failure or a lowering after success.

5) (Same after failure/Same) %--this is an examination of the tendency to maintain the same estimate after success and failure experiences. The (same after success/same) % would be the reciprocal of this score and is therefore not being reported.

B. Types of Response. The mean D score for the total group was +.58 with a standard deviation of 1.40. An examination of the D scores for men and women separately revealed means of +.64 and +.54 respectively. This difference was not significant and did not conform to the expectation from the findings of Sumner and Johnson (1949) that men would score significantly higher than women. However, 63 percent of the men attained D scores above the mean for the total group while only 45 percent of the women attained D scores this high. This suggests that the tendency for men to have higher D scores is confirmed but that the mean differences were not significant probably due to the distorting effect of the extreme scores on the means of both groups.

The total group was then broken into four groups on a basis similar to Cohen's differentiation into three groups (Cohen, 1950). He divided his subjects into those with D scores above +.67 standard deviations from the mean
(high positive goal setters), those with $D$ scores from $+.67$ to $-.67$ standard deviations from the mean (medium goal setters), and those with $D$ scores below $-.67$ standard deviations from the mean (high negative goal setters).

We decided to split the medium $D$ score group into those with $D$ scores from the mean to $+.67$ standard deviations and those with $D$ scores from the mean to $-.67$ standard deviations on the assumption that the former group could be considered as low positive goal setters while the latter could be considered as low negative goal setters. The cut-off points established on this basis and the number of subjects falling into each category are presented in Table II.

### Table II

<table>
<thead>
<tr>
<th>D Score Grouping Including Cut-off Points and Number of Subjects in Each Group, $N = 77$</th>
<th>Cut-off Points</th>
<th>$N$</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Positive D</td>
<td>$+.52$ and above</td>
<td>12</td>
</tr>
<tr>
<td>Low Positive D</td>
<td>$+.58$ to $+.52$</td>
<td>28</td>
</tr>
<tr>
<td>Low Negative D</td>
<td>$+.58$ to $-.36$</td>
<td>23</td>
</tr>
<tr>
<td>High Negative D</td>
<td>$-.36$ and below</td>
<td>14</td>
</tr>
</tbody>
</table>
Since we had decided to use the D score as the basic measure of "level of aspiration", we investigated some other measures derived from this test to determine if there was internal consistency in the different goal-setting operations presumably occurring in the various D score groups. Table III provides some of our findings on these measures.

**TABLE III**

**Success % and Percent of Differential Responses to Success and Failure in the Level of Aspiration Task**

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Success %</th>
<th>Conforming %</th>
<th>Deviant %</th>
<th>Same %</th>
<th>(Same after failure/Same) %</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Positive D</td>
<td>12</td>
<td>22</td>
<td>52</td>
<td>13</td>
<td>35</td>
<td>100</td>
</tr>
<tr>
<td>Low Positive D</td>
<td>28</td>
<td>50</td>
<td>73</td>
<td>3</td>
<td>24</td>
<td>77</td>
</tr>
<tr>
<td>Low Negative D</td>
<td>23</td>
<td>67</td>
<td>75</td>
<td>5</td>
<td>20</td>
<td>6</td>
</tr>
<tr>
<td>High Negative D</td>
<td>14</td>
<td>75</td>
<td>46</td>
<td>16</td>
<td>38</td>
<td>10</td>
</tr>
</tbody>
</table>

We note from Table III that the number of successes is inversely proportional to the height of the D score. The conforming %, deviant % and same % are all mildly suggestive that the extreme D score groups, i.e., high positive and high negative D, tend to be more deviant and more inflexible in their goal-setting behavior than the medium D score groups. The score which provides striking information about the differences between the D score groups is the (same after failure/same) %. Here we note a
M END
congruence between the goal-setting behavior of both positive D score groups as against both negative D score groups. This measure and the success % combine to suggest that the height of goal-setting is a function of the need to control the number of failure experiences. The positive goal-setters do not react to a failure to meet the performance level to which they have committed themselves in their estimates with the same intensity as the negative goal-setters. Instead, they seem to react more as if these were temporary failures which would be overcome in later trials.

Another analysis of the consistency of the goal-setting behavior was based on a comparison of the first D score, i.e., the discrepancy between the first performance and the second estimate, and the mean D score, which was an average of the four D scores derived from the five trials. This was done first by inspection of a scatter diagram and secondly by computation of a Pearson r. The results of the scatter diagram inspection were submitted to a chi-square analysis and are presented in Table IV.

**TABLE IV**

*Distribution of Individuals Whose First D Scores Were +1.00 or Above and Zero or Less Relative to Their Mean D Scores Being Above or Below the Mean for the Total Distribution*

<table>
<thead>
<tr>
<th>Mean D Score</th>
<th>Below +.58</th>
<th>Above +.58</th>
<th>Chi-square</th>
</tr>
</thead>
<tbody>
<tr>
<td>First D</td>
<td>+1.00 and up</td>
<td>13</td>
<td>39</td>
</tr>
<tr>
<td>Score</td>
<td>Less than +1.00</td>
<td>24</td>
<td>1</td>
</tr>
</tbody>
</table>

* significant beyond the .001 level of confidence.
Table IV indicates that, when the total group is divided first into those whose first D scores are below +1.00 or are +1.00 or above, and then further subdivided according to whether the mean D score of each individual is above or below the mean D score for the total group, there is a marked consistency between the first D score and the mean D score. In fact, it indicates that if an individual did not begin by setting a positive goal on the first trial, the chances were practically nil that he would attain a positive mean D score. On the other hand, if an individual set a positive goal on the first trial, the chances were three to one that he would attain a positive mean D score. A Pearson r of +.73 between these two measures confirmed the strength of the relationship which seemed apparent from the chi-square analysis.

We further analyzed the consistency of the D scores by computing correlations between the mean D scores and two performance measures on the paired associate learning task. We reasoned that if a significant relationship existed between the mean D scores and performance on the "level of aspiration" task, the height of the D score might be questionable as a personality measure. Using the mean performance score over the first four trials, which were used in the computation of the D scores, the Pearson r between performance and D score was +.05. Using the difference between the first D score for each individual and the fourth D score for each individual, as a measure of the learning ability of the subject and of the improvement in performance over the course of the four trials, we obtained a Pearson r of +.01 between performance and D scores. Neither
of these correlation coefficients was significant. Thus, we have an indirect indication of the validity of the D scores as measures of personality variables.

In summary, we have indicated that the goal-setting behavior of our subjects will be considered in terms of their falling into one of four groups based on the standard deviation of their D scores. We have shown that the medium D score groups tend to be more "conforming" in their response to success and failure than the extreme D score groups and that the positive D score groups tend to be more resistant to failure experiences than the negative D score groups. We now turn to a discussion of the adjustment variables.

**Rorschach.** The Rorschach was administered and scored in the manner suggested by Beck (1950) with one important exception. We had found early in our pilot work with older people that many of them had difficulty in remembering their original responses if the Inquiry was conducted after the presentation of all ten blots. Ames (1954) had similar problems in testing her sample of aged subjects and finally abandoned a formal Inquiry. We modified the test administration to the extent that the Inquiry was conducted immediately after the last response to each blot. This eliminated some problems but may have created others. The proportion of scorable records was raised considerably by this modification. However, it might have produced distortions in the total record in the direction of offering a more organized personality picture than actually existed. On the other hand, a number of our subjects, especially those with higher intelli-
gence scores, were obviously capable of taking the test in the usual manner. However, for purposes of uniformity, the modified procedure was used for all subjects.

After the records were scored for location, determinants and content, each record was scored on the variables included in the Fisher Maladjustment Scale. As previously noted, we have adopted the score on the Fisher Maladjustment Scale as the index of personal adjustment on the basis of its successful separation of normals, neurotics and psychotics in the Fisher study (1950) and on the basis of its inclusion of variables usually associated with psychological adjustment in clinical use of the Rorschach Test. Appendix A includes a listing of the variables used in this scale and the scoring system for each variable.

Scores Found in this Study. The mean Maladjustment Scale score for the total group of 77 subjects was 49.47 with a standard deviation of 22.59. This mean is higher than that found by Fisher (1950) for his normal group but compares closely with that found by Fine, Fulkerson and Phillips (1955) in a study of normal males at Worcester State Hospital. Fisher's group of normal women achieved a mean score of 36.9 while Fine et al. found a mean score of 47.7. One possible explanation for the similarity between our results and Fine's findings and the dissimilarity with Fisher's findings lies in the IQ range of the groups. Fisher studied a group with IQ's between 95 and 110, Fine studied a group with IQ's between 83 and 140, and our group had a range of IQ's between 68 and 140. In partial support of this, we
found a Pearson $r$ of -.33 between WAIS IQ and the Fisher Maladjustment Scale scores, which was significant beyond the .01 level. This relationship between intelligence and the Fisher Scale is of such magnitude as to require inclusion in the study of the relationships proposed in this study.

Fine et al offered as one hypothesis, to explain the differences in mean Maladjustment scores between their group and Fisher's, the fact that their sample consisted of men and Fisher's consisted of women. A test of sex differences in our group revealed no significant difference. The mean score for men was 47.60 and for women 50.66.

**Chicago Activity Inventory.** This scale consists of 19 questions (see Appendix B) imbedded in the "Activities and Attitudes Inventory" devised by Cavan et al. (1949). The questions are intended to get a measure of social adjustment by evaluating the extent of social participation based on the self-report of the subject. They cover leisure-time activities, religious activities, intimate social activities, economic activities and health, and are scored according to the procedure given by the authors (also in Appendix B). This scale correlated .65 with other criteria of social adjustment in the original study of Cavan et al.

**Scores Found in This Study.** The mean Chicago Activity Inventory score for the total group was 27.47 with a standard deviation of 6.31. This mean was based on 73 cases since data were not available for four of our subjects. One of these latter was so slow in responding that we were unable to complete her interviews in two days and we have been unable to arrange
for her to return for the rest of the studies. The three others were inter-
viewed before the Chicago Activity Inventory became available to us and
other, non-comparable, social history data are available on them.

When analyzed separately for men and women, differences signifi-
cant beyond the .01 level were found. The mean score for males was
24.96, for females 29.02 with standard deviations of 5.47 and 6.30
respectively. This finding suggests that the men in this study are making
poorer social adjustments than the women which is in agreement with the
findings of Havighurst and Albrecht (1953) in their study of an aged popu-
lation in a small midwestern community.
Chapter III
RESULTS

The general problem we have proposed to investigate is the relationship between self-concept and adjustment. We have stated that we would explore this over-all relationship by dealing with three specific relationships, viz. 1) that between "level of aspiration" D scores (an indirect measure of the self-concept) and Fisher Maladjustment Scale scores (an index of personal adjustment), 2) that between "level of aspiration" D scores and Chicago Activity Inventory scores (an index of social adjustment), and 3) that between Fisher Maladjustment Scale scores and Chicago Activity Inventory scores. We shall examine each of the three relationships separately in the order listed above.

Level of Aspiration and Fisher Maladjustment Scale Scores. We have hypothesized that those subjects with low positive D scores would have lower
Fisher Maladjustment Scale scores than those with high positive and negative D scores. Cohen (1949) had found an \( \text{eta} \) correlation of .408 between D scores and ratings of self-acceptance. When corrected by \( \text{epsilon} \)-square, this relationship was still significant beyond the .05 level. Our data yielded an \( \text{eta} \) correlation of .36 which, when corrected by \( \text{epsilon} \)-square, dropped to .04, which was not significant. Thus, we failed to confirm the curvilinear relationship between goal-setting level and personal adjustment level found by Rotter (1945), and predicted from the findings of Sears (1940) and Cohen (1949) in regard to the relationship between self-concept and goal-setting.

We then divided the total group of subjects into four D score groups, on the basis of the individual standard deviation scores, as previously indicated, and examined the relationship between goal-setting level and personal adjustment level by analysis of variance (Edwards, 1946). The results of this analysis are presented in Table V.

### TABLE V

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>3007.23</td>
<td>3</td>
<td>1002.41</td>
<td>2.02</td>
</tr>
<tr>
<td></td>
<td>(not significant)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within groups</td>
<td>36273.94</td>
<td>73</td>
<td>496.90</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>39281.17</td>
<td>76</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
It seems from this analysis of variance that there were no significant differences between the D score groups on mean Fisher Maladjustment Scale scores. Thus, our first hypothesis, that low Maladjustment Scale scores would be related to low positive D scores, was not confirmed because there was no significant curvilinear relationship between self-concept and the personal adjustment index and no significant differences between Fisher Maladjustment Scale mean scores of groups separated on the basis of D scores.

Having found no significant curvilinear relationship, we wondered whether there was a linear relationship between goal-setting and personal adjustment in our population. A Pearson product-moment correlation revealed an r of -.26 between the two measures, D scores and the Maladjustment Scale, which was significant beyond the .05 level. Thus, it seemed that there was a low, inverse relationship between goal-setting and personal adjustment. However, our analysis of variance had suggested that the relationship was so tenuous that the height of goal-setting level, per se, would not permit prediction to this specific adjustment variable. We wondered whether there might be a confounding factor which was masking a relationship that seemed to be reliable from other observations. The correlation between WAIS IQ and Fisher Maladjustment Scale of -.33 suggested that intelligence level might be that factor. We examined the effects on the relationship between goal-setting and personal adjustment by combining the intelligence level with goal-setting in a multiple correlation procedure.
Combining D scores and WAIS IQ to predict Fisher Maladjustment Scale scores yielded a multiple $R$ of .40. Thus, including the goal-setting level did not seem to produce much of an improvement over the correlation of -.33 which existed between WAIS IQ and the Maladjustment Scale alone. Our next analysis revealed one of the reasons for this. We conducted a further analysis of variance for the purpose of examining the interaction effect of WAIS IQ and D score on the Fisher Maladjustment Scale with the expectation that D score might be differentially related to Fisher Maladjustment Scale scores at different IQ levels.

For this analysis, we divided the subjects into two goal-setting groups: 1) Positive D -- those with D scores above the mean, and 2) Negative D -- those with D scores below the mean. We had to forego examination of the relationship between the high positive D group and the other D score groups separately because of the limited number of subjects in the high positive D score group. This action also seemed justified since the eta correlation was not significant suggesting that the high positive D score group would probably not have higher Maladjustment Scale scores than the low positive D score group. Each D score group, positive D and negative D, was then divided into four IQ groups on the following basis:

1) Below 80 IQ - essentially subnormal intelligence
2) 80-89 IQ - dull normal intelligence
3) 90-109 IQ - average intelligence
4) 110 and above IQ - above average intelligence

The Fisher Maladjustment Scale score means were calculated for each group
and are contained in Table VI.

**TABLE VI**

Mean Fisher Maladjustment Scale Scores for Two D Score Groups Separated According to Four IQ Levels, N = 77

<table>
<thead>
<tr>
<th>IQ Groups</th>
<th>Below 80 N</th>
<th>80-89 N</th>
<th>90-109 N</th>
<th>110 and Above N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive D</td>
<td>62.71 7</td>
<td>45.50 11</td>
<td>41.15 11</td>
<td>32.12 14</td>
</tr>
<tr>
<td>Negative D</td>
<td>50.86 7</td>
<td>63.33 6</td>
<td>65.91 13</td>
<td>33.75 8</td>
</tr>
</tbody>
</table>

It is apparent from Table VI that the groups with IQ's 110 and above achieve low maladjustment Scale mean scores regardless of goal-setting level. Within the D score groups, the mean Maladjustment Scale scores for the 80-89 IQ group and for the 90-109 IQ group are almost identical. It also seems, by inspection, that there is a marked difference between the Maladjustment Scale mean of the positive D groups with 80-89 and 90-109 IQ's and the negative D groups with the same IQ's. On the other hand, a lesser relationship seems to prevail, in the reverse direction, for the below 80 IQ groups. These relationships can be observed by reference to Figure 1.

It seemed appropriate, after inspection of these relationships, to perform an analysis of the interaction effects of IQ and D score in relation
FIGURE 1

Mean Fisher Maladjustment Scale Scores of Positive and Negative D Score Groups Separated into Four IQ Groups: Below 80, 80-89, 90-109, and 110 and Above
to Fisher Maladjustment Scale scores. Before this could be done, the
groups had to be manipulated still further in order to attain proportional
numbers of subjects within each cell. We already had equal numbers of
subjects in the two groups with IQ's below 80. Combining the 80-89 and
90-109 IQ groups, because of the marked similarity of their means, there
were nineteen and twenty-two subjects in the negative D and positive D
score groups respectively. In the 110 and above IQ groups, there were
fourteen positive D and eight negative D score subjects. This meant that a
total of nine subjects had to be dropped randomly from further consideration,
three to come from the positive D score, 80-109 IQ group and six to come
from the negative D score, 110 and above IQ group. The scores of all sub-
jects in both these groups were placed on small slips of paper, individually,
separated by IQ group, and a colleague picked the appropriate number of
slips out of each group. This left sixty-eight subjects whose Fisher Mal-
adjustment Scale scores would be examined in relation to goal-setting level.
The results of this analysis of variance are revealed in Table VII.

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Estimate of Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>8309.91</td>
<td>5</td>
<td>1661.98</td>
</tr>
<tr>
<td>Within groups</td>
<td>17957.08</td>
<td>62</td>
<td>289.63</td>
</tr>
<tr>
<td>Total</td>
<td>26266.99</td>
<td>67</td>
<td></td>
</tr>
</tbody>
</table>

\[ F = 5.74, p \approx 0.01 \]
Table VII reveals that there are significant differences between the six groups but does not reveal where there are differential relationships between D scores and Maladjustment Scale scores according to IQ level. Analysis of the interaction effects of intelligence on this relationship yielded the results shown in Table VIII.

**TABLE VIII**

Determination of Interaction Between D Scores and IQ Levels by Analysis of Variance of Fisher Maladjustment Scale Scores

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Estimate of Variance</th>
<th>F</th>
<th>Significance Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>D score grouping</td>
<td>971.31</td>
<td>1</td>
<td>971.31</td>
<td>3.35</td>
<td>n. s.</td>
</tr>
<tr>
<td>IQ grouping</td>
<td>5083.35</td>
<td>2</td>
<td>2541.68</td>
<td>8.78</td>
<td>.01</td>
</tr>
<tr>
<td>Interaction</td>
<td>2255.25</td>
<td>2</td>
<td>1127.63</td>
<td>3.89</td>
<td>.05</td>
</tr>
<tr>
<td>Within groups</td>
<td>17957.08</td>
<td>62</td>
<td>289.63</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>26266.99</td>
<td>67</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table VIII reveals that differences in Fisher Maladjustment Scale mean scores between groups, divided solely on the basis of D score level, are not significant. Scores of groups divided solely on the basis of IQ level are significantly different from each other. However, when the IQ level is known as well as the D score level, then there are differentially significant relationships between D score and the Fisher Maladjustment Scale. Analysis of
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Value</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>First Item</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Second Item</td>
<td>200</td>
<td>Inserted</td>
</tr>
<tr>
<td>3</td>
<td>Third Item</td>
<td>300</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Fourth Item</td>
<td>400</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Fifth Item</td>
<td>500</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Sixth Item</td>
<td>600</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Seventh Item</td>
<td>700</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Eighth Item</td>
<td>800</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Ninth Item</td>
<td>900</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Tenth Item</td>
<td>1000</td>
<td></td>
</tr>
</tbody>
</table>

The table above lists the descriptions, values, and notes for each item. The notes column includes any additional information or comments about the item.
these relationships by Fisher t-test (Guilford, 1942) reveals that the Maladjustment Scale mean score of the positive D group is significantly lower than that of the negative D group (t is 2.76, significant at the .01 level).

The differences between mean Maladjustment Scale scores of positive and negative D score groups outside this IQ range are not significant, although there is a relationship approaching significance between negative goal-setting and low Maladjustment Scale scores in the below 80 IQ group.

Having found that positive goal-setting was related to low Maladjustment Scale scores within the average IQ group, we conducted a Pearson product-moment correlation of the thirty-eight cases in this group to see the extent of the relationship with intelligence controlled. We obtained an r of -.46 (as compared with the r of -.26 for the total group) which was significant beyond the .01 level. Within this IQ group, the correlation between IQ and the Maladjustment Scale dropped to .10, which was not significant.

These results suggest that the original hypothesis that the low positive D score group would have lower Maladjustment Scale scores than the high positive and negative D score groups is partly confirmed. The relationship between low positive and high positive D score groups and adjustment was not testable because of the low number of cases in the high positive D score group. However, the insignificant eta correlation suggests that there would probably be no significant differences between them. Inspection of the group Fisher Maladjustment Scale scores reveals a mean of 42.00 for the six subjects in the high positive D, 80-109 IQ group with a mean of 42.77 for the
thirteen subjects in the low positive D, 80-109 IQ group. Our results conform in this respect to those of Bills (1953) who found a rectilinear relationship between D scores and self-acceptance.

**Level of Aspiration and Chicago Activity Inventory.** We have hypothesized that there would be a relationship between D scores and social adjustment as measured by the Chicago Activity Inventory. Only 73 cases were available for the analysis of this relationship for reasons previously mentioned.

A Pearson $r$ between the Chicago Activity Inventory and D scores of -.05 indicated that there was no reliable relationship between the two measures. The similarity of mean scores of the different D score groups did not warrant an analysis of variance (see Table IX).

**TABLE IX**

Mean Chicago Activity Inventory Scores for Four D Score Groups, $N = 73$

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Positive D</td>
<td>11</td>
<td>26.91</td>
</tr>
<tr>
<td>Low Positive D</td>
<td>27</td>
<td>27.26</td>
</tr>
<tr>
<td>Low Negative D</td>
<td>23</td>
<td>27.91</td>
</tr>
<tr>
<td>High Negative D</td>
<td>12</td>
<td>27.58</td>
</tr>
</tbody>
</table>

Since controlling intelligence had revealed differential relationships between the Fisher Maladjustment Scale and D scores, we performed an
analysis of variance on the same basis using the Chicago Activity Inventory scores in the place of the Maladjustment Scale scores. An $F$ of 1.13 was found which was not significant. We also attempted to control for sex and age separately on the assumption that these variables might produce differential effects on the social adjustment variable. Again, no differences which were even remotely suggestive of a relationship were found.

It would seem then that $D$ scores are not related to social adjustment as measured by the Chicago Activity Inventory. Inspection of the relationships between goal-setting level and each item on the Chicago Activity Inventory also revealed no suggestive trends or relationships (see Appendix C).

**Chicago Activity Inventory and Fisher Maladjustment Scale.** We have hypothesized that social and personal adjustment are functionally related and that there should be a relationship between our measures of social and personal adjustment. This hypothesis was not confirmed. Pearson $r$ was .00.

**Summary of Results.** The expected curvilinear relationship between "level of aspiration" $D$ scores and our personal adjustment criterion, the Fisher Maladjustment Scale, was not found. Instead, a significant rectilinear relationship was found, $r = -.26$, which was increased to $-.46$ when the examination of the relationship was restricted to subjects functioning within the average IQ range. When the total group was broken into four $D$ score groups (high positive $D$, low positive $D$, low negative $D$, high negative $D$) analysis of variance revealed no significant differences in Fisher Maladjust-
ment Scale mean scores of different D score groups. However, when the total group was considered in terms of both IQ level and D score level, significant differences were found in Maladjustment Scale mean scores between positive and negative D score groups with IQ's in the average range. No significant relationship was found between height of D score and Maladjustment Scale mean scores among subjects outside the average range of intelligence as measured by the Wechsler Adult Intelligence Scale.

The Chicago Activity Inventory, our social adjustment measure, did not relate significantly either to the D scores or to the Fisher Maladjustment Scale.
Chapter IV

DISCUSSION

We have investigated the relationship between goal-setting in a "level of aspiration" situation, an indirect measure of the self-concept, and two criteria of adjustment, the Fisher Maladjustment Scale and the Chicago Activity Inventory. Of the adjustment variables we defined the former as a measure of personal adjustment and the latter as a measure of social adjustment. Curvilinear relationships were predicted between goal-setting level and both our adjustment criteria. Both adjustment measures were expected to be reliably related to each other.

None of these predictions were confirmed. However, a reliable rectilinear relationship was found between goal-setting level and personal adjustment the nature of which was made much clearer when the intelligence level of each subject was taken into account. Differential relationships between goal-setting and personal adjustment were then found within different
IQ level groups. The Pearson r between D scores and the Maladjustment
Scale rose from -.26 for the total group to -.46 when only subjects with IQ's
between 80-109 were included in the analysis. There was no relationship
between height of goal-setting level and adjustment among those with IQ's of
110 and above, but there was a tendency for negative goal-setting to be
associated with good adjustment among those with IQ's below 80, the reverse
of the relationship in the average IQ group.

The Chicago Activity Inventory was not found to be related to either of
our two other variables. The finding of relationships which were not predicted,
viz., the importance of intelligence level in the relationship between self-
concept and our criterion of personal adjustment, and the failure to find
relationships which were predicted raises some questions about the measures
that have been used as criteria of self-concept and adjustment. Each of the
variables will be discussed separately in terms of the problems of measure-
ment and some suggestions offered toward solving these problems.

**Self-Concept.** We found a rectilinear, rather than a curvilinear re-
relationship between self-concept and personal adjustment as had been expected
from previous studies. The question arises as to which is the more reliable
relationship. It is our impression that both may be equally reliable depend-
ing in part on the nature of the task on which goals are to be set. Rotter
(1942 b) specifically chose a task which would not be affected by learning and
on which "performance scores . . . [were] variable enough so that the sub-
ject can only gauge his score approximately" (p. 413), and found that "there
was for each individual considerable variability from trial to trial" (p. 417). Our task was just the opposite. Performance rarely varied more than three points from the past performance and was usually in an "improved" direction. It is quite possible that the predictability or unpredictability of future performance accounts for the differential relationship found between goal-setting and adjustment in our study and in Rotter (1945) on the basis of the following further analysis of the two "level of aspiration" situations.

When setting up our study, we originally planned to use cut-off points for low positive D score, negative D score, etc. on a rational basis. We reasoned that the subject was confronted with a task in which it seemed appropriate to predict improved performance from trial to trial, since he was being offered the same material for the improvement of his learning each time. Because of this, it was assumed that individuals with any confidence in their retention and/or learning ability would predict an improved performance of at least one additional pair each trial. This suggested a mean D score of +1.00 as the cut-off point for low positive D. The individual whose self-concept was such that he did not feel able to benefit, or to admit the possibility of benefit, from the repeated opportunity to learn and whose estimate of future performance was no higher than his past performance was considered as belonging in the low negative D score group. Thus, the cut-off points for this group would have been $D = 0$ to +1.00. Those individuals who not only refused to estimate improved performance but who would not acknowledge their previous attainment, i.e., those whose estimates were lower than their past performance, were considered as belonging in the high
negative D score group. No rational basis could be offered for identifying a high positive D score group within the context of this analysis.

Thus, the cut-off points would have been the following: Low positive discrepancy-D = +1.00 and above; low negative discrepancy-D = 0 to +1.00; high negative discrepancy-D = -1 and below. However, further consideration of this analysis suggested the possibility that the cut-off points might not be statistically valid, i.e., +1.00 might be considered as being equal to +.50 to +1.50, 0 might mean -.50 to +.50, et cetera. If this were true, different numbers of cases would be included in each D score group depending on our arbitrary interpretation of the proper cut-off point. In addition, our analysis had not yielded any high positive D score group. To solve this dilemma, we decided to resort instead to statistically defined cut-off points, in terms of standard deviation scores, as Cohen (1950) had done. It was surprising and gratifying to note that this system yielded cut-off points which were much similar to those we had arrived at by logical analysis of the task. They were: high negative discrepancy-D = -.36 and below; low negative discrepancy-D = -.36 to +.58; low positive discrepancy-D = +.58 to +1.52; and high positive discrepancy-D = +1.52 and above.

The Rotter Board task yields no discernible basis for determining cut-off points for low or high goal-setting. Because of the unpredictability of future performance, the only method for predicting the specific level of goal-setting which will be associated with different levels of adjustment is empirical observation. It seems that in this type of task an estimate which is markedly different from the previous performance, in either direction, is
an indication of the strength of internal needs which are so demanding that
the unpredictability of future performance is ignored in favor of exhibiting
the need to avoid failure or to strive high. This hypothesis seems partially
confirmed by Cohen's finding (1949) of a significant curvilinear relationship
between the number of successes on the Rotter Board "level of aspiration"
task and the number of shifts in estimate, i.e., "both those subjects who
shift a great deal and those who hardly shift at all have the greatest number
of successes" (Cohen, p. 77). This would suggest that the excessively
high or low goal-setters (D score correlated -.934 with number of successes
in Cohen's study) tend to remain rigidly with a limited number of goals as
one method of satisfying their needs to avoid failure or to indicate their
desire to strive high, or to shift their estimates frequently in an attempt to
keep their goals high or low despite the shifts in performance level.

On the other hand, performance on the paired associate learning test
is so highly predictable that direction of goal-setting may be all that needs
to be known in order to evaluate the self-concept. We saw that three
directions were possible, viz., negative, neutral (zero D score) and positive.
Whether one can reliably differentiate high negative from low negative or
high positive from low positive goal-setters on this task remains a problem.
We did not observe stable differences in adjustment level between high
positive and low positive goal-setters in this study. In addition to the prob-
lem of whether such differences were to be expected if the foregoing analysis
is correct, there is also the question of the criterion for establishing a cut-
off point for high-positive goal-setting. Perhaps another sample would yield
a different cut-off point if standard deviation scores are used as they were here. There is also the possibility that the paired associate learning test does not permit the utilization of high positive goal-setting because of its stability in limiting changes in performance from trial to trial. The negative goal-setter who estimates that he will score below his previous performance in this task may be the same unrealistic person who would be a high positive goal-setter on other tasks. This can only be tested empirically. Since this paired associate learning test has not been used as a "level of aspiration" task before, we can only suggest collection of other samples using this test and a test similar to the Rotter Board with the same subjects as a method of answering these questions.

In addition to the problems involved in interpretation of goal-setting behavior from task to task, there is also the problem of interpreting goal-setting behavior within sub-cultural groups and within groups with certain other psychological, physical or social characteristics. It has been suggested by Adams (1939) that Negroes set low goals in "level of aspiration" settings. In order to examine whether this was true for our population, we have prepared Table X which indicates the goal-setting levels for the four population sub-groups from which our total sample comes, giving the number of men and women separately who had positive and negative D scores. Within the limited sample we have of each group, it seems that Negro women tend to produce more negative D scores than any other group and that white Golden Age men produce a greater proportion of positive D scores than any other group.
TABLE X

Distribution of Goal-Setting Levels for Four Groups Separated on the Basis of Sex and Social Status, N = 77

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negro Golden Age Positive D*</td>
<td>2</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Negro Golden Age Negative D**</td>
<td>1</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>Hospital Positive D</td>
<td>6</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>Hospital Negative D</td>
<td>5</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Professional Positive D</td>
<td>7</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td>Professional Negative D</td>
<td>5</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>White Golden Age Positive D</td>
<td>4</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>White Golden Age Negative D</td>
<td>0</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Total Positive D</td>
<td>19</td>
<td>21</td>
<td>40</td>
</tr>
<tr>
<td>Total Negative D</td>
<td>11</td>
<td>26</td>
<td>37</td>
</tr>
</tbody>
</table>

* Positive D = +.58 or above
** Negative D = +.58 or below

Before goal-setting level can be interpreted as an indication of the nature of the self-concept with any assurance, the question might be considered as to whether there is any reason to believe that Negro women are more self-rejecting than other groups or that white men are more self-accepting than other groups. Added to this problem is that of the intelligence level of the particular members of each group studied, which we have noted as one factor affecting the relationship between goal-setting and adjustment. There are so many interacting variables here that the only way to answer these questions is to collect samples of each of these groups, e.g., men and
<table>
<thead>
<tr>
<th>No</th>
<th>Description</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>z</td>
<td>42.279279</td>
</tr>
<tr>
<td>2</td>
<td>k</td>
<td>3.333333</td>
</tr>
<tr>
<td>3</td>
<td>l</td>
<td>0.500000</td>
</tr>
<tr>
<td>4</td>
<td>m</td>
<td>0.250000</td>
</tr>
<tr>
<td>5</td>
<td>n</td>
<td>0.125000</td>
</tr>
<tr>
<td>6</td>
<td>o</td>
<td>0.062500</td>
</tr>
<tr>
<td>7</td>
<td>p</td>
<td>0.031250</td>
</tr>
</tbody>
</table>

known = M, G, L, normal

data = 5, 3, 2, normal

(4, 3, 2, 1, normal)

(4, 3, 2, 1, million)
women separately, groups separated on the basis of socio-economic level, Negroes and whites, and examine the relationships between group membership and the relationship between goal-setting behavior and self-concept level. This, of course, poses once again the problem of finding criterion measures of self-concept against which to examine these relationships. Perhaps a very loosely structured interview situation can be arranged in which the individual's background is explored with a view to applying to the material given by the subject a method similar to the one used by Rainy (1948) for the measurement of positive or negative self-references.

If some of these follow-up studies can be done, it is our belief that this paired associate learning test can become a useful clinical and research tool when used in a "level of aspiration" situation in the study of self-concept among older people. It has been noted as creating ego-involvement in older people, it seems to have been understood by most of our subjects, and there are meaningful cut-off points for positive and negative goal-setting level. The correlation of +.73 between the first D score and the mean D score and the finding that only one out of twenty-five subjects whose initial D score was below +1.00 attained a mean D score above +.58 also suggests the stability of the task. Further, in the interests of brevity the test may be terminated after the first D score is obtained if that D score is not +1.00 or above, and the first D score in those cases may be useful as an indication of the goal-setting level.

Personal Adjustment. We have used the Fisher Maladjustment Scale
as applied to the Rorschach Test as a measure of personal adjustment feeling that it allowed us to make inferences about adjustment level from observations of behavior rather than to rely on asking the subject to evaluate his adjustment directly. We have found limited relationships between this measure of personal adjustment and our self-concept measure in an older population, and there is a suggestion that some of the conditions inherent in the development of the Fisher Maladjustment Scale may be responsible for some of these limitations. The hypothesis that there is in fact a limited relationship between self-concept and adjustment can only be espoused if one adopts a completely operational approach and equates the psychological variables being measured with the instruments being used to measure them.

As Sullivan (1947) has said in discussing the self, ". . . if there is nothing dissociated, then whether one be a genius or an imbecile, it is quite certain that he will be mentally healthy" (p. 22).

There is a strong possibility that the Fisher Maladjustment Scale may not be an adequate criterion of adjustment outside the average range of intelligence. This is not an unreasonable hypothesis when one considers that this scale was standardized on a group with IQ's ranging from 95-110 (Fisher, 1950). Our subjects with IQ's above 110 achieved many more low Maladjustment Scale scores than subjects in other IQ groups despite similar differences in goal-setting level and despite other indications of varied personal adjustment level (55 percent received scores below 39 as compared with 24 percent and 7 percent for the 80-109 and below 80 IQ groups respectively). Among the latter were impressions of the various members of the
Duke Geriatrics Research Project staff, based on clinical judgment of interview material. The low Maladjustment Scale scores among individuals falling into the high IQ group might be a function of the modified administration of the Rorschach since these subjects would be most likely to understand and act on the basis of the minimal cues regarding productivity and determinants which were provided by the early Inquiry. It may also be that the Maladjustment Scale, or that the Rorschach itself, is excessively weighted as a measure of adjustment in favor of individuals who function above the average, intellectually, when analysis of the results is limited to the usual scores without taking the content into account as well. As an instance in favor of this latter hypothesis, Neff and Lidz (1951) found soldiers with Army General Classification Test scores below 110, below high average, to be rated as neurotic when their Rorschachs were analyzed by use of the Miale "signs" of neurosis (Miale and Harrower-Erickson, 1940), despite the fact that there was no other evidence that they were abnormal in any way. It would seem then that Rorschach investigations require some control of the intelligence factor, either by restricting the sample to a limited IQ range, as Fisher did, or by analysis of the interacting effects of intelligence on ratings of personality.

As has been pointed out in regard to the problems in evaluation of self-concept, intelligence level is but one factor which presents problems in assessment of adjustment level. Other population characteristics which must be investigated for their effects on "signs" of adjustment are socio-economic level or social status, age, sex, race, educational level and possibly type of
community, i.e., rural or urban. A discrimination must be made here between differential behaviors associated with each of these population characteristics and different criteria of adjustment which should be applied to each of these groups. For example, an eighty year old male who is of the lower-lower class, socio-economically, may be well-adjusted if he can sit on a porch and be visited by cronies. However, a sixty year old college professor who limits himself to this activity would probably be maladjusted.

Despite the problems involved in assessing adjustment in a wide range of populations, there are indications within our data that our measures have some gross validity. Table XI provides information about the number of cases appearing within each score category if the Fisher Maladjustment Scale scores are divided roughly into thirds according to the total distribution and if the population is divided into crudely defined social status categories on the same basis as in Table X.

We note that the hospitalized patients have the highest proportion of high scores on the Maladjustment Scale and that the professional group has the highest proportion of low scores. If social status can be considered as one indication of adjustment, then the findings that the professional group is best adjusted and the hospitalized group least adjusted would seem to add validity to our measure of personal adjustment.

Social Adjustment. We have used the Chicago Activity Inventory as a measure of social adjustment because it specifically attempts to deal with the role-behaviors which are considered relevant to social adjustment level
### TABLE XI

Distribution of Fisher Maladjustment Scale Scores by Number of Cases in Low, Medium and High Scoring Groups for Four Social Status Groups, \( N = 77 \)

<table>
<thead>
<tr>
<th>Social Status Groups</th>
<th>0-39</th>
<th>40-53</th>
<th>54+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negro Golden Agers</td>
<td>4</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Hospitalized Patients</td>
<td>3</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>Professional Group</td>
<td>12</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>White Golden Agers</td>
<td>5</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>24</strong></td>
<td><strong>27</strong></td>
<td><strong>26</strong></td>
</tr>
</tbody>
</table>

### TABLE XII

Distribution of Chicago Activity Inventory Scores by Number of Cases in Low, Medium and High Scoring Groups for Four Social Status Groups, \( N = 73 \)

<table>
<thead>
<tr>
<th>Social Status Groups</th>
<th>0-24</th>
<th>25-30</th>
<th>31+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negro Golden Agers</td>
<td>6</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Hospitalized Patients</td>
<td>7</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Professional Group</td>
<td>6</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>White Golden Agers</td>
<td>6</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>25</strong></td>
<td><strong>24</strong></td>
<td><strong>24</strong></td>
</tr>
</tbody>
</table>
among the aged in an objective manner. Table XII indicates that it functions best when differentiating the highly adjusted group. For the group scoring 31 or above, the majority of subjects fall into the professional category while the fewest subjects fall into the hospitalized category. This is one indication from our data of some gross validity for this measure.

However, the lack of any systematic relationships between the Chicago Activity Inventory and either D scores or the Fisher Maladjustment Scale suggests that much information still remains to be gathered about the applicability of this social adjustment measure. We have noted above that the Chicago scale provides meaningful separations of groups differing in social status within the high scoring group. However, Table XII suggests that too many people may be rated as socially maladjusted. This may be due in part to a failure to take sex differences in social behavior patterns into account in the scoring system. A large part of the Inventory is concerned with leisure-time activities and since older people who are retired have plenty of leisure time, this is appropriate. However, while the amount of leisure time available changes greatly for males when they retire, this does not necessarily happen to females who have not been in the regular work-force. The male who manages to find enough to do to occupy his newly acquired leisure-time satisfactorily might be considered to be making a better adjustment in old age than the female who may be continuing her previous housework and leisure-time activities. We have found that the males in this study attain significantly lower Chicago Activity Inventory scores than the females but if the items in the scale were given differential weightings in the Cavan et al.
(1949) study, according to the sex of the subject, we wonder if our males would still score lower than our females.

In addition to sex differences, there is also the possibility that different social roles are acceptable within different socio-economic classes. No adjustment is made for this in the Chicago Activity Inventory as currently promulgated.

Retrospect and Prospect. We have not been successful in clearly evaluating the relationship between self-concept and adjustment, an experience shared with previous investigators whose ambiguous results created interest in formulating this study. However, our results suggest as one of the variables which is probably responsible, at least in part, for the inconsistent findings in other investigations, viz., intelligence level. For example, in Mason's study (1954), the institutional group was clearly inferior intellectually to the community aged group. Reference to her results (1954, p. 330) reveals that the only clearly significant difference between the two groups on the Caldwell Picture Series is in the number of "neutral" stories, which is in favor of the institutional group. This group also tends to have more positive and fewer negative stories but these differences are of questionable significance. One wonders, in view of the intellectual level differences, whether the institutional group produced more stories scored as neutral by virtue of the absence of content generally rather than because they had fewer negative self-feelings. The greater number of negative stories by the community aged may have been due to greater articulateness in responding to pictures of death scenes, rejection, et cetera and may not have been related
to self-concept at all. This hypothesis takes on some validity when one considers that the community aged responses were similar to that of a younger population sampled in Mason's study. If the differences between groups in her study can be accounted for on the basis of intelligence differences, her other findings in regard to the relationship between self-concept and adjustment could be considered as fully consistent and in accord with expectations from theories about self-concept.

The assessment of adjustment remains as complex a problem as it was before this investigation. Future studies of adjustment among the aged might more profitably be oriented toward the study of adjustment toward specific events and situations with the view that this might be highly related to general adjustment level. Specific studies might be directed along two broad lines, investigations of reaction to changes within the person and investigation of reaction to changes within the environment. We might be interested in investigating the reaction to stress situations such as the appearance of memory defects or chronic physical illness, as examples of internal changes, or death of a mate or lowering of income as examples of environmental changes. The problem of establishing criteria of suitable and unsuitable reactions to these stresses would still need to be solved. We could resort once again to a social adjustment criterion, viz., conformity to social expectations or to a personal adjustment criterion, viz., happiness or satisfaction. Perhaps the utilization of a case history approach in which the general activity pattern of the individual before and after the change in his situation are explored, and in which ratings can be
made of the apparent level of satisfaction with each activity and with the
general activity pattern before and after the change, would provide leads
into the pertinent behavior areas which should be explored further. As we
have indicated, the necessity for taking socio-economic level, sex, race
and possibly other variables into account in the evaluation of adjustment
level would, of course, be particularly applicable here. And indeed one
major benefit of such studies would be to reveal the specific problems and
reaction patterns which could best be used in sampling responses in order
to evaluate general adjustment.
Chapter V

SUMMARY AND CONCLUSIONS

The Problem. Psychological theory in which the self-concept has been considered as a central variable in the determination of behavior has consistently predicted that positive self-attitudes would be related to good adjustment. Empirical studies of children and of young adults have confirmed this prediction. However, recent studies of the aged have produced ambiguous, and even contradictory, results in regard to the relationship between self-concept and adjustment. It was suggested that this confusing picture might be due, at least in part, to the nature of the criteria of adjustment and to the instruments used to measure the self-concept, and this investigation was undertaken in an attempt to clarify the relationship between self-concept and adjustment among the aged using certain specific attributes of each variable.
Three variables were defined for study on operational grounds:

1) Self-concept was defined as an inferred variable to be measured by reference to goal-setting level, as indicated by D scores (goal-discrepancy scores), in a "level of aspiration" situation. Low positive D scores were considered as evidence of positive self-concept and high positive and negative D scores were considered as evidence of negative self-concept on the basis of previous "level of aspiration" studies.

2) Personal adjustment was defined as the indication of the individual's effective and realistic compromise between personal needs and environmental demands in achieving satisfaction as measured by the Fisher Maladjustment Scale applied to Rorschach Test responses. Low Fisher Maladjustment Scale scores indicate better personal adjustment level than high scores.

3) Social adjustment was defined as the indication of the adequacy of social role behaviors among the aged as measured by the Chicago Activity Inventory. High Chicago Activity Inventory scores indicate better social adjustment than low scores.

We formulated three hypotheses:

1) those subjects with low positive D scores would have lower Fisher Maladjustment Scale scores than those with high-positive or negative D scores,

2) those subjects with low positive D scores would have higher Chicago Activity Inventory scores than those with high-positive or negative D scores, and
there would be a significant relationship between Fisher Maladjustment Scale scores and Chicago Activity Inventory scores.

Subjects. The 77 subjects used in this study were drawn from a population of subjects being studied by the Duke Geriatrics Research Project, a multi-disciplinary investigation into the correlates of the aging process. They included four population sub-groups: a Negro Golden Age Society group, a white Golden Age Society group, a group of retired professional persons and some of their wives, and a group of patients from a nearby state hospital. The criteria for inclusion in the Geriatrics Project sample were that the individual be over 60 years of age, be cooperative and communicative and not have any gross neurological disorder. The additional criterion for inclusion in our study was that the individual be able to participate in the "level of aspiration" procedure.

Results. Our first hypothesis, that low positive D scores would be related to low Fisher Maladjustment Scale scores and that high positive and negative D scores would be related to high Fisher Maladjustment Scale scores was not confirmed. Instead we found a significant rectilinear relationship between these measures ( \( r = -.26 \)). When the intelligence level of each subject was taken into account, differential relationships appeared between goal-setting level and adjustment. The correlation between D scores and Fisher Maladjustment Scale scores increased to -.46 for subjects who functioned within the IQ range 80-109. No relationship appeared between goal-setting level and personal adjustment for subjects
with IQ's of 110 and above and a tendency for negative goal-setters to be more highly adjusted than positive goal-setters appeared among those with IQ's below 80 (which was the reverse of the relationship for those within the 80-109 IQ group). However, this latter relationship did not attain statistical significance. No significant relationships were found between the Chicago Activity Inventory and either goal-setting level or the Fisher Maladjustment Scale.

**Discussion.** We undertook this study in an attempt to clarify the relationship between self-concept and adjustment among the aged by using what we considered more suitable measures of these variables than had been used in previous studies in this area. We found only limited relationships between self-concept and personal adjustment and no relationship between self-concept and social adjustment. A number of deficiencies in our measuring instruments were noted which could account for the limited relationships found. We have suggested that further studies be devoted to examination of the relationship of goal-setting level and self-concept using "level of aspiration" tasks differing in the stability of performance from trial to trial. It was felt that different goal-setting patterns might emerge under these different conditions and that the effect of the situation on goal-setting behavior would be clarified.

We have also suggested that further study be devoted to examination of goal-setting level associated with different self-concepts in populations differing in sex, race or socio-economic characteristics. It was felt that certain population sub-groups might have different culturally-defined
patterns of goal-setting which would need to be taken into account in inferring self-concept from goal-setting.

Further study was also suggested to determine the relationship between Fisher Maladjustment Scale scores as indications of personal adjustment among groups differing in intelligence level.

The Chicago Activity Inventory was considered as needing further study in regard to its applicability to different socio-economic and sex groups as a standard of satisfactory role behaviors among the aged.

In regard to the approach to adjustment among the aged, we suggested that it might be more parsimonious for the immediate future to study adjustment to specific environmental changes, such as death of a mate, or inner changes, such as chronic illness. If the correlates of satisfactory adjustment to stresses such as these could be established through such studies, the direction to be followed in studies of general adjustment level might be clearer.
APPENDICES
Appendix A

FISHER MALADJUSTMENT SCALE

Small Detail Responses (Dd)

(1) If the Dd% is 18-25 inclusive, the score is 2.
(2) If the Dd% is over 25, the score is 8.

Whole Responses (W)

(1) If the W% is 30-35 inclusive--
   (a) The score is 6 if the number of responses is 16-25.
   (b) The score is 7 if the number of responses is 26 or higher.
(2) If the W% is 36-40 inclusive--
   (a) The score is 8 if the number of responses is 16-25.
   (b) The score is 10 if the number of responses is 26 or higher.
(3) If the W% is 41 or higher--
   (a) The score is 12 if the number of responses is 17 or over.
   (b) The score is 8 if the number of responses is 14-16.
   (c) The score is 6 if the number of responses is 11-13.
   (d) The score is 4 if the number of responses is 9-10.

Only one-half of any of the above penalty weights is given if more than one-half of the responses in the record are not minus or undifferentiated type of color responses (viz., CF-and C).

Furthermore, except within the range 41% or higher, only one-half of a penalty weight is given if the number of responses in the record is less than 16.

(4) If the W% is less than 15, the score is 2.
(5) If the W% is less than 10, the score is 3.
(6) If one-fourth or more of the W's in a record lie beyond the middle of the response sequence of the particular cards on which they occur, the score is 3.
(7) If the sequence is confused, the score is 5.

Movement Responses (M)

(1) If the number of M's is less than 3--
   (a) The score is 3 if the number of responses is 18 or less.
   (b) The score is 5 if the number of responses is 19 or more.
(2) If the number of M's is less than 2--
   (a) The score is 10 if the number of responses is 18 or less.
   (b) The score is 12 if the number of responses is 19 or more.
(3) If the number of M's is less than 1--
(a) The score is 14 if the number of responses is 18 or less.
(b) The score is 16 if the number of responses is 19 or more.
(4) If an M does not occur on card III, the score is 6.
(5) One M of bad form quality (M minus) equals a score of 3.
(6) Two M minus responses equal a score of 10.
(7) Four M minus responses equal a score of 12.
(8) If 2-3 M's occur in small details, there is a score of 4.
(9) If 4 or more M's occur in small details, the score is 7.
(10) If there are over two M's in a record and if half or more are found beyond the middle of the cards on which they occurred, the score is 5.

Loose Color or Color of Poor Quality
(C, CF— FC—)

(1) A pure color response (C) without any form is equal to a score of--
(a) 3 on card X.
(b) 2 on cards II or III.
(c) 2 on card VIII.
(d) 1 on card IX.
(2) A color response with some minimum form but of poor quality (CF—) and containing either blood content, fire content or anatomy content gives--
(a) A score of 3 on cards II, III, or IX.
(b) A score of 4 on cards VIII or X.
(3) Minus FC responses
(a) One FC minus response equals a score of 2.
(b) Two FC minus responses equal a score of 6.
(c) Three or more FC minus responses equal a score of 8.

Absence of Color

(1) If color response involving a good integration of form and color (FC+)
(a) Is absent on cards II and III, the score is 6.
(b) Is absent on cards VIII, IX, and X, the score is 9 (if FC given as last response on X, the score is 4).
(2) No color in the total record gives the score of 4.
(3) If there is only one FC in the total record and the rest of the color is C and CF minus, the score is 3.

Color Naming (CN)

(a) CN on one card equals a score of 12.
(b) CN on two or more cards equals a score of 16.
Form Quality (F+)

(1) If F+ is from 57 to 64 inclusive--
   (a) An R of 15 through 20 (if less than 15 R, at least 9 of responses
       should be in the F category) will give a score of 5 for an F% 45-55; and a
       score of 7 for an F% of 56 and over.
   (b) An R over 20 will give a score of 4 for an F% of 35-45,
       6 for an F% of 46-55,
       8 for an F% of 56 and over.

(2) If F+ from 50 through 56--
   (a) An R of 13 through 20 will give a score of 7 for an F% of 35-40.
       10 for an F% of 41-50.
       12 for an F% of 56 and over.
   (b) An R over 20 will give a score of 10 for an F% of 35-40.
       15 for an F% of 41-50.
       20 for an F% of 56 and over.

(3) If F+ is under 50--
   (a) An R of 10 through 13 will give a score of 8 for an F% of 35-40.
       10 for an F% of 41-50.
       15 for an F% of 51 and over.
   (b) An R of 14 through 20 will give a score of 12 for an F% of 35-40.
       18 for an F% of 41-50.
       25 for an F% of 51 and over.
   (c) An R over 20 will give a score of 18 for an F% of 35-40.
       25 for an F% of 41-50.
       30 for an F% of 51 and over.

Very Poor Form Quality

If a response is F minus, is a severe departure in form from the card
area used, and contains very peculiar or fantastic content (e. g., "people
catching blood in a cup," "dirty uterus," "inside of a womb"), that re-
response is scored 5.

Number of Responses

(1) If there are less than 20 responses, the score is 2.
(2) If there are less than 15 responses, the score is 5.
(3) If there are less than 12 responses, the score is 9.

Average Time of Initial Responses (T/1R)

(1) If the T/1R is 25 through 35 seconds, the score is 2.
(2) If the T/1R is 36 seconds or greater, the score is 3.
Rejection of Cards

(1) Rejection of card I or IV or VI or IX equals a score of 7.
(2) Rejection of card II or III or V or VII or VIII or X equals a score of 9.
(3) Rejection of two cards in sequence results in an extra penalty of 5. (No more than two rejections, one for each of above categories, is counted).

Shading Responses

(1) 1 to 2 pure shading responses (Y) is scored 2.
(2) 3 to 4 pure Y responses is scored 4.
(3) 5 or more pure Y responses is scored 6.
(4) 2 to 3 shading responses with little form (YF) is scored 2.
(5) 4 or more YF responses is scored 5.

White Space Responses (S)

(1) 4 to 5 S responses is scored 2.
(2) 6 or more S responses is scored 4.

Popular Responses (P)

(If less than 12 R in record do not score for P)

(1) If the record has 12-15 R,
(a) Less than 4P responses is scored 2.
(b) Less than 2P responses is scored 4.
(2) If record has 16-25 R,
(a) Less than 4P responses is scored 4.
(b) Less than 2P responses is scored 6.
(3) If the record has 26 or more R,
(a) Less than 4P responses is scored 5.
(b) Less than 2P responses is scored 8.
(4) If the "animal" P response on card VIII is missed, the score is 3.
(5) If the "bat" P response on card V is missed, the score is 3.

Sex and Anatomy Content

(1) 1-2 sex (includes embryo responses) or overt anal responses is scored 5.
(2) 3 or more sex or anal responses is scored 9.
(3) More than 3 anatomical responses is scored 3 (does not include bone responses, but does include pelvic responses).
Other Content

(1) If the "animal" percentage is higher than 60, the score is 3.
(2) If the "animal" percentage is lower than 30, the score is 4.
(3) If 5 or more botany responses are present, the score is 3.
(4) If 4 or more landscape responses are present, the score is 3.
(5) If 3 or more "food" responses are present, the score is 4.
(6) If less than 2 "human" responses are present, the score is 5.
(7) If the number of part "human" responses (Hd) exceeds by 3 to 1 (and at least one H is present) the number of complete "human" responses (H), the score is 5.

Minus Cards

If a card has at least 3 responses and the minus responses exceed the plus responses (no color responses count except FC minus) there is a score of 3, on each such card.

Sex Confusion

If a subject verbalizes obvious conflict about the sexual classification of a person or object
(a) On at least two responses, the score is 4.
(b) On three responses, the score is 5.
(c) On more than three responses, the score is 8.

Bizarre Logic

(1) A contaminatory response is scored 20.
(2) A definite pathological DW is scored 10.

Perseveration

If the same response is given on three successive cards and the response in each case is a minus of very poor quality, the score is 15.

* * *

The total maladjustment score is equal to the sum of the penalty weights given.
Appendix B

CHICAGO ACTIVITY INVENTORY*

1. (E2) What do you do in your free time?

Work in and around the house
Work in garden or yard
Farm work
Attend movies
Attend theatres, lectures, concerts
Shop
Attend clubs, lodges, other meetings
Sew, crochet, or knit
Read
Just sit and think
Work on some hobby
Listen to the radio
Write letters
Write books, articles, poems, etc.
Participate in community or church work
Play golf, other sports
Play cards or other table games
Take rides
Visit or entertain friends

Other (what?)

(Just sit and think \( \text{(0)} \); One to five items, exclusive of "Just sit and think" \( \text{(1)} \); Six or more items, exclusive of "just sit and think" \( \text{(2)} \).

2. (E3) List the hobbies or favorite pastimes you now have

(No hobbies listed or no reply \( \text{(0)} \); One to two items listed \( \text{(1)} \); Three or more items listed \( \text{(2)} \).

3. (E5) How much time each day do you spend in reading?

Never read \( \text{(0)} \)
A few minutes \( \text{(0)} \)
An hour or more \( \text{(2)} \)
Practically all day \( \text{(1)} \)

* Extracted from the "Activities and Attitudes Inventory" by Cavan et al. (1949)
4. (F1) To how many organizations, such as clubs, lodges, unions, and the like, do you now belong?

| None        | (0) |
| One         | (1) |
| Two         | (1) |
| Three.      | (2) |
| Four or more| (2) |

5. (F5) How many club meetings do you usually attend each month?

| None        | (0) |
| Less than one a month | (0) |
| One or two a month   | (1) |
| One a week           | (2) |
| Two or more a week   | (2) |

6. (J3) How often do you attend religious services?

| Never       | (0) |
| Less than once a month | (1) |
| Once or twice a month | (2) |
| Once a week    | (3) |
| Twice a week or oftener | (4) |

7. (J7) Do you listen to church services over the radio?

| Never       | (0) |
| Once in a while | (1) |
| About once or twice a week | (2) |
| Three or more times a week | (3) |

8. (J8) How often do you read the Prayer Book, Bible, or other religious books?

| Never       | (0) |
| Less than once a week | (1) |
| Once a week    | (3) |
| Every day     | (2) |

9. (C7) With whom are you living?

| With husband or wife   | (2) |
| Wife husband or wife and children | (2) |
| With children alone    | (0) |
| With parents           | (0) |
| With relatives         | (0) |
| With friends           | (0) |
| Alone                  | (0) |
| Others (who are they?) | (0) |
10. **(C12)** How often do you see some of your family or close relatives?

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than once a year</td>
<td>(0)</td>
</tr>
<tr>
<td>About once a month</td>
<td>(0)</td>
</tr>
<tr>
<td>Once or twice a week</td>
<td>(1)</td>
</tr>
<tr>
<td>Every day</td>
<td>(2)</td>
</tr>
<tr>
<td>Have no family or relatives</td>
<td>(0)</td>
</tr>
</tbody>
</table>

11. **(C13)** If you have a family or close relatives, do they neglect you?

<table>
<thead>
<tr>
<th>Neglect</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes, completely</td>
<td>(0)</td>
</tr>
<tr>
<td>A little</td>
<td>(1)</td>
</tr>
<tr>
<td>Not at all</td>
<td>(2)</td>
</tr>
</tbody>
</table>

12. **(D3)** Do you see your friends more or less often now than when you were 55 years old?

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less often now</td>
<td>(0)</td>
</tr>
<tr>
<td>About the same</td>
<td>(1)</td>
</tr>
<tr>
<td>More often now</td>
<td>(2)</td>
</tr>
</tbody>
</table>

13. **(D5)** Do you often see or hear from children or young people who are friends? (Include nieces, nephews, grandchildren.)

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than once a year</td>
<td>(0)</td>
</tr>
<tr>
<td>A few times a year</td>
<td>(0)</td>
</tr>
<tr>
<td>Once or twice a month</td>
<td>(1)</td>
</tr>
<tr>
<td>About once a week</td>
<td>(1)</td>
</tr>
<tr>
<td>Every day</td>
<td>(2)</td>
</tr>
<tr>
<td>Have no friends among children or young people</td>
<td>(0)</td>
</tr>
</tbody>
</table>

14. **(B3)** What are your serious physical problems?

<table>
<thead>
<tr>
<th>Problem</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor sight</td>
<td></td>
</tr>
<tr>
<td>Blind or nearly so</td>
<td></td>
</tr>
<tr>
<td>Hard of hearing</td>
<td></td>
</tr>
<tr>
<td>Deaf or nearly so</td>
<td></td>
</tr>
<tr>
<td>Crippled arms, hands or legs</td>
<td></td>
</tr>
<tr>
<td>General Rheumatic stiffness</td>
<td></td>
</tr>
<tr>
<td>Heart trouble</td>
<td></td>
</tr>
<tr>
<td>Stomach trouble</td>
<td></td>
</tr>
<tr>
<td>High blood pressure</td>
<td></td>
</tr>
<tr>
<td>No physical problems</td>
<td></td>
</tr>
<tr>
<td>Other (what is it?)</td>
<td></td>
</tr>
</tbody>
</table>

("No physical problems" (4); One item checked, exclusive of "No physical problems" (1); Two or more items checked, exclusive of "No physical problems" (0).)
15. (B4) Below is a list of difficulties that people often have. Check those that trouble you.

- Shortness of breath at night
- Shortness of breath after slight exercise
- Heartburn
- Swelling of feet or legs
- Feeling tired
- Have had nervous breakdown
- Difficulty in urination
- Constipation
- Aching joints
- Backache
- Gas pains
- Belching
- Headaches
- No difficulties

(“No difficulties” (2); One item checked, exclusive of “No difficulties” (1); Two or more items checked, exclusive of “No difficulties” (0).)

16. (B5) How many days did you spend in bed last year?

- All the time (0)
- A month or more (0)
- Two to four weeks (0)
- A few days (1)
- None (2)

17. (B6) Which of the following things often trouble you?

- Sleeplessness
- Bad dreams
- Tire too easily
- Food doesn’t taste good
- Feel blue
- Nervousness
- Dislike noise
- Worry about my health
- Forgetfulness
- Troubled with none of these

(“Troubled with none of these” (2); One item checked, exclusive of “Troubled with none of these” (1); Two or more items checked, exclusive of “Troubled with none of these” (0).)
18. **(G5) Are you working now?**
   - Yes, full-time .... (5)
   - Yes, part-time .... (2)
   - No . . . . . . . . . (0)

19. **(H2) If you are a woman, are you taking care of your home?**
   - No . . . . . . . . . . . (0)
   - Do a little or help someone else (2)
   - Do everything myself. . . . (5)
   - Other (what?) . . . . . . . (0)

20. **(I7) What things have you had to do since the age of 55 because of lowered income?**
   - Gave up my home . . . . . . . .
   - Moved to less expensive home . . . .
   - Stopped going to church . . . . . .
   - Bought less expensive foods . . . . .
   - Couldn't keep home or furnishings in repair . . .
   - Gave up clubs. . . . . . . . . . .
   - Bought less expensive clothes . . . . .
   - Stopped taking vacations . . . . . .
   - Gave up auto or bought cheaper car . . . .
   - Have not had to do any of these . . . . . .
   - Other (what?) ____________________________

("Have not had to do any of these" (5); One or more items checked, exclusive of "Have not had to do any of these" (0).)
Appendix C

Number of Individuals Achieving Scores on Each Item of the Chicago Activity Inventory According to the Criteria Listed in Appendix B

<table>
<thead>
<tr>
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<td>D+</td>
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<td>D+</td>
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* D+ is positive D.
** D- is negative D.
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Associate member of the American Psychological Association and of the Southeastern Psychological Association.
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