

41-1

LE 307
1949A8
K27 16
C9.1

AN INVESTIGATION INTO THE
ADJUSTMENT OF HOSPITALIZED
TUBERCULOUS PATIENTS

by

BRIAN ROSS RONALD KAY

*Approved
May 2nd 1949*

A THESIS SUBMITTED IN PARTIAL FULFILMENT OF
THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF ARTS

IN THE DEPARTMENT

OF

PHILOSOPHY AND PSYCHOLOGY

THE UNIVERSITY OF BRITISH COLUMBIA

APRIL, 1949

ABSTRACT

An investigation into the adjustment of hospitalized tuberculous patients.

B.R.R. Kay

Conflicting viewpoints are evidenced in the literature regarding the adjustment of tuberculous patients. Many writers maintain that it is peculiar to the tuberculous, others that the same can be found in any chronically ill sample, still others that the adjustment of the tuberculous is no different from that manifested by individuals in the general population. This study attempts to clarify the above conflicting viewpoints by comparing a hospitalized sample with matched groups of chronically ill, general population, and arrested tuberculous.

All previous studies reviewed by the writer in which a tuberculous sample was compared to a non-tuberculous group lacked either sufficient controls or adequate sampling.

In this study, a hospitalized tuberculous sample of 100 cases was matched for age, sex, educational level and socio-economic status with 100 chronically ill, 100 non-tuberculous individuals from the general population, and 100 arrested tuberculous. The necessary information was derived from a Personal Data Sheet compiled by the writer. The hospitalized tuberculous, chronically ill and arrested tuberculous samples were drawn from the Vancouver General Hospital. A comparison of length of time in hospital for the hospitalized tuberculous and chronically ill was made.

The Bernreuter Personality Inventory was employed, and its values and limitations were discussed. An abbreviated method of scoring was used that correlates highly with the original standard-

ized method. The Personal Data sheets and Inventory were administered by two physicians in the case of the hospitalized tuberculous and arrested tuberculous. The head nurse of each ward administered them to the chronically ill sample. No means of identification were used in the study.

Mean scores were computed for the experimental and three control groups on each of the six measures of the Inventory. A comparison between groups was made for each of the six measures and the significance of the differences determined.

The comparison of the hospitalized tuberculous with the sample from the general population yielded a "highly significant" difference, for four of the measures and for the remaining two a "significant" difference, and the conclusion drawn was that the tuberculous sample was more maladjusted than the sample from the general population. "Highly significant" differences were obtained for four of the measures in the comparison between hospitalized tuberculous and hospitalized chronically ill samples. Again the hospitalized tuberculous sample was the more maladjusted. The differences found in the other two measures, namely of self-sufficiency and sociability were "not significant", and it was suggested that scores on these two measures tend to be affected by the state of being hospitalized with its attendant difficulties. When the hospitalized tuberculous sample was compared with the arrested tuberculous, "highly significant" differences were found for neurotic tendency, introversion-extroversion and confidence, and "probably significant" differences for dominance and sociability. The trend indicated that again the hospitalized tuberculous were the

more maladjusted. With respect to self-sufficiency, there was no significant difference. The various clinical statuses pertaining to the arrested state of tuberculosis impose certain limitations on the activity of the individual, and as a consequence, a lack of self-sufficiency might be expected.

TABLE OF CONTENTS

1. STATEMENT OF PROBLEM	1
2. HISTORICAL BACKGROUND	4
a. Summary of historical background	14
3. SAMPLING METHOD	16
a. Hospitalized tuberculous sample.	16
b. Hospitalized chronically ill sample.	17
c. General population sample.	18
d. Arrested non-hospitalized sample.	18
e. Equation of groups.	19
f. Duration of present hospitalization for hospitalized tuberculous and chronically ill.	21
4. THE BERNREUTER PERSONALITY INVENTORY AS A MEASURE OF ADJUSTMENT	22
5. ADMINISTRATION	28
6. METHOD OF STATISTICAL ANALYSIS	30
7. RESULTS	32
a. Comparison of Bernreuter Personality Inventory scores with length of time in hospital for hospitalized tuberculous and chronically ill samples.	38
b. Graphic presentation.	39
8. CONCLUSIONS	41
9. SUGGESTIONS FOR FURTHER RESEARCH	44
BIBLIOGRAPHY	45
APPENDICES	50

1.

An investigation into the adjustment
of hospitalized tuberculous patients.

1. STATEMENT OF PROBLEM:

That there is, or is not a pattern of adjustment peculiar to tuberculous individuals, constitutes the core of many articles in medical and psychological journals. Considerable evidence and opinion both supporting and denying this possibility has accumulated. This concentration of attention on what substantially is of little consequence has lead to the neglect of the important relation of psychological factors to aetiology, course and prognosis. This study attempts firstly to clarify the above conflicting viewpoints, and secondly to indicate those areas where the writer feels immediate research is demanded.

It is the opinion of some writers that the adjustment of the tuberculous patients is not unique and that the adjustment difficulties of the tuberculous are no different from, and occur to the same extent in the general population. To test this contention it is proposed to compare a random sample of hospitalized tuberculous with a matched sample of non-tuberculous individuals in the general population.

Other writers maintain that the adjustment of the hospitalized tuberculous may differ from the general population, but is not unique and that the same adjustment

2.

patterns in kind and degree can be found in any representative sample of chronically ill individuals. To explore this hypothesis, the adjustment patterns of the above hospitalized tuberculous sample will be compared with a matched group of chronically ill, hospitalized for an illness other than tuberculosis.

The references dealing with psychological phenomena in tuberculosis which the writer has found have, in all cases, been associated with hospitalized tuberculous individuals. With the purpose of identifying the effect which absence of hospitalization has, on the tuberculous, a comparison will also be made with a matched group of non-hospitalized arrested tuberculous. It is, of course appreciated, that no cause and effect relationship can be defined by this comparison, as the signs and symptoms pathognomonic of the active state of tuberculosis will have also undergone a change and therefore it is impossible to determine whether the decrease in activity of the tubercule bacilli or the absence of hospitalization is the aetiological core for any differences in adjustment found.

The measure of adjustment employed to investigate the patterns of adjustment of the respective group, is the Bernreuter Personality Inventory. A discussion of the Inventory and reasons for selecting it as a suitable instrument will be presented in a later section.

3.

The specific hypotheses to be tested may be summarized as follows:

1. That the adjustment patterns of hospitalized tuberculous patients, as represented by Bernreuter Personality Inventory scores, differ significantly from those of the general population.
2. That the adjustment patterns manifested by hospitalized tuberculous patients, as a group, differ significantly from those evidenced by hospitalized chronically ill individuals, other than tuberculous.
3. That the adjustment patterns manifested by hospitalized tuberculous patients, as a group, differ significantly from those evidenced by non-hospitalized, arrested tuberculous individuals.

2. HISTORICAL BACKGROUND:

The relation of psychological phenomena to tuberculosis has interested physicians, psychiatrists, social workers, and psychologists for half a century. It has been the focus for rigorous research and keen clinical observation, and the subject of many opinions stated with unjustified dogmatism. Workers from their respective fields and consequent frames of reference, have postulated biochemical, anatomical, sociological or psychological causation for the observed adjustment pattern. The entire field is characterized by apparent confusion. It is conceivable however, that the contradictory evidence may possibly have an essential core of agreement. It seems probable that the "X" factor in the causation of the adjustment pattern of the hospitalized tuberculous is not psychological, sociological, anatomical or bio-chemical, but rather that it is a complex totality of causes. Research is cumulative, and it is possible that with the arrival at a stage of unanimity within any given discipline and with the subsequent arrival of the same in other related fields, that the contradictions and confusion will pass.

The psychological papers appearing in the literature within the last twenty-five years have, in too many instances, been based on unskilled observation, unsatisfactory sampling, insufficient cases and unsupported evidence. It is not the purpose of this paper to undertake the task of reviewing

5.

this vast fund of data, but rather to endeavour, by illustration, to indicate those aspects of tuberculosis which have been identified with psychological factors.

The interesting question of a possible predisposition to tuberculosis has occupied the time and energy of men since the writings of Hippocrates. Bodily types and personality makeups among other characteristics, have been postulated to account for the failure of one individual to resist the tubercle bacilli, and the successful defence presented by another person. Ssucharewa and Ossipova (62) maintain that those with an asthenic bodily type are more likely to have the acute form of tuberculosis. That the above finding is not unanimously accepted even among typologists can be seen in Ulrici's (66) work. He believes that the X asthenic type is the most frequent, but that the athletic type invariably is affected by the most severe form. A study by Jaensch (27) showed that his S-type was found in 75% of his tuberculous student sample. This S-type manifested considerable lability and instability, and were X not particularly well **integrated**. Jones and Bogen (30) in an exhaustive, careful research on the question of a predisposing personality or bodily type found "There was no evidence of numerous popular generalizations concerning an anatomic, psychological or physiological predisposition to tuberculosis."

6.

It is doubtful if the pathogenesis of tuberculosis will benefit from such postulates as "asthenic" and "S-type", unless it can be demonstrated that the bodily type and personality make-up are causes of the successful invasion by the tubercule bacilli, rather than effects.

A considerable amount of research has accumulated on the aetiology of the adjustment of the consumptive and of the relation of psychological factors to the course of tuberculosis, but the essential point here, too, is which precedes which.

Breur (8) has attempted to determine the frequency of psychological factors in the aetiology of tuberculosis, and found that over one-third of his cases evidenced "psychic elements", in their pre-tuberculous history. He pointed out that his hundred cases "cover a period, during which my attention has been focused on the psychic element while I was studying and treating the patient." Since the criteria for inclusion as "psychic elements" were not clearly stated, and no control groups were employed, the study could be interpreted as simply finding that which the worker wished to find. It is conceivable that the same percentage of "psychic elements," for example, "parental mishandling" and "occupational maladjustment" may also be found to occur in the non-tuberculous.

Drawing his conclusions from case histories, Day (14) reported that patients "who develop pulmonary tuberculosis in the absence of any classical, physical, environmental causes, often do so because of disease in their psychological environment, their relation to themselves or to the outside world. In psychological distress, the patient as a whole is ready to be ill, in fact is ill already, and the ubiquitous bacilli both endogenous and exogenous, are there ready to oblige." Though this is a particularly pregnant hypothesis for further research, a question might naturally be asked regarding the authenticity of the case histories and method of weighting the items which were basic to his postulate.

Muhl (42) points out "that since the great majority of people are infected at some time or other with tuberculosis and only comparatively few of them break down with the chronic form in adult life, there must be some factor other than the tubercle bacillus which is responsible for the failure of the body to defend itself against disease". By implication he indicates, from a psychiatric frame of reference, that psychological factors do play a part in the aetiology.

Compromising on an aetiological position Draper (16) claims "that the disease arises from the interplay of dynamic forces inherent in the individual and present in the world about him."

Keers (31) writes that in three out of his five cases, some mental disturbance was present previous to the onset of the disease. On the other hand, Kerman (32) reports that only three cases in six hundred and eighty-five, over a period of two years, were referred to the psychiatric clinic at the hospital. Legitimate enquiry however might be made regarding the degree of severity of maladjustment necessary before psychiatric referral was made.

Weiss and English (68) suggest emotional factors in the aetiology. These factors may interfere with normal eating habits for instance, causing loss of appetite, fatigue and resultant underweight, in which many cases of tuberculosis are believed to have had their origin. This psychosomatic approach may, with growing knowledge of interrelations, yield many answers to contemporary baffling problems. Simpson (60) and Rossman (53) suggest that emotional conflict should be carefully scrutinized as a contributory factor in the aetiology of tuberculosis. The need for illness has been assigned causal significance by Hayward (23) who maintains that this same need is the "X" factor in tuberculosis.

The attitude of the patient towards himself and his disease is an important aspect of the course it takes and will take. Thompson (64) clearly expresses his view that "the mental attitude in disease is more important than the disease itself" and again that the "mental state is the deciding factor in their cure." Confirming this view, Bannister (2) writes: "The attitude

of the patient towards his disease has a great effect upon his progress." Bonney (6), Ishigami (26) and Morland (41) have also stressed this point of view.

Since it is of axiomatic importance, one might reasonably expect considerable research concerning the relation of the attitude of the patient to his disease and of those attitudes that are associated with a good prognosis. There is, in fact, a paucity of studies. Peterson (47) formulated a list of attitudes and presented it to a large number of physicians for ranking with respect to their contributory value to a good prognosis. The results indicated that "the most constructive attitude was found to be one that implied courageousness and reasonableness." The determination of the most and least propitious attitudes is worthy of far more exhaustive treatment than hitherto received.

The relation of tuberculosis to the psychoses, functional and organic, and psychoneuroses has been studied with several purposes in mind. It has been suggested by Rian (51) that tuberculosis is the activator of a "schizophrenic disposition". An experimental study by D'Hollander (15) pointed to the relationship of tuberculosis to schizophrenia. He noted that the aetiology of schizophrenia was unknown and that frequently chronic meningeal-encephalitic lesions were present. Ulrici (66) maintains there is a positive relationship between schizophrenia and tuberculosis, having ^{their} "origin in the same tubercule complex". Conducting a statistical analysis of these alleged relationships, Oriani (45) found that though more schizophrenics than any other

nosology had tuberculosis, no causal relationship existed.

Palmer (46) claims an aetiological relationship between tuberculosis and neurasthenia, postulating that neurasthenia is often caused by the toxic effects of the bacilli. Such relationship is also maintained by Janowski (28), Head (24) and Munro (43).

The mortality rate from tuberculosis in mental hospitals has been studied by Greene and Woodall (22), Bogen and Triez (5), McGhie (39), Breen (7), Leondiff (35), Leader (34), Wicks (70) and Pollack (48). The conclusions reached by many of the above writers indicate that further investigation of the relation of tuberculosis to the psychoses and psychoneuroses, may throw additional light on the causes of all of these disorders.

The need for mental hygiene and psychotherapy has been brought to the forefront by the work of Schneider (56), Muhl (42), Simpson (60), Neymann (44), Morland (41), Ulrici (66), Stern (61), Eyre (17), Ahrens (1), Trobe (65), and others. The number of articles stressing the need and importance of mental hygiene, and psychotherapy in sanatoria indicate (among other things) that there is an awareness on the part of these writers that tuberculous patients tend to be maladjusted.

Controversy has waged around the concept of a psychological state peculiar to the tuberculous. Evidence for and against has been produced, and much has been based on casual observation. Ronce (52), Fishberg (18), Schacter (55), Crofton (12), Munro (43), Jelliffe (29) and Berger (3), maintained there is a specific pattern of adjustment unique to the tuberculous. Proponents of the anti-specificity view are also numerous. They include Forster and Shephard (20), Pottenger (49), (50), Brown (10), Wolepor (71), Louttit (36), Seidenfeld (57), Conlogue (12), and Henderson and Gillespie (25). There are those who believe that the psychological syndrome is the same as can be found in any non-tuberculous group, and others maintain that it occurs with the same frequency. Bannister (2) believes that the adjustments made by tuberculous individuals are not direct consequences of the disease, rather they are expressions of maladjustment such as can be found in any non-tuberculous individual. This view is also held by Kramer (33).

The role of hospitalization and chronicity of the disease has been suggested by some writers as being the cause of the adjustment difficulties. It is pointed out by Conlogue (12) that the patient, in addition to the shock of diagnosis, experiences fear of death, anticipation of prolonged confinement, financial worries,

anxiety for family, acceptance of operations, and continuous uncertainty which in turn create a temporary insoluble conflict. Brooke (9) maintains that the emotional patterns of tuberculous patients are attributable to the chronicity of the disease. Supporting this view are Saxe (54), Carncross (11) and Minor (40). Psychologists have done relatively little work in this controversial field and of those studies that have been made some are open to criticism.

In a comparative study of hospitalized tuberculous patients at the Sunnyside Sanatorium at Indianapolis, Shultz (59) used the Bernreuter Personality Inventory. He used as subjects eighty-two men and ninety-three women. He compared the group scores of men and women of the tuberculous sample to Bernreuter's (4) standardization norms. In the standardization of the trait "self sufficiency" the sample employed were University students. That this sample is not representative of tuberculous populations, should meet with little disagreement. Since the tuberculous and standardization groups were not matched according to any criteria, and it is not known even what percentage of the latter group had an active condition of tuberculosis, it is impossible to state with any degree of assurance whether the differences found were intrinsic differences, or merely

the result of variables such as personality test sophistication and a consequent defensive attitude. The critical ratios however, for men and women, gave an indisputable significant difference. Shultz, interpreting his data, stated that in the comparisons made, the Sunnyside sample was more emotionally unstable, less self sufficient, more introverted, more submissive, lacked confidence in themselves, were self conscious and had exaggerated feelings of inferiority, and in the majority of cases, were sociable and sought the friendship of others.

Seidenfeld (58) employed Maller's Personality Sketches in a study of hospitalized tuberculous patients at the National Jewish Hospital in Denver. He used this particular test because he believed that less negativism would be encountered than with the usual questionnaire type of personality test. His experimental group were fifty in number and his control group consisted of fifty advanced undergraduate and graduate students in psychology, enrolled at the University of Denver. The matching was admittedly not ideal, and the number small, but within the limits of the study it was found that the tuberculous group was more maladjusted than the control group but there was evidence to show that it was not "fundamentally of a frankly psychotic type."

The report of another comparative study of the adjustment of tuberculous patients with psychology students at the University of Denver has recently been published by Wechsberg and Sparer (67). In this particular study the Cornell Index N 3 was employed. They report that "On the whole the Cornell Index N 3 doesn't seem to show personality differences existing in a hospitalized tuberculous group as compared with a normal non-hospitalized sample." The control group was not matched with the tuberculous even with regard to sex, there being 75% males in the former and 60% in the latter.

Summary of historical background.

To summarize, the relation of psychological factors to tuberculosis has been the subject of considerable inquiry. Many of the studies have been open to certain logical criticisms. Bodily and personality make-up as predisposing causes of tuberculosis have been studied, and the consensus seems to be against such a view. Psychological elements and their role in aetiology, course and prognosis have been examined. No clear cut evidence is available regarding aetiology, but that psychological factors do play a part in course and prognosis seems to be a valid conclusion. The relation of tuberculosis to the functional psychoses, particularly schizophrenia, and the psychoneuroses also has been scrutinized.

Mortality rate from phthisis in mental hospitals has been examined and the need for mental hygiene and psychotherapy in sanatoria stressed. There are conflicting views regarding the nature of the adjustment pattern of tuberculous patients. Some writers postulate a specific and peculiar pattern, others that the same can be found in any non-tuberculous population. Prolonged hospitalization with its attendant difficulties has been suggested as a possible cause of the maladjustment of tuberculous patients. Most students agree that there are emotional and psychological differences between hospitalized tuberculous patients and non-tuberculous individuals.

3. SAMPLING METHOD:

As has been enlarged upon previously, certain authors maintain that the adjustment patterns evidenced by hospitalized tuberculous patients are, or are not, peculiar to such patients. Those who uphold the latter point of view generally fall into two groups, those maintaining that such adjustment patterns could be found in the same proportion in the general population, and those who suggest the likelihood of finding similar patterns among any group of hospitalized chronically ill. Using such studies as a reference point, it was decided that in any investigation into the adjustment of tuberculous patients, control groups of chronically ill and the general population would be essential. In addition, if hospitalization with tuberculosis is to be tested as to its role in the adjustment pattern, we require, as a control group, arrested tuberculous patients.

The above can be summarized as follows. The hospitalized tuberculous sample will serve as the experimental group and the chronically ill, general population and arrested tuberculous as control groups.

a. Hospitalized tuberculous sample.

In choosing a hospitalized tuberculous group, which would be as representative of the parent universe as possible, it was decided to avoid private sanatoria,

and so one hundred patients from the Tuberculosis Division of the Vancouver General Hospital were selected at random to serve as the experimental group. The sample was representative of all stages of the disease with respect to extent and activity. Since the study involved the role of hospitalization it was necessary to exclude tuberculous cases hospitalized elsewhere, for example Tranquille, (sanatorium in the interior of British Columbia) if hospitalization was to approach constancy.

An analysis of data on hospitalized tuberculous populations by Whitney (69) indicates that the sample obtained for this investigation is not atypical, but approximates the statistics of tuberculous populations in the U.S.A. "A study was made of age, sex, extent of schooling and former occupation of 5,000 patients in 40 institutions. The analysis of this random sampling showed that the majority were under 35 years of age with grammar school education or less. Their occupational experience, when they had any, had been in the manufacturing, and mechanical industries, and domestic and personal service."

b. Hospitalized chronically sample.

The chronically ill sample was obtained from the same hospital as the tuberculous group and it was determined

by records in each case, that the individual patient neither had tuberculosis at the time, nor had been hospitalized because of it in the past. This group was composed of paraplegic, cardiac, gastrointestinal, orthopedic and rheumatic patients. 31% of the sample were paraplegic.

c. General population sample.

The sample of the general population was drawn largely from two types of industry, namely a pulp company and a laundry, near and in Vancouver, British Columbia. These two industries were considered suitable for matching purposes on the basis of the nature of the data derived from the hospitalized tuberculous patients. It was determined, through questioning that the individuals in this sample had neither had tuberculosis, nor on the basis of X-rays taken in the last six months, had active tuberculosis at the time of testing.

d. Arrested non-hospitalized tuberculous sample.

The arrested, non-hospitalized tuberculous sample was composed of individuals attending the out-patients clinic at the Vancouver General Hospital. The arrested group included those cases clinically classified as apparently cured, arrested, apparently arrested, and quiescent. (See Appendix 1 for definitions of the foregoing). The inclusion of this range of clinical statuses provides a cross-section of the arrested category.

e. Equation of groups.

The following criteria were employed for matching purposes:

1. Age in years.
2. Sex
3. Socio-economic status as determined by the Taussig Classification;
 - a. Professional.
 - b. Semi-professional and higher business.
 - c. Business and clerical.
 - d. Skilled labour.
 - e. Semi-skilled labour.
 - f. Unskilled labour.
4. Years of education computed on the basis of last grade; subject was in at school.

The necessary information for matching was derived from a personal data sheet (See Appendix 2) completed by all groups.

The degree with which matching was achieved is indicated in Table 1 (page 20.) The greatest difference is between the ages of the hospitalized female tuberculous patients and the hospitalized female chronically ill. This difference was unavoidable, as chronically ill patients at least in the Vancouver General Hospital, particularly cardiac and gastrointestinal, apparently tend to be of an older age level than tuberculous patients.

TABLE I

Distribution of matching criteria for
experimental and three control group.

	HTB	CH	GP	ATB
Male N. equals	55	55	55	55
Female N. equals	45	45	45	45
Male age Mean	32.25	33.61	32.71	33.41
Female age Mean	29.28	34.72	30.02	30.63
Male occupational mode	skilled semi- skilled	skilled	skilled semi- skilled	skilled semi- skilled
Female occupational mode	Skilled semi- skilled	skilled	skilled semi- skilled	skilled semi- skilled
Male educational Mean	7.86	8.37	8.13	7.91
Female educational Mean	9.81	10.34	9.37	10.14

Legend:

HTB: Hospitalized tuberculous.

CH: Chronically ill.

GP: General Population.

ATB: Arrested tuberculous.

21.

- f. Duration of present hospitalization for hospitalized tuberculous and chronically ill.

The respective lengths of time spent continuously in hospital up to the time of testing were computed for the two hospitalized groups and are cited in Table 2.

TABLE 2.

	Mean no. of months in hospital.	Standard deviation.
Hospitalized tuberculous	20.4	11.4
Chronically ill	15.0	14.1

In order to correct for any differences in Bernreuter scores effected by the greater time of hospitalization of the tuberculous group in comparison to the chronically hospitalized sample, the relation between scores and length of time in hospital was ascertained. The method and results will be found in the section titled "Results."

4. THE BERNREUTER PERSONALITY INVENTORY AS A
MEASURE OF ADJUSTMENT:

The tuberculous patient has been variously described as egocentric, selfish, introverted, anxious, neurotic, moody, unstable, confident and fearful. A unique pattern of psychological phenomena called *spes phthisica* has been postulated and has been interpreted as a defensive reaction against fear, extreme optimism or a flight from reality. *Spes phthisica* can be described as a form of ~~dissociation~~, which serves to block out the patient's awareness of the ~~seriousness~~ of his disease. The majority of writers are in agreement that there is manifested, a pattern of psychological phenomena variously termed "emotionality", "instability", "neuroticism", "maladjustment", and the task then is to find what parts or elements go to make the whole.

A basic problem in this project was the selection of a suitable test. The test chosen had to meet several criteria. It must be valid, and sensitive enough that it would distinguish between the groups, if there were bases for distinction. It must be one that would not create a negative attitude on the part of the subject, and finally one that would not tend to enervate the hospitalized patients. The writer decided to employ the Bernreuter Personality Inventory.

The question of its validity and usefulness has been studied exhaustively by Super (63). This review and evaluation of 147 papers satisfied the writer that the Bernreuter Personality Inventory was a suitable instrument, for although there are shortcomings for individual diagnosis, "it has considerable validity as a research instrument."

Seidenfeld (58) has referred to this type of personality test as being of little use when dealing with tuberculous patients as he finds that it frequently creates a negativistic attitude. As will be discussed under the rubric of Administration, names, or any means of determining the identity of the subject, were not used, and it is believed by the writer that the absence of any identification decreased the need for defensive behaviour, and possibly negativism.

It is perhaps advisable, for the sake of clarity, to discuss certain assumptions and factors not measured by the test. Since this test is dependent on the honesty and the accuracy of the testee it follows that, to interpret the results at face value, an assumption must be made that such honesty and accuracy was present. A further assumption, must be made that identical responses will mean the same for each individual and thus for each group. The Bernreuter Personality Inventory scores do not measure the

integration of the individual. They fail ^{to give} any picture of the psychodynamics behind the responses made.

The personality structure is left relatively untouched, and the interrelations among the traits which the test purports to measure are unknown.

In the hands of a skilled and well trained clinician, scores obtained, from a valid adjustment inventory can form the framework for a more sensitive appraisal of any individual. In group research of the nature of this study a process of depersonalization of individuality is involved, --- individual differences are ignored.

The Bernreuter Personality Inventory purports to measure six aspects of personality. The Inventory originally was composed of four measures but following Flannagan's (19) factor analysis of these four measures, and consequent conclusion that the four were composed of two chief components Bernreuter added these two.

The Inventory now is composed of the following aspects:

- B1-N. A measure of neurotic tendency.
- B2-S. A measure of self-sufficiency.
- B3-I. A measure of introversion-extroversion.
- B4-D. A measure of dominance-submission.
- F1-C. A measure of confidence in oneself.
- F2-S. A measure of sociability.

A more elaborate definition of these terms is provided by Bernreuter in the Individual Report Sheet supplied with the test, and to avoid any confusion as to terminology the writer proposes to quote directly.

- B1-N. - "Persons scoring high on this scale tend to be emotionally unstable. Those scoring low tend to be well adjusted to life."
- B2-S. - "Persons scoring high on this scale prefer to be alone, rarely ask for sympathy or encouragement and tend to ignore the advice of others. Those scoring low dislike solitude and often seek advice and encouragement."
- B3-I. - "Persons scoring high on this scale tend to be introverted; that is, they are imaginative and tend to live within themselves. Those scoring low are extroverted; that is, they rarely worry, seldom suffer emotional upsets, and rarely substitute day-dreaming for action."
- B4-D. - "Persons scoring high on this scale tend to dominate others in face to face situations. Those scoring low tend to be submissive."
- F1-C. - "Persons scoring high on this scale tend to be hamperingly self-conscious and to have feelings of inferiority."

Those scoring low tend to be wholesomely self confident and to be well adjusted to their environment."

F2-S. - "Persons scoring high on this scale tend to be non-social, solitary, or independent. Those scoring low tend to be sociable and gregarious."

A disadvantage of using the Inventory for a large number of cases is the long and tedious method of scoring . Since approximately 480 hours would be involved in scoring the number of cases used in this study, it was decided to make an attempt to find a reliable, shorter method of scoring.

McClelland (37), (38) has devised an abbreviated method that appears to correlate highly with the original method. McClelland noted that many of the answers "are not important for one trait (though they may be for another) and are weighted only + or -." Apparently these tend to cancel each other and affect the final score very little. He decided therefore to eliminate plus and minus 1 and 2; plus and minus 3 - 4 - 5 - 6 - 7 were weighted plus and minus 1. The score is then the algebraic sum of pluses and minuses. He determined the relationship of this new method to the standard procedure. The correlations were .95 for all except B2 - S which

was .884. As a result of these high correlations, it was decided to employ McClelland's technique. Since the adoption of this method changes considerably a raw score interpretation, the reader is cautioned against comparing results herein contained with the standardization norms.

For convenience a constant of 100 was added to each individual's score for each aspect measured, and thus a score of -4 on B1-N., would read 96, a score of 4 on B1-N., would read 104.

5. ADMINISTRATION:

On the top of the one page of the personal data sheet were the following instructions:

Do not write your name anywhere on this sheet.
In this research, you will be known only by the number which appears in the box to the right.
You may therefore feel free to be completely honest.

It is necessary to point out that in the actual research no number appeared in "the box to the right". After consideration it was decided to eliminate numbers as this might influence certain individuals to believe that personal identity corresponded to the number - that this was a piece of subterfuge. It was pointed out to all subjects that no number would appear and reasons given. These instructions were included in an effort to promote in the subjects an objective attitude. That this was successful, at least in part, can be inferred from such information supplied by the subjects as abortions with single women and venereal diseases with men and women.

Anticipating that patients would possibly resent an outsider administering personal data sheets and personality tests, and appreciating the value of rapport, the writer enlisted the help of two physicians at the Tuberculosis Division of the Vancouver General Hospital. In the case of the hospitalized tuberculous and the arrested tuberculous they administered both the personal data sheets and inventories. They were requested to draw

the attention of each patient to the fact that there was no means of identification. These same two physicians determined the clinical status of each arrested tuberculous patient prior to administration of the test. The assistance of the Medical Director of the main wing of the Vancouver General Hospital was sought and the co-operation of the head nurse of each ward containing chronically ill, was enlisted. The need for stressing the absence of identification was explained to the head nurse and she in each case presented the personal data sheet and Inventory to the patient. The writer administered the tests to the general population, and when in an industrial setting, a box was made available for subjects to both pick up copies, and to return them. Once again it was stressed that this was group research and that it was not necessary to know the identity of the individual members of the groups tested.

6. METHOD OF STATISTICAL ANALYSIS:

The formula used for determining the standard error of the difference between the means obtained for each sample with respect to Bernreuter Personality Inventory scores was $\sqrt{\sigma^2_{m_1} + \sigma^2_{m_2}}$. This formula according to Garrett (21), is to be employed with uncorrelated means. He defines uncorrelated means, as means that are "calculated from different groups, or from uncorrelated tests administered to the same group." Since matching presupposes belief in a relationship between the matching criteria and test scores, explanation of failure to employ a formula that takes this relationship into consideration is necessary.

In general , the reasons for use of the formula for uncorrelated means were. (a) While approximate matching was deemed advisable, the arbitrary divisions of some criteria were such that correlation with Bernreuter's scores would merely be the quantifying of tenuous concepts, leading to possible spurious interpretations. (b) Any employment of correlated means would raise the significance of the attained results, and with deference to both the arbitrary nature of the matching criteria and small differences found in test scores, which are not 100% reliable at the individual level, it was felt that such doubtful influencing of results should be avoided.

The tests of statistical significance of differences between group means assume the sample used to be a "large" one (N equals 100), and the following levels are employed:

CR's (critical ratio) of 1.9 or less are termed "not significant" since the obtained difference might have occurred more than 5 times in 100 by chance.

CR's between 1.96 and 2.5, are termed "probably significant". That is they lie between the 5% and 1% levels of significance (between 5 and 1 chances in 100 that the obtained difference might have occurred by chance).

CR's between 2.6 and 3.29, are termed "significant" being between the 1% and .1% levels of significance (between 1 chance in 100 and 1 chance in 1000 that obtained difference might have occurred by chance).

CR's greater than 3.29 are termed "highly significant" since such differences would not be expected to occur by chance more than once in 1000 instances.

6. RESULTS:

From an examination of Tables 3 and 4, which appear on pages 33 and 34 respectively, and from the above definitions of significant levels, the following statements can be made. Hospitalized tuberculous patients when compared with the chronically ill sample gave a statistically significant difference for B1-N (neurotic tendency), B3-I (introversion-extroversion), B4-D (dominance-submission and F1-C (measure of confidence in oneself). From Bernreuter's explanation of the scales, the differences found can be elaborated. The hospitalized tuberculous were more emotionally unstable, more introverted, more submissive and more self-conscious than the chronically ill. The measures of sociability (F2-S) and self-sufficiency (B2-S) when compared were not statistically significant. The absence of significant differences will be discussed later in the analysis of the results.

When the hospitalized tuberculous sample was compared with the matched sample of non-tuberculous individuals in the general population of the following was indicated. The differences in B1-N (neurotic tendency), B3-I (introversion-extroversion), F1-C (measure of confidence in oneself) and F2-S (sociability) were highly significant. A comparison of B2-S

TABLE 3.

Mdn's, M's, SD's, SE of Means obtained
for Bernreuter's six measures for
experimental and three control groups.

	B1-N.	B2-S.	B3-I	B4-D.	F1-C	F2-S
	Median	Median	Median	Median	Median	Median
HTB:	105.9	101.3	99.2	102.0	108.5	98.4
CH :	94.2	100.5	95.3	102.6	94.1	98.6
GP :	89.9	108.3	94.5	108.3	92.8	106.2
ATB :	93.2	103.3	96.9	105.6	97.1	102.0
	Mean	Mean	Mean	Mean	Mean	Mean
HTB:	106.6	101.9	100.9	101.8	108.2	98.6
CH :	95.0	100.5	96.9	107.1	96.2	98.6
GP :	91.5	106.7	96.5	106.8	93.4	105.5
ATB:	94.8	104.1	97.2	105.5	96.7	101.0
	S.D.	S.D.	S.D.	S.D.	S.D.	S.D.
HTB:	17.1	10.4	7.7	11.2	17.25	11.6
CH :	12.8	8.9	7.6	10.7	14.6	9.65
GP :	13.9	10.6	7.5	10.2	13.35	10.2
ATB:	15.2	10.7	6.5	11.55	16.25	8.95
	SE of M.	SE of M.	SE of M.	SE of M.	SE of M.	SE of M.
HTB:	1.7	1.0	.77	1.1	1.73	1.2
CH :	1.3	.89	.76	1.1	1.46	.97
GP :	1.4	1.1	.75	1.0	1.34	1.02
ATB:	1.5	1.2	.65	1.2	1.63	.89

Legend:

Hospitalized tuberculous equals HTB
 Chronically ill equals CH
 General population equals GP
 Arrested tuberculous equals ATB

TABLE 4.

Differences, SE of differences and CR's obtained for Bernreuter's six measures for experimental and three control groups.

	B1-N.	B2-S.	B3-I.	B4-D.	F1-C.	F2-S.
	Diff's.	Diff's.	Diff's.	Diff's.	Diff's.	Diff's.
HTB - CH :	11.65	1.4	4.0	5.3	11.95	0.0
HTB - GP :	15.15	4.85	4.4	4.95	14.8	6.85
HTB - ATB:	11.85	2.25	3.7	3.7	11.45	3.35
CH - GP :	3.5	6.25	.4	.35	2.85	6.85
CH - ATB:	.20	3.65	.3	1.6	.50	3.35
GP - ATB:	3.3	2.6	.7	1.25	3.35	3.50
	σ_{dm}	σ_{dm}	σ_{dm}	σ_{dm}	σ_{dm}	σ_{dm}
HTB - CH :	2.13	1.37	1.08	1.55	2.26	1.51
HTB - GP :	2.2	1.48	1.08	1.51	2.19	1.55
HTB - ATB:	2.27	1.49	1.01	1.61	2.38	1.47
CH - GP :	1.89	1.38	1.07	1.48	1.98	1.41
CH - ATB:	1.98	1.40	1.00	1.58	2.19	1.32
GP - ATB:	2.05	1.50	.99	1.55	2.11	1.36
	CR	CR	CR	CR	CR	CR
HTB - CH :	5.4	1.02	3.7	3.4	5.3	0.00
HTB - GP :	6.9	3.3	4.1	3.3	6.8	4.4
HTB - ATB:	5.2	1.51	3.7	2.3	4.8	2.3
CH - GP :	1.9	4.5	.37	.24	1.4	4.9
CH - ATB:	.10	2.6	.30	1.01	.23	2.6
GP - ATB:	1.6	1.7	.7	.81	1.6	2.6

Legend:

Hospitalized tuberculous	equals	HTB
Chronically ill	equals	CH
General population	equals	GP
Arrested tuberculous	equals	ATB

(self sufficiency), B4-D (dominance-submission) indicated a significant difference. From these results it can be seen that the hospitalized tuberculous sample is in comparison with the general population, more emotionally unstable, more often seek advice and encouragement, are more introverted, more submissive, more self-conscious, more sociable, gregarious and dependent.

The hospitalized tuberculous sample when compared with the arrested tuberculous non-hospitalized group yielded the following information. The former were more emotionally unstable (B1-N highly significant), more introverted (B3-I highly significant), more self-conscious (F1-C highly significant). They tended to be more submissive (B4-D probably significant), more sociable, gregarious and dependent, (F2-S probably significant), than were the latter. The measures of self-sufficiency (B2-S), when compared, yielded differences which were not significant. This will be discussed further in association with the similar finding between the hospitalized tuberculous and chronically ill samples.

The hospitalized chronically ill sample when compared with the sample of the general population indicated that differences between the group means

in B2-S (self sufficiency) and F2-S sociability) were highly significant, and the obtained differences for the four other measures were not significant. This indicates that the former manifest a lack of self sufficiency, compared to the sample of the general population and are more, sociable, gregarious and dependent than the latter.

A comparison of the above chronically ill with arrested tuberculous non-hospitalized individuals as a group indicated that the obtained differences for B2-S (self-sufficiency) and F2-S (sociability) were significant. (C R equals 2.6 in both cases). The obtained differences for the other four measures were not significant. The results obtained indicate that the chronically ill sample evidence a greater lack of self-sufficiency and are more sociable, gregarious and dependent than the arrested tuberculous.

When the arrested tuberculous non-hospitalized sample was compared with the non-tuberculous sample of the general population the only measure that gave a significant difference was F2-S (sociability). This difference was "significant." This would indicate that the only difference for these two groups in so far as Bernreuter scores are concerned is that the arrested tuberculous tend to be more sociable, gregarious and

dependent than the sample of non-tuberculous individuals of the general population.

A comparison of scores on B2-S (self-sufficiency) of the two hospitalized groups with the sample from the general population gave ^ahighly significant difference. Between the two hospitalized groups there was not a significant difference. Between the non-hospitalized groups no significant difference was obtained. When hospitalized tuberculous were compared to arrested tuberculous no significant difference was found. The ~~results~~ **suggest** that chronic hospitalization tends to develop a lack of self-sufficiency, or at least that a lack of self-sufficiency is associated with hospitalization. The arrested tuberculous group mean score for B2-S fell between the chronically ill and the general population and there was not a significant difference when compared with the hospitalized tuberculous. This suggests that hospitalization is not the sine qua non of a lack of self-sufficiency, but rather that attendant difficulties such as limitations on activity (a common factor) may have causal significance.

The closeness of association of hospitalization with F2-S (sociability) is suggested by the results obtained. The obtained differences between hospitalized tuberculous and chronically ill gave a CR of 0.00 because no difference was obtained.

When these two groups were compared to the general population a highly significant difference was found in both cases. When the hospitalized tuberculous sample was compared to the arrested tuberculous group a probably significant difference was obtained. When the chronically ill were compared to the arrested tuberculous a significant difference was found. A comparison of the arrested tuberculous with the general population gave a significant difference. It is possible that the effects of hospitalization and of an arrested tuberculous state exert a similar influence on the scores of sociability. The relative isolation from friends and presence of a common bond, that is, hospitalization for an illness, conceivably might serve as agents for the development of an in-group pattern of behaviour with a core of mutual dependence. The state of being an arrested tuberculous individual with its attendant limitations of rest may possibly also create a pattern of dependence similar to, but not the same as the hospitalized tuberculous and the chronically ill.

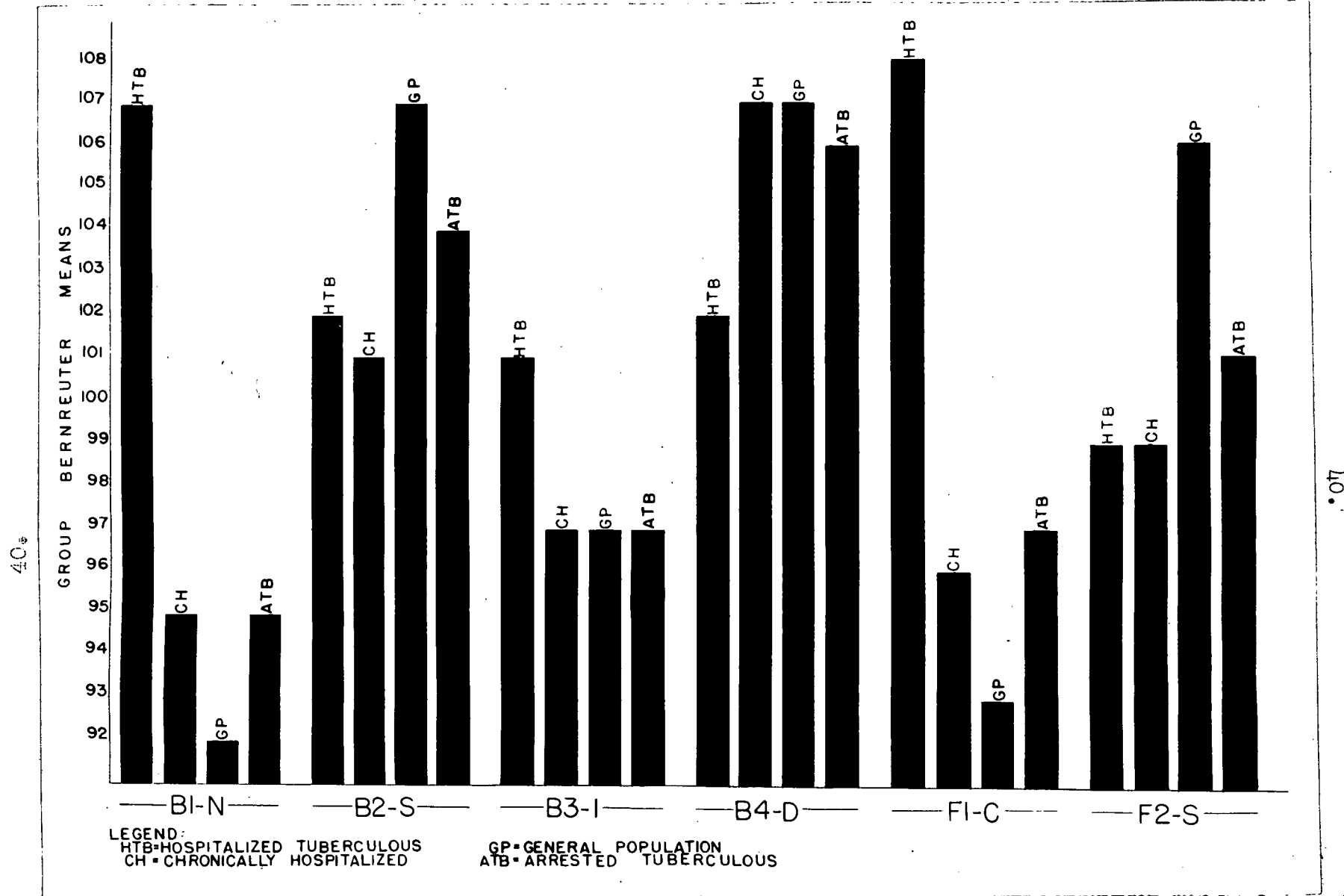
a. Comparison of Bernreuter Personality Inventory scores with length of time in hospital for hospitalized tuberculous and chronically ill samples.

A comparison of mean Bernreuter scores of the hospitalized tuberculous group with the chronically hospitalized patients was made for each cumulative six month period of hospitalization. No consistent trend was

observable. That is, although in each case the tuberculous group was the more maladjusted, there was no progressive increment with increase in length of hospitalization. This suggests that the role of hospitalization though probably a contributory factor is not the only one operating in the development of the adjustment difficulties. It is possible for example that previous personality makeup may have more importance as an aetiological agent than hospitalization per se.

b. Graphic Presentation.

A graph indicating the distribution of means obtained for the six Bernreuter measures for each of the groups appears on page 40.



Distribution of Bernreuter means for experimental and three control groups.

7. CONCLUSIONS:

It is axiomatic that conclusions are no more valid than the basic data from which they are derived. The writer has endeavoured to point out the limitations and assumptions of the investigation and assumes that the reader will bear them in mind when weighing the conclusions.

The hypothesis that adjustment patterns of hospitalized tuberculous patients (as measured by the Bernreuter Personality Inventory) are significantly different from non-tuberculous individuals in the general population is affirmed. In all six measures the former tended to be more maladjusted. Four of the measures yielded a "highly significant" difference and the remaining two a "significant difference".

The second hypothesis that the adjustment patterns of hospitalized tuberculous patients differ significantly from hospitalized chronically ill other than tuberculous is in part affirmed and in part denied. The differences in B1-N., B3-L, B4-D., and F1-C., were "highly significant". The hospitalized tuberculous tended to be more maladjusted than the chronically ill as a group. The differences for B2-S., and F2-S., were "not significant" and it is suggested that scores on these two measures tend to be affected by the state of being hospitalized with its

attendant difficulties.

The third hypothesis that the adjustment patterns of hospitalized tuberculous are significantly different from arrested tuberculous, non-hospitalized individuals, is affirmed with qualification. The differences for B1-N, B3-I., and F1-C., were "highly significant", for B4-D., and F2-S., "probably significant". The differences for B2-S., were not significant. As can be seen in Appendix 2, the clinical statuses relating to an arrested state of tuberculosis impose certain limitations on activity. It is suggested that as a consequence a lack of self-sufficiency might be expected.

The conclusions arrived at in this study are in general agreement with the writers who have maintained that the hospitalized tuberculous manifest a pattern of adjustment different from the general population, and from persons chronically hospitalized for illnesses other than tuberculosis.

This study obviously can not draw any conclusions regarding the uniqueness of the adjustment patterns of the hospitalized tuberculous and the writer is at a loss to see how anyone can maintain that they are unique, in view of our present knowledge. It is conceivable that representative groups of cancer patients, psychoneurotics, drug addicts or other syndromes might manifest similar

patterns and until proven otherwise, it is impossible to state dogmatically that hospitalized tuberculous adjustment patterns are unique.

8. SUGGESTIONS FOR FURTHER RESEARCH:

That such patterns of adjustment are, or are not unique is an academic point, and the field has many unanswered, but not insoluble questions. The writer suggests the following studies should be made.

1. The relationship of instability to the aetiological pattern of tuberculosis.
2. The role of instability in determining the course of the tuberculous state.
3. The relationship of instability to prognosis in tuberculosis.
4. Destructive and constructive attitudes in tuberculous patients.
5. Psychological differences between proliferative and exudative tuberculous individuals.

BIBLIOGRAPHY:

- (1) Ahrens, R.S. Mental hygiene for tuberculous patients. *Amer. Rev. Tuberc.*, 1927, 16, 171-179.
- (2) Bannister, H. Some psychological observations on adult male tuberculous patients. *Lancet*, 1930, 218, 784-786.
- (3) Berger, G. Contributo alla psicoanalisi dei tuberculotici. (contribution to the psychoanalysis of tuberculous patients *Riv. Dipatit. dell'apparato respiratorio*, 1933, 2, 1-3; *Psychol. Abstracts*, 1934, 8, 2560.
- (4) Bernreuter, R.G. The theory and construction of the personality inventory. *J. Soc. Psychol.*, 1933, 387-405.
- (5) Bogen, E., & Triez, E.B., & Grace, M.F. Tuberculosis and mental disease. *Amer. Rev. Tuberc.*, 1934, 30, 353.
- (6) Bonney, L.G. Pulmonary tuberculosis. Philadelphia: Saunders, 1910, 187.
- (7) Breens, W.A. Study of incidence of tuberculosis in state institutions in Minnesota. *Amer. Rev. Tuberc.*, 1934, 33, 813.
- (8) Breur, M.J. The psychic element in the aetiology of tuberculosis. *Amer. Rev. Tuberc.*, 1935, 31, 233-239.
- (9) Brooke, M.S. Psychology of the tuberculous patient. *J. soc. Casewk.*, 1948, 29, 57-60.
- (10) Brown, L. Mental aspects in aetiology and treatment of pulmonary tuberculosis. *Internat. Clin.*, 1933, 3, 149.
- (11) Carncross, H.T. The mental attitude in tuberculosis. Report No. 2., Henry Phipps Institute, 1904-1905, 137.
- (12) Conlogue, E.F. Mental and nervous phenomena in tuberculosis. *Amer. Rev. Tuberc.*, 1940, 42, 161-173.
- (13) Crofton, G.H. Mental phases of pulmonary tuberculosis. *Mil. Surgeon*, 1924, 54, 708.
- (14) Day, G. Observations on the psychology of the tuberculous. *Lancet*, 1946, 257, 703-706.
- (15) D'Hollander, F., & Rouvroy, C. Recherches experimentales sur la demence precoce. Inoculations au cobaye et au pigeon. (experimental researches on dementia praecox. Inoculations on guinea pig and pigeon.) *J. de neur. et de pschiat.*, 1932, 32, 361-362; *Psychol. Abstracts*, 1933, 7, 4549.

- (16) Draper, G.U. Human constitution. Philadelphia: 1927, 91.
- (17) Eyre, M.B. The role of emotion in tuberculosis. Amer. Rev. Tuberc., 1933, 27, 315-329.
- (18) Fishberg, M. The role of emotion in tuberculosis. Tubercle, 1933, 14, 300; Amer. Rev. Tuberc., 1932, 25, 324.
- (19) Flannigan, J.C. Factor analysis in the study of personality. Palo Alto: Stanford Univ. Press, 1935.
- (20) Forester, A.M., & Shephard, C.E. Abnormal mental states in tuberculosis. Amer. Rev. Tuberc., 1932, 25, 324.
- (21) Garrett, H.E. Statistics in psychology and education. New York: Longmans, Green, 1947, 198.
- (22) Greene, R.A., & Woodall, C.S. A survey of tuberculosis in a school for feeble-minded. Proc. & Addr. Amer. Assoc. Stud. Feeble-Mind, 1931, 36, 213-221.
- (23) Hayward, E.P. Human emotions and their bearing on tuberculosis. Amer. J. occup. Ther., 1947, 1, 205-209.
- (24) Head, G.D. Neurasthenia and tuberculosis. J. Amer. Med. Ass., 1914, 63, 996; Concealed tuberculosis, Philadelphia: Blackiston.
- (25) Henderson, D.K., & Gillespie, R.D. A textbook of psychiatry. London: Oxford Univ. Press, 1946, 62.
- (26) Ishigami, T. Influence of psychic acts on progress of pulmonary tuberculosis. Amer. Rev. Tuberc., 1918, 2, 470.
- (27) Jaensch, E.K. Psychologic and Tuberkulosefrage (Psychology and the question of tuberculosis.) Psychol. u. Med., 1932, 4, 361-378; Psychol. Abstracts, 1933, 7, 2419.
- (28) Janowski, W. Psuedo-neurasthenic type, Paris Med., 2, 153; Psuedo-neurasthenic type of pulmonary tuberculosis, Progresos de la clinicia, 1926, 34, 721.
- (29) Jelliffe, S.E., & Evans, E. Psychotherapy and tuberculosis. Amer. Rev., 1919, 3, 417.
- (30) Jones, K., & Bogen, E. Physique and psyche in phthisis. Calif. West. Med., 1933, 38, 160-162.
- (31) Keers, R.Y. Mental disturbance in pulmonary tuberculosis. Brit. J. of Tuberculosis, 1940, 34, 106.

- (32) Kernan, B.H. Mental symptoms in tuberculous meningitis. Brit. J. of Tuberculosis. 1943, 43, 63.
- (33) Kramer, H.C. Psychopathology of childhood tuberculosis. Nerv. Child, 1948, 7, 102-114.
- (34) Leader, S.A. The Hospital management of the tuberculous psychotic. Report of round table conference. Veterans Administration Physicians, June, 1938, Res. Div. U.S. Vet. Admin.
- (35) Leondiff, A.A. Control of tuberculous in Hudson River State Hospital. Psychiatric Quart., 1938, 12, 4.
- (36) Loutitt, C.M. Clinical psychology of childrens' behaviour problems, New York: Harper, 1936, 640.
- (37) McClelland, D.C. Simplified scoring of the Berweuter Personality Inventory. J. Appl. Psychol., 1944, 28, 414-419.
- (38) McClelland, D.C. Further application of simplified scoring of Bernreuter Personality Inventory. J. Appl. Psychol., 1947, 31, 182-188.
- (39) McGhie, B.T., & Bunk, G.G. Tuberculous survey in a mental hospital. Am. J. Psychiat., 1934, 13, 5.
- (40) Minor, C.L. Psychological handling of the tuberculous patient. Am. Rev. Tuber., 1918, 2, 459.
- (41) Morland, H. The mind in tubercle. Lancet, 1932, 222, 176-178.
- (42) Muhl, A.M. Tuberculosis from the psychiatric approach. A follow up. Psychoanal Rev., 1929, 16, 397-403.
- (43) Munro, D.J.M. Psychopathology of pulmonary tuberculosis, Lancet, 1931, 201, 556-557.
- (44) Neymann, C.A. The relation of introversion-extraversion to intelligence and tuberculosis. Amer. J. Psychiat., 1930, 6, 687-696.
- (45) Oriani, F. Tuberculosi e malattio mentali (contributo statistico anatamo clinico) Tuberculosis and mental disease; anatamo-clinico statistical contribution. Riv. Sper. di pren: 1932, 56, 392-417; Psychol. Abstracts, 1933, 7, 2903.
- (46) Palmer, G.T. The psychology of the tuberculous patient. Ill. Med. J., 1924, 45, 56-58.

- (47) Peterson, B. The mental attitude in the treatment of tuberculosis. Amer. Rev. Tuber., 1927, 17, 388-395.
- (48) Pollack, M. et al. Tuberculosis in mental hospitals. Amer. Rev. Tuber., 1941, 43, 373-382.
- (49) Pottenger, F.M. Tuberculosis. A discussion of phthisiogenesis, immunology, pathologic physiology, diagnosis and treatment. St. Louis: Mosby, 1948, 399.
- (50) Pottenger, F.M. The psychology of the tuberculous patient Dis. of Chest, 1938, 4, 8.
- (51) Rian, E. Tuberkulose, og sinnssykdom. (Tuberculosis and mental disease) Tidsski, noiske Laegparen, 1936, 56, 701-714; Psychol. Abstracts, 1936, 10, 5047.
- (52) Ronce, R. Essai sur la psychologie des tuberculeux pulmonaires (Essay upon the psychology of sufferers from pulmonary tuberculosis). These de med. de Paris, 1932, 144: Psychol. Abstracts, 1933, 7, 3347.
- (53) Rossman, W.B. Psychiatric consideration in the management of tuberculosis. W. Va. Med. J., 1948, 44, 7-9.
- (54) Saxe, S. Psychical relation of tuberculosis in fact and fiction. New York State J. Med., 1905, 78, 211-263.
- (55) Schacter, N. Profilul psihologic al tuberculosilor. (Psychological profile of the tuberculous). Anal. Psihol., 1935, 2, 132-126; Psychol. Abstracts, 1936, 10, 4546.
- (56) Schneiter, C. Zur Psychologie der Lungentuberkulosen (The psychology of pulmonary tuberculosis). Schweiz. Med. Wschr., 1933, 63, 628-630; Psychol. Abstracts, 1935, 9, 2823.
- (57) Seidenfeld, M.A. Chronic disabling disease; Case histories in abnormal and clinical psychology. Edit Burton, A., & Harris, R.E. New York: Harper, 1947, 290.
- (58) Seidenfeld, M.A. A comparative study of the responses of tuberculous and non-tuberculous subjects on the Maller Personality Sketches. J. of Psychol., 1940, 9, 247-258.
- (59) Shultz, I.T. Psychological factors in tuberculosis. Amer. Rev. Tuber., 43, 1941, 557-565.
- (60) Simpson, R.M. Mental hygiene and tuberculosis. Welfare Mag., 1927, 18, 1348-1352.
- (61) Stern, E. Zur Frage der Psychotherapie im Lungensanatorium (The question of psychotherapy in a tuberculous sanatorium.) Allg. arzt. Zsch. f. Psychotherap. u. psych. Hygiene, 1929, 2, 299-314; Psychol. Abstracts, 1929, 3, 3637.

- (62) Ssucharewa, G.E., & Ossipova, E.A. Ueber die Psychopathologie der Tuberkulose bei Kindern. (The psychopathology of tuberculosis in children). Zsch. f. d. ges. Neur. u. Psychiat., 1929, 119, 666-671; Psychol. Abstracts, 1930, 4, 3948.
- (63) Super, D.E. The Bernreuter Personality Inventory; a review of research. Psych. Bull., 1942, 39, 94-125.
- (64) Thompson, S.E. Emotional and psychic factors in the treatment of tuberculosis. Texas State J. Med., 1932, 27, 648.
- (65) Trobe, A.S. Education of the tuberculous patient. Amer. Rev. Tuberc., 1946, 43, 132-140.
- (66) Urici, H. Zur Psychologie der Phthisiker. (The psychology of the consumptive.) D'tsch. Med. Woch., 1943, 2002-2004; Psychol Abstracts, 1933, 7, 3957.
- (67) Wechsberg, F.O., & Sparer, P.J. A statistical profile comparison of a hospitalized tuberculous group with a normal college group using the Cornell Index. J. clin. Psychol., 1948, 4, 63-69.
- (68) Weiss, E., & English, O.S. Psychosomatic medicine. London: Saunders, 1943, P. 408.
- (69) Whitney, J. The need for statistics on rehabilitation. Occupations, 1937, 15, 593-595.
- (70) Wicks, C.A. Tuberculosis prevention and treatment in Ontario mental hospitals, presented before the American Psychiatric Association. May, 1939.
- (71) Wolepor, B. Mental attitudes of the tuberculous. J. Outdoor Life, July-October 1929, 26, 400-401, 468-470, 530-532, 595-597.

APPENDIX 1

Personal Data Sheet

Section	Do not write your name anywhere on this sheet. In this research, you will be known only by the number which appears in the box to the right. You may therefore feel free to be completely honest.	Research project No. _____
---------	---	----------------------------

Age in years:	List those who depend on you for support:	
Sex (circle): M F	Relation to you:	Age:
Marital status (circle): Single Married Separated Divorced Widowed		

List the jobs you have had during the last five years:	
What kind of a job?	How many months did you work there?

What was the last grade you were in at school?
--

List the hobbies, interests or sports you enjoy the most or are interested in:	

What illnesses, accidents or operations have you had for which you had to go to the hospital?	
List names:	Length of time:

Have you had any other illnesses (outside of a hospital) for more than two weeks?	
List names:	Length of time:

APPENDIX 2

Definitions of arrested tuberculous clinical
statuses employed at the Out Patients Clinic --
Vancouver General Hospital, Vancouver British Columbia.

Apparently Cured.

Constitutional symptoms absent. Sputum, if any, must be found negative for tubercle bacilli, not only by concentration and microscopic examination, but also by culture or animal inoculation. In case there is no sputum, the fasting gastric contents should be obtained and similarly examined. Lesions stationary and apparently healed according to x-ray examination. These conditions shall have existed for a period of two years under ordinary conditions of life.

A considerable but undetermined percentage of apparently cured patients, particularly those who have fulfilled the above requirements not only for two, but for six years, may in regard to their survival expectancy (as to tuberculosis) reach normal standards.

Arrested

Constitutional symptoms absent. Sputum, if any, must be concentrated and found microscopically negative for tubercle bacilli. Lesions stationary and apparently healed according to x-ray examination; no evidence of pulmonary cavity. These conditions shall have existed for a period of six months, during the last two of which the patient has been taking on e hour's walking exercise twice daily, or its equivalent.

Apparently Arrested

Constitutional symptoms absent. Sputum, if any, must be concentrated and found microscopically negative for tubercle bacilli. Lesions stationary and apparently healed according

to x-ray examination; No evidence of pulmonary cavity.

These conditions shall have existed for a period of three months, during the last two of which the patient has been taking one hour's walking exercise daily, or its equivalent.

Quiescent

No constitutional symptoms. Sputum, if any, may contain tubercule bacilli. Lesions stationary or retrogressive according to x-ray examination; cavity may be present. These conditions to have existed for at least two months during which time the patient has been ambulant.