THE RELATIONSHIP OF ORGANIC ILLNESS TO PERSONALITY INTEGRATION

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ABSTRACT

THE RELATIONSHIP OF ORGANIC ILLNESS

TO PERSONALITY INTEGRATION

by Caridad Alzona Deleña

It was hypothesized that physically ill individuals, as indicated by clinic visits, would differ significantly from relatively healthy individuals, as indicated by absence of clinic visits, in their responses to the General Opinion Survey (GOS), a test designed to measure degree of personality integration.

A representative sample of 104 men and 100 women (on-campus single American citizens) was drawn from the Michigan State University (MSU) freshman class.

Subjects were classified into Sick and Healthy (Zero Clinic Visits) Groups and compared on fifteen variables, i.e., ten GOS scores, Grade Point Average (GPA), College Qualification Test (CQT) scores, using the t-test.

It was specifically hypothesized that the GOS, GPA, and CQT means of the Sick Groups would be significantly lower than the means of the Healthy Groups.

Out of 405 t-tests (computed by MISTIC) on the fifteen variables between the Sick and Healthy Groups, 40 were significant. It was concluded that the GOS Anxiety, Social, Child Status, Learning and Total Scales were the most important scales in significantly differentiating (.001 level) between the Sick and Healthy Groups.

Chronically ill female subjects obtained significantly lower GPA than females who had not visited the clinic, but females with physical injuries only obtained significantly higher GPA than females who had not visited the clinic. It was concluded that chronic illness affected unfavorably the study habits and GPA of chronically ill female freshmen. Accident-proneness seemed to differentiate between females who had reported physical injuries and females who had not reported any injuries or illness to the clinic.

Chronically ill subjects consistently scored significantly higher on the CQT total and sub-scores (Verbal, Information, Numerical) than subjects who had not visited the clinic. It was concluded that the chronically ill subjects of the study would have a better chance of succeeding in college than subjects who had not reported any illness.

Results of t-tests showed that individuals with organic illness manifested a significantly lower degree of personality integration on the GOS than individuals who had not visited the clinic.

It was concluded that for the sample studied, there existed a significant relationship between organic illness and personality integration (as measured by the GOS).

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Chapter I

Statement of the Problem

Introduction

The American Psychiatric Association defines the term "psychosomatic" as an "adjective to denote the constant and inseparable interaction of the psyche and the soma, most commonly used to refer to illnesses which are primarily physical with at least a partial emotional etiology" (1 :55).

However, "psychosomatic illness" as a diagnosis is today being replaced by the "psychosomatic approach" (7:405).

The literature on the psychosomatic approach to illness generally recognizes that certain physical illnesses are influenced by chronic emotional stress. It is quite difficult to draw a strict line between "psychosomatic" or "psychically produced" and "organic" or "real" illness. Generally there is an acceptance of the probability that there is a blending of these and other factors in many disease syndromes (6: 252).

The present tendency today is "toward assuming that any physical illness has its emotional components, and any personality disturbance its bodily ones" (7: 405). Coupled with this tendency is the movement toward interdisciplinary research with the viewpoint that illness can be understood only by considering the sociological, cultural, psychological and chemical factors together (7: 405).

Some studies which attempted to probe into the relationship of illness and emotional stress in the college environment are those by Frankle, Staton and Rutledge, and Mechanic and Volkhart.

Frankle investigated the relationship between introversion extroversion on the Minnesota Thinking-Social-Emotional (TSE) Inventory and the tendency toward somatic complaints. He found that emotionally introverted graduate students manifested significantly more somatic complaints than emotionally extroverted graduate students (6: 255).

Staton and Rutledge found a significant and positive relationship between the frequency of somatic illness and certain emotional problems among college students (22:203).

Mechanic and Volkhart found that students who perceived themselves to be under high stress were more frequent

visitors to the school infirmary than students who perceived themselves to be under low stress (18: 56).

In view of the variety of emotional stress confronting college students, it was decided to investigate the possibility of a relationship between organic illness and personality integration in the Michigan State University (MSU) freshman class.

The MSU Health Service provides students with free medical facilities and strives to preserve student health. It seemed promising to investigate possibilities of a relationship between organic illness and grade point average, and between organic illness and academic aptitude as indicated by the College Qualification Test (CQT).

Statement of the Problem

The purpose of this study was to investigate the possibility of a relationship between organic illness and personality integration.

Hypothesis

It was hypothesized that individuals susceptible to illness, as indicated by hospital visits, would differ significantly from physically healthy individuals, as indicated by absence of hospital visits, in their patterns

of responses elicited by General Opinion Survey statements designed to indicate degree of personality integration.

Definitions

A high degree of personality integration is taken to be indicated by high scores on the General Opinion Survey (GOS): a low degree of integration, by low scores on the GOS. Personality integration is therefore operationally defined by responses to the paper-and-pencil inventory used, the GOS.

The diagnosis of organic illness was made by MSU Health Service physicians.

Groups Compared

Subjects were classified into two main categories: the Sick Group and the Healthy Group categories. This classification was based on information obtained from their data cards which had been filled out by the director of the MSU Health Service, Dr. J. S. Feurig.

The Sick Group was subdivided into eight sub-groups: 3 + Clinic Visits, Chronic Organic, Non-Chronic Organic, All Organic, Physical Injuries with Other Illnesses, Physical Injuries Only, All Physical Injuries, and Hospitalized Groups. Each of these sub-groups was compared with the

Healthy Zero Visits Group on fifteen variables, i.e., ten GOS scores, Grade Point Average (GPA), and four College Qualification Test (CQT) scores.

The Healthy (control) Group was called the Zero Visits Group and was composed of subjects who had not visited the MSU clinic for any reason during their freshman year.

The total sample was also divided into Hospitalized and Non-Hospitalized Groups and compared with respect to the fifteen variables. The Non-Hospitalized Group was also considered healthy, but less healthy than the Zero Visits Group, because it included subjects who had visited the clinic but had not been hospitalized.

It was specifically hypothesized that the Sick Groups would have significantly lower means on the GOS, GPA, and CQT scores than the means of the Healthy Groups.

Significance Level

The minimal level of significance accepted in this study was the .05 level.

Importance of the Study

The investigator would not go so far as to agree with some enthusiastic psychosomaticists that all illnesses have a high proportion of emotional or psychosomatic factors.

It is generally accepted that emotional factors are important in the etiology of many organic disorders. What is not clear, however, is in which disorders the emotional factor is minimal or secondary, and in which disorders the emotional factor is primary (11: 213).

In general, illness, especially chronic illness, results in losses in every area of effort. If persons who are more than ordinarily susceptible to illness could be shown to have identifying personality patterns on tests, remedial steps could be taken.

Organization of the Thesis

Chapter II will review some studies which utilized psychological tests in investigating illness. Chapter III will present the design of the study and the procedure used in classifying the subjects. Chapter IV will list the results of the comparison of the Sick and Healthy Groups. Chapter V will discuss the findings and implications for research and conclusions. Chapter VI will summarize the study.

Chapter II

Review of the Literature on Test-Oriented Studies in the Psychosomatic Area

Two Principal Approaches

The study of psychosomatic disorders has been approached from two principal directions. One approach is the dynamic investigation of the personality of the patients, largely represented by psychoanalytic studies, where most of the literature falls. The other approach is experimental and physiological and attempts to demonstrate and correlate visceral or somatic changes induced by specific emotional states (7: 220). Results have shown that this attempt at relating single psychological factors with about every known physiological factor is inadequate, and it is generally accepted today that multiplicity rather than specificity of causal factors is the only successful avenue to psychosomatic problems (15: 616).

The present survey will present samples of test-oriented studies in the psychosomatic area. Studies which used objective types of tests, projective tests, and both projective and objective tests will be reported.

Objective Tests

Krasner administered the Wechsler-Bellevue Scale Scale, Form I, the Guilford-Martin Factor Inventory, the Thurstone Interest Schedule, and a questionnaire of sixty-six items designed to obtain background information and attitudes not covered by the Guilford or Thurstone inventories, to three groups of patients in a general medical hospital. The subjects were white males, veterans, native-born, between the ages of 20 and 40, and had all completed at least the eighth grade to insure adequate reading ability of the inventories.

The first group consisted of 30 patients with duodenal ulcer as their only medical diagnosis. The second group consisted of 27 patients with ulcerative colitis as their only medical diagnosis. The third group consisted of 44 patients with non-psychosomatic disorders of either inguinal hernia or pilonidal cyst (which the literature does not consider to be markedly affected by emotional states) and who had no histories of psychiatric or psychosomatic disorder.

The differences in height, weight, and height/weight ratio between the three groups were not significant. On

the multiple-choice questionnaire, 9 of the 66 items yielded significant results. These items indicated that the ulcer patients reported "domineering, strict fathers, ran away from home one or more times, disliked school, liked their previous job, tended to go out with people older than themselves, and felt that they had many friends. Colitis patients tended to have strict and domineering fathers too, parents who did not get along with one another, never ran away from home, liked school and now have few or no friends."

The ulcerative colitis group attained significantly higher scores on the intelligence test (80% had an IQ of 115 or more) than the other two groups.

Personality differences were defined in terms of significant differences in scores on the Guilford-Martin Factor Inventory.

When the ulcer and colitis patients were treated as one group of psychosomatic patients and then compared with the non-psychosomatic group, significant results occur in six factors. Psychosomatic patients in comparison with the non-psychosomatic group reported themselves as being "more shy, withdrawn, seclusive, with greater cycloid tendencies,

more socially passive, tending to lack of confidence, under-evaluation of one's self, feelings of inadequacy and inferiority, jumpy, jittery, with a tendency to be easily distracted, irritated and annoyed."

No significant differences were found between the ulcer and colitis groups. The statistically significant differences were found to be between each of the psychosomatic groups and the non-psychosomatic group, and between the combined (ulcer and colitis) psychosomatic group and the non-psychosomatic group (13: 190).

LeShan and Worthington administered a projective device which resembles a questionnaire in that it appears to be a personnel form), the Worthington Personal History, to 152 patients with malignant tumors and 125 patients with other or no known disease. (The 12,000 protocols from validation studies of the Personal History were also surveyed and seemed to be authors to be in essential agreement with the control group findings.) The Worthington P.H. is a blank resembling a personnel form thereby having the advantage of rarely producing anxieties because of its non-threatening nature as other tests seem to have. The subjects (judging from occupational status) were nearly all upper-lower or lower-middle class.

Each protocol included a description of the personality structure (estimations of major cathexes, expression of hostility, social mobility, major ego defenses used, ego strength, and intelligence). The protocols of the cancer and control groups were then scanned to see whether any factor could be found which occurred frequently in one group and less commonly in the other group. When a factor seemed to fulfill this requirement, all protocols were re-examined specifically in this area and tabulations made of the number of records in which it was found.

Three factors found in the protocols of patients with malignant cancer which were statistically less frequently found in the protocols of the controls were:

1. loss of an important relationship before the diagnosis of the tumor

2. inability to express hostile feelings towards other people, with strong aggressive feelings

3. tension over the death of a parent, often an event that had happened many years ago.

In order to check these findings further, 28 new records were analyzed by the writers without clues in the "health" area of the blank that would reveal whether they

had cancer or not. The 28 records included 15 protocols of cancerous patients, and 13 of controls. The controls contained 5 with no known disease, 3 hyperthyroids, 1 each with allergy, arteriosclerosis, psoriasis, dermatitis, and obesity. The authors attempted to predict which patients had cancer and which did not, solely from the presence or absence of the three factors previously mentioned. Correct predictions ($p = .0001$) were made in 24 of the 28 cases. (Three noncancerous patients, 1 with arteriosclerosis, 1 with allergy, and 1 with hyperthyroidism were predicted as "cancer," and 1 patient with cancer of the skin was predicted as "noncancer.")

The first factor, the loss of an important relationship has also been noted by Evans (1926), and Greene (1954) in previous studies. The second factor, the inability to express hostility, has also been previously reported as being statistically associated with the diagnosis of cancer by Bacon et al. (1952), using an interview technique; Butler (1954) also using psychiatric interviews; and Cobb (1952), using interviews, questionnaires and projective techniques.

LeShan and Worthington believe that the specific finding of tension over the death of a parent has not been

previously reported in this exact manner. However, LeShan and Worthington note that three other investigators (Evans, 1926; Tarlau and Smalheiser, 195 ; and Bacon et al., 1952) have observed strong unresolved tensions concerning a parental figure as characteristic of cancer cases. LeShan and Worthington believe that all four papers although phrasing this area differently, are reporting on the same factor, because tension over the relationship with a parental figure leads frequently to unresolved problems of guilt and anxiety in the event of the parent's death (14: 281).

Staton and Rutledge compared 31 men and 19 women students ranking at or above the 90th percentile ("Repeaters") in number of infirmary visits for one year, with 15 men and 30 women students ranking at or below the 10th percentile (Non-Repeaters) on the short group form of the MMPI. They found that the 90th percentile and the 10th percentile groups were significantly different on the Hypochondriasis (.01 level of confidence), Hypomania (.01 level), Psychopathic Personality (.05), and Depression (.05 level) scales of the short form MMPI. They found moderate to low but significant associations between hypochondriasis,

psychopathic personality, depression and frequency of somatic illness, with somewhat greater frequency among females than among males (24: 203).

Projective Devices

Bernstein and Chase administered the Blacky Pictures to three groups of hospitalized patients; an ulcer, psychosomatic non-ulcer, and a non-psychosomatic group. Significant differences were found on only three of seventeen dimensions for each inter-group comparison, but no differentiation was found on the basis of oral eroticism, which the previous literature has considered important. The authors conclude that their findings cast some doubt on the validity of the Blacky Pictures for discriminating ulcer patients from other patients (4: 377).

Waxenberg administered a test battery consisting of the Bender-Gestalt, House-Tree-Person test, Rorschach, Rapaport's word association test, and the TAT to psychosomatic groups and to non-psychosomatic groups and found no significant difference between the two groups. This is in line with Krasner's finding although Krasner administered objective tests (Wechsler-Bellevue, Guilford-Martin Factor

Inventory, the Thurstone Interest schedule, and his own 66-item questionnaire).

Waxenberg concluded that consistently negative findings such as his make it important that all "major psychosomatic formulations need to be subjected to rigorous and searching analysis by a variety of techniques" (34: 163).

Opposed to Minski and Desai's finding on ulcer patients is Winter's finding on peptic ulcer patients. Winter administered the Rorschach and Blacky Pictures to 68 peptic ulcer cases in order to test his hypothesis about the personality dynamics of ulcer patients. He concluded that the typical ulcer personality is not found in all peptic ulcer patients and that at least two different personality patterns are found in people with ulcers and these can be validly measured by the Blacky Scales developed in this investigation (36: 332).

Projective and Objective Tests

The team of Miski and Desai administered the Rorschach, Porteus Maze, and the Rosensweig Picture-Frustration tests to two groups ulcer and hysteric. The group of 25 male psychiatric peptic ulcer cases and a comparable group of 25 psychiatric cases with predominantly hysterical symptoms

were also appraised in terms of clinical judgments of personality traits.

Rorschach test results indicated that the ulcer group was less immature, accepted their instinctual needs to a greater extent, had more anxiety, and greater caution.

Porteus Maze test results showed the ulcer group to be more conforming.

Clinical judgment revealed greater conscientiousness, neatness and tenseness among the ulcer patients.

The Rosensweig Picture-Frustration results were not statistically significant (20: 113).

Reznikoff administered the TAT, a Sentence Completion test, a personal history questionnaire and interviews to 25 women with breast cancer and 25 women with "benign" growths (but thought by them to be malignant at the time of the testing), and 25 normals. Specific disturbances in feminine identification with accompanying negative attitudes toward pregnancy were found in the group with breast cancer (23: 96).

In another study, Reznikoff reported on the results of the individual administration of the Cornell Medical Index and the Multiple-Choice Rorschach to 100 cancer detection

clinic patients. Information was also obtained from their medical examination forms. The data were analyzed to determine background and personality variables which served as motivating factors in visiting a cancer detection clinic. The following factors were found the most prevalent:

1. cancer in a close relative
2. a history of serious illness
3. emotional difficulties involving marked body preoccupation and apprehension (22: 454)

Contradicting the findings on cancer groups of LeShan and Worthington, and Reznikoff, are the findings of Wheeler and Caldwell. Wheeler and Caldwell administered the Rorschach, Kent Scale, Draw A Person, Rosensweig Picture-Frustration tests, and a clinical interview to three groups with cancer of the breast, cancer of the cervix and normal controls. They did not find striking differences between the cancer and control groups, contrary to findings reported by the above-mentioned earlier studies. Trends however suggested the early childhood environment, parental attitudes, and sexual attitudes which the authors believe warrant further study (35: 256).

Conclusion

Various researchers point out that there is no lack of data in the psychosomatic area but that on the whole, studies are still at the correlations level. More and more evidence is being accumulated to demonstrate that somatic disturbances may be correlated with specific inner psychological processes such as anxiety, hostility, defense mechanisms, etc. What is lacking is evidence on how effects are mediated. It is a gross oversimplification to assume that the "autonomic nervous system is activated by emotion and somehow produces the malfunction and pathology" (16: 223). There is a lack of studies with adequate research design, control groups, and relevant statistical tests.

Ideally, the investigator should measure the group and make the prediction and then wait to see the type of disease developed. This way one would have "both the pristine evaluation and another with the complications resulting from the psychological reaction to the illness" (7: 57). With the present method of measuring the sick group, the investigator measures something other than basic personality structure because the illness itself possibly contaminates and induces changes.

Chapter III

Design of the Study

It was hypothesized that the means of the Sick Groups would be significantly lower than the means of the Healthy Groups. The Sick Groups were compared with the Healthy Groups on their GOS (General Opinion Survey) scores, CQT (College Qualification Test) test scores and Grade Point Averages (GPA), by the t-test.

Subjects

Selection of Sample

The sample was taken from the fall term 1959 freshman who had taken the GOS during the entrance examinations. A total of 104 males and 100 females were selected from these for this study by the following process:

First, names of the 2000 freshmen were arranged in alphabetical order. Every eighth male and every eighth female was then chosen until an arbitrary number of 110 males and 110 females had been reached.

Second, foreign students, off-campus and married freshmen were eliminated from the sample of 220 students.

Foreign students were eliminated in order to obtain a homogeneous group. Off-campus and married freshmen were eliminated in order to insure similarity in living conditions; only the freshmen who lived on campus were included. These eliminations left a total of 104 males and 100 females, the final sample.

Outline of Research Design

The population was classified according to sex and into two main categories, a Healthy Group and a Sick Group. The Sick Group was subdivided into eight sub-groups, and the Healthy Group into two sub-groups.

The GOS, CQT scores and GPA of the Sick Groups were compared with the GOS, CQT and GPA of the Healthy Groups, by the t-test.

The sexes were first compared separately, and then combined.

The Sick Group

1. 3 + Clinic Visits Group:

Subjects with three or more visits to the MSU clinic were labeled 3 + Clinic Visits (or 3 + Visits). Subjects who visited the clinic for a structural defect complaint alone (Structural Defect Only) or for physical injuries alone (PI Only) were eliminated from this group.

2. Chronic Organic Group:

Subjects were classified Chronic Organics when they were diagnosed as having a chronic or long-standing organic illness (as diagnosed by Dr. Feurig). (Structural Defects Only, Physical Injuries Only were excluded.)

3. Non-Chronic Organic Group:

Subjects were classified Non-Chronic Organics when they were diagnosed as suffering from an occasional organic illness; this group excluded the chronically ill. (Structural Defects Only and Physical Injuries Only were excluded from this group.)

4. All Organics Group:

All subjects with an organic illness, i.e. those with a chronic organic illness (Chronic Organics) and those with a non-chronic organic illness (Non-Chronic Organics) or both were classified All Organics. (Structural Defects Only and Physical Injuries Only were excluded from this group.)

5. Physical Injuries with Other Illnesses Group:

Subjects were classified PI with Other Illnesses when they had bruises, contusions, etc., plus an organic illness. (Structural Defects Only and Physical Injuries Only were excluded.)

6. Physical Injuries Only Group (PI Only):

Subjects were classified PI Only when they came to the clinic solely for treatment of accidental lacerations, contusions, bruises, etc., and had no organic illness on their data card. This PI Only group may (it was assumed) have the additional variable of accident-proneness. (Structural Defects Only were excluded from this group.)

7. All Physical Injuries Group (All PI):

All subjects with any physical injury, i.e., subjects who had a physical injury plus an organic illness (PI with Other Illnesses) and subjects with physical injuries alone (PI Only), were classified All PI. (SD Only were excluded.)

8. Hospitalized Group:

Subjects were classified Hospitalized when they had been hospitalized for any illness at the MSU Hospital.

The total population (including everyone, i.e., the Structural Defects Only, the Physical Injuries Only, and the Psychosomatics Only were included either in the Hospitalized or in the Non-Hospitalized Group) was divided into Hospitalized and the Non-Hospitalized Groups.

The Healthy Group

1. Zero Visits Group:

Subjects were classified Zero Visits Group when they had no record of any clinic visits during their freshman year.

2. Non-Hospitalized Group:

Subjects were classified Non-Hospitalized when they had never been hospitalized at the MSU hospital during their freshman year, although they may or may not have visited the MSU clinic for out-patient treatment.

Diagnosis of Subjects

Data Card

A data card was prepared by the investigator for each subject. The card contained a medical information section and a test score section.

Medical Information Section

The medical information section of the card was filled out by Dr. J. S. Feurig, Medical Director of the MSU Health Service. It contains the following items:

1. Sex _____

2. Number of visits to MSU clinic _____

3. Number of commitments to a room at MSU Hospital___

4. Diagnosis:

Illness and Classification

Chronic Psychosomatic Organic

5. Referred to Mental Hygiene Clinic ___, Counseling Center____, Psychological Clinic____, for

6. Number of visits to Mental Hygiene Clinic____

7. Recommended withdrawal from school due to illness___

Items 5, 6, 7 were not used in the study due to the extremely small number of referrals for psychological services. A larger sample of subjects would be needed for statistical analysis.

Additional Diagnostic Classifications

After Dr. Feurig had filled out the cards for each student, the investigator noted that several male and female subjects had visited the clinic for treatment of lacerations, sprains, and other assorted injuries. Hence the category of Physical Injuries (PI) was added to item 4 in order to isolate those who had visited the clinic for treatment of an organic illness from those who had visited the clinic solely for treatment of physical injuries. (The investigator used the MSU clinic's classification of

injuries which included the following: abrasions, bites, burns, contusions, foreign bodies, fractures, or dislocations, head injuries, lacerations, sprains or strains.) Using this classification, subjects were categorized as Physical Injuries with other illnesses, as Physical Injuries Only, and as All Physical Injuries (i.e. any subject who had a physical injury).

It was also noted that a few subjects had visited the clinic with the sole complaint of flat feet, which did not seem to fall under any clear-cut classification of either Organic Illness or Physical Injuries. These subjects who had visited the clinic solely for treatment of flat feet were classified into a new category, Structural Defects, and eliminated from the comparisons of the Sick Groups vs. the Healthy (Zero Visits) Group. This elimination was an attempt to eliminate the variable of chronic congenital defects as a possible complicating factor in the comparisons of the Sick Groups with the Healthy Group. The Zero Visits Group is therefore assumed to consist of subjects without chronic congenital defects which necessitate medical treatment. However, the subjects with Structural Defects Only (flat feet) were included in the Non-Hospitalized

Group for one comparison, the Hospitalized vs. the Non-Hospitalized Group. The rationale for their inclusion was that the important differentiating factor being tested in this comparison was the hospitalization factor, i.e. whether the subject had or had never been hospitalized for that school year.

Test Score Section

The test score portion of the data card for each student was a record of ten General Opinion Survey (GOS) scores, the cumulative grade point average (GPA) for the school year 1959-60, and four College Qualification Test (CQT Verbal, CQT Information, CQT Numerical and CQT Total) scores.

Each card was identified by the student's name and identification number and was checked against the student directory to eliminate those who lived off-campus, were married, or were non-freshmen or foreign students. After Dr. Feurig filled out the cards, the students' names were removed from the cards and only identification numbers were used to locate subjects.

The test score portion of the data card looked like this:

GOS: ____ ____ ____ ____ ____ ____ ____ ____ ____ ____
GPA ____
CQT V ____ CAT I ____ CQT N ____ CQT T ____

The investigator obtained the GOS test scores from the subject's test paper which was computed by the IBM machine, and the GPA and CQT scores from the MSU Office of Evaluation Services. The information on the data card was then coded and put into IBM card form and programmed for the MISTIC computer.

Each of the Sick Groups were compared with the Zero Visits Group on the GOS, GPA and CQT scores, by the t-test.

Group Comparisons

The following Sick Groups were compared with the controls, the Healthy Zero Visits Group:

1. (3 + Clinic Visits) vs. (Zero Visits)
2. (Chronic Organic) vs. (Zero Visits)
3. (Non-Chronic Organics) vs. (Zero Visits)
4. (All Organics) vs. (Zero Visits)
5. (Physical Injuries with Other Illnesses) vs. (Zero Visits)
6. (Physical Injuries Only) vs. (Zero Visits)
7. (All Physical Injuries) vs. (Zero Visits)
8. (Hospitalized) vs. (Zero Visits)
9. (Hospitalized) vs. (Non-Hospitalized)

Within each group, the sexes were compared separately, and then combined. (The Ns will be found in the Results chapter, and in the Appendix.)

Eliminations from Group Comparisons

Subjects with a diagnosis of Structural Defect Only (S.D. Only) and subjects with Physical Injuries Only were eliminated from certain group comparisons because they did not seem to fall clearly into the two main categories of Sick and Healthy Groups.

Subjects were classified as Structural Defect Only when they were diagnosed as having the congenital defect of flat feet, and were eliminated in the comparison of the Sick Groups with the Zero Visits Group in order that the Sick Groups would consist of people who were ill from infections, viruses, etc. and not chronic congenital defects.

Subjects with Physical Injuries Only (PI Only) were eliminated in the comparison of the Sick Groups with the Zero Visits Group (PI Only were used in three comparisons) also for the same reason, so that the variable of accident proneness (Physical Injuries) would not complicate the interpretation of the comparison.

Subjects with a diagnosis of Psychosomatic illness were originally to be compared with the Zero Visits Group but were eliminated from comparisons one to eight because there were too few (four females, two males) for a valid statistical analysis.

The General Opinion Survey Scales

The Ten GOS Scales

The GOS has the following ten scales:

1. Anxiety and Self-Concept Scale (24 items)
2. Social Understanding Scale (16 items)
3. Punitiveness Scale (18 items)
4. Child Status Scale (13 items)
5. Theoretical-Philosophical Scale (22 items)
6. Concept of Learning Scale (14 items)
7. Feeling Orientation Scale (10 items)
8. Breadth of Interest Scale (10 items)
9. Total Scale: Degree of personality integration (135 items)
10. Negativism-Acquiescence Scale (135 items)

Background of the GOS

The General Opinion Survey (GOS) is a questionnaire that attempts to get at the individual's self-image and

how he feels about others, through opinions on various topics. The GOS was "designed with intent to measure general integration of personality through responses indicating opinions that are quite heavily attitudinal. A person is conceived of as a system of systems within more extensive physio-bio-social systems. Integration is the degree of consistency of functions or relationships within and between these systems. Personality integration is conceived of as having specificity in terms of narrowness of response area and breadth in terms of number of areas and scope of areas; it is conceived of as having generality or depth in terms of level of consistency implied by responses within and between areas and/or systems" (Sundwall: 1960).

The GOS has been nine years in development. The GOS scales have been correlated with Rorschachs, ratings on students by teachers, the Minnesota Teacher Attitude Inventory, and Rokeach's Dogmatism Scale.

The GOS consists of 135 items which fall into two main types of items, the Personal-intra-personal type of item and the Personal-inter-personal type of item. The Personal-intra-personal or self-reference type of item

tries to get at how the person perceives and reacts to the situation; the Personal-inter-personal type of item tries to get at how the person thinks other people react to others.

Rationale behind GOS Items

It is assumed that subjects who respond with socially desirable responses to the self-reference type of item (the "I" - items) are unable to give consistently socially desirable responses to the other-item type of question (items referring to others).

Definition of General Integrative Behavior

General integrative behavior refers to the breadth and depth of the personality and is defined here as the GOS Total Integration score. If an individual has a low GOS Total score, he is assumed to be integrative in a narrow area. If an individual has a high GOS Total score, he is assumed to be integrative in a wide area.

Limitations of the GOS

The GOS has the usual handicaps of the paper-and-pencil questionnaire. One of the main assumptions of paper-and-pencil tests is that the person should be favorably motivated

to cooperate and not mark the items in a hit-or-miss fashion or with a cynical poking-fun attitude.

Other limitations are the subject's response set, the desire to maintain a facade of social desirability, non-anonymity, different interpretations of words and varied interpretations of the meaning of the test item, the subject's perception of the situation and the reaction to the person administering the test.

The response set of the individual to the GOS is a variable that differs from person to person and contributes to the variation in testing conditions. The GOS has attempted to communicate the test instructions clearly and specifically on the cover page, and thus attempts to reduce the individual differences in response sets. The subject's response set includes his general attitude towards all questionnaires, which may range from a mild feeling of neutrality to a violent prejudice against tests which "violate his privacy." The response set also includes the tendency to answer "true" rather than "false" when not sure about an item (: 63). In the case of the GOS, this tendency to answer "true" rather than "false" is overlaid with the tendency of the subject to agree with socially desirable items.

The GOS attempts to overcome this tendency to respond in line with what is socially desirable by having "self-item" ("I" items) types of questions and "other-item" types of questions (items referring to others), and by mixed wordings of the items by using "I" and "You" and general-viewpoint statements. Sample of the "I" type of item: "I often regret things I have done" (item 6). Sample of a "You" item: "If you cannot recall something, it really isn't learned" (item 82). A general-viewpoint item: "All facts are useful" (item 1).

The non-anonymity may contribute more to the already present tendency to respond in a socially desirable manner to items in which they are especially strongly ego-involved, especially with the test being administered by an authority figure, but non-anonymity probably has eliminated deliberate falsification or exaggeration of responses.

Description of the GOS Scales

There are nine GOS scales which were designed to indicate the individual's degree of personality integration. The higher scores on GOS Scales 1 to 9 indicate a high degree of integration of personality, and the lower scores indicate a low degree of integration of personality or a

low degree of consistency of general values.

GOS Anxiety Scale 1

This scale was intended "to measure the individual's degree of anxiety and involves both covert and overt manifestations of anxiety. It was originally designed to sample an area of responses with direct self-reference for the purpose of obtaining an indication in this general area of degree of integration in personality. When it was found that general responses in this area differed in direction to quite an extent, with responses in areas without direct self-reference, the scale was examined for possible meaning. The direct personal reference appears to add emotional content to the response and the situations or conditions which formed the substance of the statements which are for the most part those that would involve anxiety. In comparing these statements with Taylor's Anxiety Scale and other similar scales, the GOS Anxiety Scale was found to be quite similar" (Sundwall).

The anxiety scale was designed "to indicate the individual's degree of anxiety. It involves both covert and overt manifestations of anxiety" (Sundwall). Sample items:

"I often regret things I have done."

"I would like to be more important than I am."

"I find life very boring at times."

GOS Social Scale 2

This scale was intended "to indicate the individual's degree of understanding of interpersonal relations. This is not a measure of empathy, but rather one of the individual's ability to assess social situations objectively" (Sundwall). Sample items:

"People of one race should feel free to marry people of another race."

"No one could be happy in some occupations."

"Too many foreigners are coming into this country."

GOS 3: Punitive Scale

This scale was designed "to indicate the individual's orientation toward extrinsic motives. It identifies the individual who sees punishment as having greater value than non-punishment in the solution of problems" (Sundwall). Sample items:

"A person who tells a lie should be punished."

"Ignoring people is a bad way to show disapproval."

"Extra work is a good form of punishment."

GOS 4: Child Status Scale

This scale was designed "to measure the individual's attitude toward inferior groups, or groups generally accepted as inferior. Children comprise the group referred to as inferior since it was assumed they would be most generally regarded as inferior. In this case, members of the 'in-group' regard themselves as inferior" (Sundwall). Sample items:

"Young children should feel free to talk about sex."

"Adults can learn as much talking to children as they can talking to other adults."

"Nothing a child does is nonsense."

GOS 5: Theoretical-Philosophical Scale

This scale was designed "to sample the individual's general philosophical ideas for an indication of his consistency in general philosophical thinking" (Sundwall). Sample items:

"Everyone is creative."

"A democratic leader is more efficient than a dictator."

"All people should be trusted."

GOS 6: Learning Scale

This scale was designed "to indicate the depth and breadth of the individual's concept of learning. It involves the recognition of various levels of awareness and control. The individual low on this scale sees only the highly conscious learning in relation to voluntary control in behavior" (Sundwall).

"It is not important to know who starts a fight."

"We lose faith in others when they do something wrong."

"Everyone wants to improve."

GOS 7: Feeling Orientation Scale

This scale was intended "to indicate the degree of recognition of the importance of the role of feeling in learning and directing behavior. Individuals high in this scale perceive feeling as valid in indicating appropriateness of response" (Sundwall). Sample items:

"Anger if hidden causes less harm."

"We must constantly struggle with ourselves in order to be good."

"We learn most from misfortunes."

GOS 8: Interest Scale

This scale was intended "to measure the generality of breadth of interests of the individual" (Sundwall). Sample items:

"I like to talk to foreigners."

"I am interested in science."

"I like neighbors who borrow things."

Other topics covered include abstract art and education.

GOS 9: Total Scale

This scale was the summation of Scales 1 to 8. The Total scale was designed "to indicate the degree of personality integration and consistency of general values of the individual" (Sundwall). Sample items:

"It takes 'pull' to become successful."

"Business does not control community life."

"One's 'in-laws' should in all cases live by themselves."

GOS 10: Negativism-Acquiescence Scale

This scale was constructed "to indicate the degree of negativism or, at the opposite pole, the degree of acquiescence manifested in the process of responding to the statements in the GOS. It indicates the response set or tendency of the individual to respond in agreement as ("true") or in

disagreement ("false") while reacting to the issues of the inventory. A large number of disagreement responses indicates a high degree of negativism and a low degree of acquiescence. A large number of agreement responses indicates a high degree of acquiescence and a low degree of negativism. It is assumed that individuals showing a high degree of personality integration would score average (68-70) on this scale.

Chapter IV

Results

The subjects for each of the Sick groups were sorted by the IBM sorter-machine. Each of the Sick groups was compared with the Healthy Groups on their GOS scores, GPA and CQT scores by the t-test. The t's, means and standard deviations for each group are to be found in the appendix.

The t's, means and standard deviations were all computed on MISTIC. The results listed below are the t's which were significant for all comparisons.

Group Comparisons

The Sick Groups were compared with the Healthy Groups by t-tests on the following fifteen variables:

1. GOS Anxiety Scale
2. GOS Social Scale
3. GOS Punitive Scale
4. GOS Child Status Scale
5. GOS Theoretical-Philosophical Scale
6. GOS Learning Scale
7. GOS Feeling Orientation Scale
8. GOS Interest Scale

9. GOS Total Scale
10. GOS Negativism-Acquiescence Scale
11. GPA (Grade Point Average)
12. CQT (College Qualification Test) Verbal score
13. CQT Information score
14. CQT Numerical score
15. CQT Total score

It was hypothesized that the means of the Sick Groups would be significantly lower than the means of the Healthy Groups on the fifteen variables listed above.

Group Comparisons

I. (3 + Clinic Visits) vs. (Zero Visits)
   1. 30 M 3 + Clinic Visits vs. 32 M Zero Visits
   2. 23 F 3 + Clinic Visits vs. 34 F Zero Visits
   3. 53 M & F 3 + Clinic Visits vs. 66 M & F Zero Visits

II. (Chronic Organic) vs. (Zero Visits)
   4. 16 M Chronic Organic vs. 32 M Zero Visits
   5. 3 F Chronic Organic vs. 34 F Zero Visits
   6. 19 M & F Chronic Organic vs. 66 M & F Zero Visits

III. (Non-Chronic Organic) vs. (Zero Visits)

M, F: Male, Female

7. 45 M Non-Chronic Organics vs. 32 M Zero Visits

8. 59 F Non-Chronic Organics vs. 34 F Zero Visits

9. 104 M & F Non-Chronic Organics vs. 66 M & F Visits

IV. (All Organics) vs. (Zero Visits)

10. 61 M All Organics vs. 32 M Zero Visits

11. 62 F All Organics vs. 34 F Zero Visits

12. 123 M & F All Organics vs. 66 M & F Zero Visits

V. (Physical Injuries with Other Illnesses or PI with O.I.) vs. (Zero Visits)

13. 21 M PI with O.I. vs. 32 M Zero Visits

14. 12 F PI with O.I. vs. 34 F Zero Visits

15. 33 M & F PI with O.I. vs. 66 M & F Zero Visits

VI. (Physical Injuries Only) vs. (Zero Visits)

16. 11 M PI Only vs. 32 M Zero Visits

17. 5 F PI Only vs. 34 F Zero Visits

18. 16 M & F PI Only vs. 66 M & F Zero Visits

VII. (All Physical Injuries) vs. (Zero Visits)

19. 32 M All Physical Injuries vs. 32 M Zero Visits

20. 17 F All Physical Injuries vs. 34 F Zero Visits

21. 49 M & F All PI vs. 66 M & F Zero Visits

VIII. (Hospitalized) vs. (Zero Visits)

22. 16 M Hospitalized vs. 32 M Zero Visits

23. 14 F Hospitalized vs. 34 F Zero Visits

24. 30 M & F Hospitalized vs. 66 M & F Zero Visits

IX. (Hospitalized) vs. (Non-Hospitalized)

25. 16 M Hospitalized vs. 88 M Non-Hospitalized

26. 14 F Hospitalized vs. 86 F Non-Hospitalized

27. 30 M & F Hospitalized vs. 174 M & F Non-Hospitalized

The following results, tables 1 to 9, list the t-tests which were significant for all 27 group comparisons on the 15 variables. Tables 1 to 9 list the t-tests according to the groups compared, and tables 10 to 24 list the same significant t-tests according to the variables tested (for quick reference).

The minus signs in front of the t-tests indicate that the mean of the Sick Group was lower than the mean of the Healthy Group. The t-tests without a sign indicate that the mean of the Sick Group was higher than the mean of the Healthy Group.

Table 1

3 + Clinic Visits vs. Zero Visits

30 M 3 - Clinic Visits vs. 32 M Zero Visits:

Variable	t	p
GOS Social Scale	-2.83	.01

23 F 3 + Clinic Visits vs. 34 F Zero Visits:

Variable	t	p
GOS Learning Scale	3.22	.01

53 M & F 3 + Clinic Visits vs. 66 M & F Zero Visits:

There were no significant differences between the total groups for all comparisons.

Table 2

Chronic Organic vs. Zero Visits

16 Chronic Organic M vs. 32 M Zero Visits:

There were no significant differences between the male groups on the various comparisons.

3 F Chronic Organic vs. 34 F Zero Visits:

Variable	t	p
GOS Social Scale	2.85	.01
GOS Learning Scale	6.49	.001
GOS Interest Scale	-2.36	.05
GPA	-2.37	.05

19 M & F Chronic Organics vs. 66 M & F Zero Visits:

Variable	t	p
GOS Anxiety Scale	-2.76	.01
GOS Social Scale	-2.40	.05
GOS Theoretical-Philosophical	-2.83	.01
GOS Interest Scale	-4.33	.001
GOS Total Scale	-3.56	.001
CQT Verbal score	2.15	.05
CQT Information score	3.39	.01
CQT Numerical score	3.46	.001
CQT Total score	3.87	.001

Table 3

Non-Chronic Organics vs. Zero Visits

45 M Non-Chronic Organics vs. 32 M Zero Visits:

Variable	t	p
GOS Social Scale	-2.61	.05
GOS Child Status Scale	-2.00	.05

59 F Non-Chronic Organics vs. 34 F Zero Visits:

Variable	t	p
CQT Verbal score	2.48	.05

104 M & F Non-Chronic Organics vs. 66 M & F Zero Visits:

There were no significant differences on all comparisons.

Table 4

All Organics vs. Zero Visits

61 M All Organics vs. 32 M Zero Visits:

Variable	t	p
GOS Anxiety Scale	-2.22	.05
GOS Social Scale	-2.86	.01
GOS Total Scale	-2.21	.05

62 F All Organics vs. 34 F Zero Visits:

CQT Verbal score	2.43	.05

123 M & F All Organics vs. 66 M & F Zero Visits:

There were no significant differences on any comparison made, between the total groups.

Table 5

Physical Injuries with Other Illnesses vs. Zero Visits

21 M PI with 0. Illnesses vs. 32 M Zero Visits:

Variable	t	p
GOS Social Scale	-2.19	.05

12 F PI with 0. Illnesses vs. 34 F Zero Visits:

Variable	t	p
GOS Learning Scale	2.32	.05

23 M & F PI with 0. Illnesses vs. 66 M & F Zero Visits:

There were no significant differences on all comparisons.

Table 6

Physical Injuries Only vs. Zero Visits

11 M PI Only vs. 32 M Zero Visits:

There were no significant differences between the male groups on the various comparisons.

5 F PI Only vs. 34 F Zero Visits:

Variable	t	p
GOS Social Scale	4.06	.001
GOS Learning Scale	3.92	.001
GPA (Grade Point Average)	2.64	.05

16 M & F PI Only vs. 66 M & F Zero Visits:

Variable	t	p
Gos Child Status	-2.70	.01

Table 7

All Physical Injuries vs. Zero Visits

32 M All Physical Injuries vs. 32 M Zero Visits:

Variable	t	p
GOS Social Scale	-2.45	.05

17 F All Physical Injuries vs. 34 F Zero Visits:

Variable	t	p
GOS Social Scale	2.07	.05
GOS Learning Scale	3.02	.01

Table 6

Physical Injuries Only vs. Zero Visits

11 M PI Only vs. 32 M Zero Visits:

There were no significant differences between the male groups on the various comparisons.

5 F PI Only vs. 34 F Zero Visits:

Variable	t	p
GOS Social Scale	4.06	.001
GOS Learning Scale	3.92	.001
GPA (Grade Point Average)	2.64	.05

16 M & F PI Only vs. 66 M & F Zero Visits:

Variable	t	p
Gos Child Status	-2.70	.01

Table 7

All Physical Injuries vs. Zero Visits

32 M All Physical Injuries vs. 32 M Zero Visits:

Variable	t	p
GOS Social Scale	-2.45	.05

17 F All Physical Injuries vs. 34 F Zero Visits:

Variable	t	p
GOS Social Scale	2.07	.05
GOS Learning Scale	3.02	.01

49 M & F All Physical Injuries vs. 66 M & F Zero Visits:

There were no significant differences between the total groups with the sexes combined, on any comparison.

Table 8

Hospitalized vs. Zero Visits

16 M Hospitalized vs. 32 M Zero Visits:

Variable	t	p
GOS Social Scale	-2.91	.01

14 F Hospitalized vs. 34 F Zero Visits:

Variable	t	p
GOS Child Status Scale	2.87	.01
GOS Learning Scale	2.76	.01

30 M & F Hospitalized vs. 66 M & F Zero Visits:

Variable	t	p
GOS Social Scale	-2.25	.05

Table 9

Hospitalized vs. Non-Hospitalized

16 M Hospitalized vs. 88 M Non-Hospitalized

There were significant differences between the males on any comparison.

14 F Hospitalized vs. 86 F Non-Hospitalized:

Variable	t	p
GOS Social Scale	-2.39	.05
GOS Learning Scale	2.44	.05

30 M & F Hospitalized vs. 174 M & F Non-Hospitalized:

Variable	t	p
GOS Anxiety Scale	-20.42	.001
GOS Social Scale	-3.67	.001

The succeeding tables (10 to 24) list the same significant differences for the same groups, according to the fifteen variables tested.

The following tables, 10 to 24, list the significant t-tests for the same nine group comparisons (a total of 27 sub-group comparisons), according to the fifteen variables tested.

Table 10

GOS Anxiety Scale

Groups	t	p
19 M & F Chronic Organic vs. 66 M & F Zero Visits	-2.76	.01
61 M All Organic vs. 32 M Zero Visits	-2.22	.05
30 M & F Hospitalized vs. 174 M & F Non-Hospitalized	-20.42	.001

Table 11

GOS Social Scale

Groups	t	p
30 M 3 + Clinic Visits vs. 32 M Zero Visits	-2.83	.01
3 F Chronic Organic vs. 34 F Zero Visits	2.85	.01
19 M & F Chronic Organic vs. 66 M & F Zero Visits	-2.40	.05
45 M Non-Chronic Organics vs. 32 M Zero Visits	-2.61	.05
61 M All Organics vs. 32 M Zero Visits	-2.86	.01
21 M Physical Injuries with Other Illnesses vs. 32 M Zero Visits	-2.19	.05
5 F Physical Injuries Only vs. 34 F Zero Visits	4.06	.001
32 M All Physical Injuries vs. 32 M Zero Visits	-2.45	.05
17 F All Physical Injuries vs. 34 F Zero Visits	2.07	.05
16 M Hospitalized vs. 32 M Zero Visits	-2.91	.01
30 M & F Hospitalized vs. 66 M & F Zero Visits	-2.25	.05
16 M Hospitalized vs. 88 M Non-Hospitalized	-2.39	.05
30 M & F Hospitalized vs. 174 M & F Non-Hospitalized	-3.67	.001

No other differences on the GOS Social Scale in the comparison of the sick groups with the healthy groups were statistically significant.

Table 12

GOS Punitive Scale

There were no statistically significant differences for all groups on the GOS Punitive Scale.

Table 13

GOS Child Status Scale

Group	t	p
45 M Chronic Organic vs. 32 M Zero Visits	-2.00	.05
16 M & F PI Only vs. 66 M & F Zero Visits	-2.70	.01
14 F Hospitalized vs. 34 F Zero Visits	2.87	.01
14 F Hospitalized vs. 86 F Non-Hospitalized	4.14	.001

No other differences on the GOS Child Status Scale were statistically significant.

Table 14

GOS Theoretical-Philosophical Scale

Group	t	p
19 M & F Chronic Organic vs. 66 M & F Zero Visits Visits	-2.83	.01

No other differences on the GOS Theoretical-Philosophical Scale were statistically significant.

Table 15

GOS Learning Scale

Group	t	p
23 F 3+ Clinic Visits vs. 34 F Zero Visits	3.22	.01
3 F Chronic Organic vs. 34 F Zero Visits	6.49	.001
12 F PI with Other Illnesses vs. 34 F Zero Visits	2.32	.05
5 F PI Only vs. 34 F Zero Visits	3.92	.001
17 F PI All vs. 34 F Zero Visits	3.02	.01
14 F Hospitalized vs. 34 F Zero Visits	2.76	.01
14 F Hospitalized vs. 86 F Non-Hospitalized	2.44	.05

Table 16

GOS Feeling Orientation Scale

There were no significant differences on the GOS Feeling Orientation Scale between the Sick Groups and the Healthy Groups.

Table 17

GOS Interest Scale

Group	t	p
3 F Chronic Organic vs. 34 F Zero Visits	-2.36	.05
19 M & F Chronic Organic vs. 66 M & F Zero Visits	-4.33	.001

Table 18

GOS Total Scale

Group	t	p
19 M & F Chronic Organic vs. 66 M & F Zero Visits	-3.56	.001
61 M All Organics vs. 32 M Zero Visits	-2.21	.01

Table 19

GOS Negativism-Acquiescence Scale

There were no significant differences on the GOS Negativism-Acquiescence Scale between the Sick Groups and the Healthy Groups.

Table 20

Grade Point Average (GPA)

Group	t	p
3 F Chronic Organic vs. 34 F Zero Visits	-2.37	.01
5 F Physical Injury Only vs. 34 F Zero Visits	2.64	.05

Table 21

CQT Verbal Score

Group	t	p
19 M & F Chronic Organic vs. 66 M & F Zero Visits	2.14	.05

59 F Non-Chronic Organics vs. 34 F Zero Visits	2.47	.05
62 F All Organics vs. 34 F Zero Visits	2.43	.05

Table 22

CQT Information Score

Group	t	p
19 M & F Chronic Organic vs. 66 M&F Zero Visits	3.39	.01

Table 23

CQT Numerical Score

Group	t	p
19 M & F Chronic Organic vs. 66 M&F Zero Visits	3.46	.001

Table 24

CQT Total Score

Group	t	p
19 M & F Chronic Organic vs. 66 M&F Zero Visits	3.87	.001

No other differences on the CQT scores in the comparison of the Sick Groups with the Healthy Groups were statistically significant.

Chapter V

Discussion of Results and Conclusions

Procedure

The t-tests of the GOS scores, GPA (Grade Point Average), and CQT (College Qualification Test) scores of the Sick Groups vs. the Healthy Groups were computed.

It was hypothesized that the means of the Sick Groups would be significantly lower than the means of the Healthy Groups.

The t-tests of the following Sick Groups and the Healthy Groups were made:

1. 3 + Clinic Visits vs. Zero Visits
2. Chronic Organic vs. Zero Visits
3. Non-Chronic Organics vs. Zero Visits
4. All Organics vs. Zero Visits
5. Physical Injuries with Other Illnesses vs. Zero Visits
6. Physical Injuries Only vs. Zero Visits
7. All Physical Injuries vs. Zero Visits
8. Hospitalized vs. Zero Visits
9. Hospitalized vs. Non-Hospitalized

Each of the Sick Groups was compared with the control group (Zero Visits) on the following fifteen variables:

1. GOS Anxiety Scale
2. GOS Social Scale
3. GOS Punitive Scale
4. GOS Child Status Scale
5. GOS Theoretical-Philosophical Scale
6. GOS Learning Scale
7. GOS Feeling Orientation Scale
8. GOS Interest Scale
9. GOS Total Scale (total of GOS 1 to 8)
10. GOS Negativism-Acquiescence Scale
11. GPA (Grade Point Average)
12. CQT (College Qualification Test) Verbal score
13. CQT Information score
14. CQT Numerical score
15. CQT Total score

It was hypothesized that the GOS, GPA and CQT means of the Sick Groups would be significantly lower than the GOS, GPA and CQT means of the Healthy groups.

Discussion of Results

Table 1

(3 + Clinic Visits) vs. (Zero Visits)

The mean of the Male 3 + Visits Group on the GOS Social Scale was significantly lower (.01 level) than the mean of the Male Zero Visits Group. It appears that male subjects who had never visited the clinic and were therefore adjudged healthy, had a higher degree of social understanding than male subjects who had visited the clinic three or more times. (This finding was in line with the hypothesis.)

There were no other significant differences on any of the other fourteen variables between the Male 3 + Clinic Visits Group and the Male Zero Visits Group.

The GOS Learning Scale mean of the Female 3 + Clinic Visits Group was significantly higher (.01 level) than the GOS Learning Scale mean of the Female Zero Visits Group. It appears that female subjects who had visited the clinic three or more times had a broader concept of learning and a greater degree of recognition of the effects of subconscious learning than female subjects who had never visited the clinic. There were no other significant differences on any of the other fourteen variables.

There were no significant differences between the Male and Female 3 + Visits Group and the Male and Female Zero Visits Group. It is interesting to note that, contrary to the hypothesis, the GPA for the Male and Female 3 + Visits Group and the Male and Female Zero Visits Group was the same (2.15).

Table 2

Chronic Organic vs. Zero Visits

There were no significant differences between the Male Chronic Organic Group and the Male Zero Visits Group on all comparisons.

There was a significant difference (.01 level) between the GOS Social Scale mean of the Female Chronic Organics and the GOS Social Scale mean of the Female Zero Visits, in which the mean of the Female Chronic Organics was significantly higher (.01 level) than the mean of the Female Zero Visits. It appears that female subjects who were chronically ill had a higher degree of social understanding, a greater objectivity in perception of social interrelationships than female subjects who had never visited the clinic. This finding was contrary to the hypothesis.

The GOS Learning Scale mean of the Female Chronic Organic Group was significantly higher (.001 level) than the GOS Learning Scale mean of the Female Zero Visits Group. It appears that female subjects who were chronically ill had a broader concept of learning which included a higher degree of recognition of the effects of subconscious and involuntary learning than the female subjects who had never visited the clinic. This finding was contrary to the hypothesis.

The GOS Interest mean of the Female Chronic Organic Group was significantly lower (.05 level) than the GOS Interest mean of the Female Zero Visits Group. It appears that female subjects who had never visited the clinic had a wider scope of interests than female subjects who were chronically ill. This finding was in the expected direction.

The GPA mean of the Female Chronic Organic Group was significantly lower (.05 level) than the GPA mean of the Female Zero Visits Group. It appears that chronic illness affected the grade point averages of female subjects who were chronically ill. This was in line with the hypothesis.

The GOS Anxiety Scale mean of the Male and Female Chronic Organic Group was significantly lower (.01 level) than the GOS Anxiety Scale mean of the Male and Female Zero

Visits Group. It appears that male and female subjects who were chronically ill had a greater amount of anxiety than male and female subjects who had never visited the clinic. (A high score on the GOS Anxiety Scale is an indication of low anxiety; a low score, high anxiety.) This was in line with the hypothesis.

The GOS Social Scale mean of the Male and Female Chronic Organic Group was significantly lower (.05 level) than the GOS Social mean of the Male and Female Zero Visits Group. It appears that male and female subjects who had never visited the clinic had a higher degree of social understanding than males and females who were chronically ill, as hypothesized.

The GOS Theoretical-Philosophical mean of the Male and Female Chronic Organic Group was significantly lower (.01 level) than the Male and Female Zero Visits Group. It appears that male and female subjects who had never visited the clinic had a higher degree of development in general philosophical ideas than males and females who were chronically ill, as hypothesized.

The GOS Interest Scale mean of the Male and Female Chronic Organic Groups was significantly lower (.001 level)

than the GOS Interest Scale mean of the Male and Female Zero Visits Group. It appears that male and female subjects who had never visited the clinic had a wider scope of interests than male and female subjects who were chronically ill.

The GOS Total Scale mean of the Male and Female Chronic Organic Group was significantly lower (.001 level) than the GOS Total Scale mean of the Male and Female Zero Visits Group. It appears that male and female subjects who had never visited the clinic had a higher degree of personality integration and consistency of general values than male and female subjects who had been chronically ill.

The CQT Verbal mean score of the Male and Female Chronic Organic Group was significantly higher (.05 level) than the CQT Verbal mean score of Male and Female Zero Visits Group. It appears that male and female subjects who had been chronically ill had more ability in verbal fluency than male and female subjects who had never visited the clinic.

The CQT Information mean score of the Male and Female Chronic Organic Group was significantly higher (.01 level) than the CQT Information mean score of the Male and Female Zero Visits Group. It appears that male and female subjects

who had been chronically ill had acquired more information than male and female subjects who had never visited the clinic.

The CQT Numerical mean score of the Male and Female Chronic Organic Group was significantly higher (.001 level) than the CQT Numerical mean score of the Male and Female Zero Visits Group. It appears that male and female subjects who had been chronically ill had a higher degree of conceptual skill in simple mathematics than male and female subjects who had never been to the clinic.

The CQT Total mean score of the Male and Female Chronic Organic Group was significantly higher (.001 level) than the CQT Numerical mean score of the Male and Female Zero Visits Group. It appears that male and female subjects who had been chronically ill had a higher degree of retention and comprehension of vocabulary items, general information items, numerical items as tested by the achievement test CQT Total Scale, than male and female subjects who had never visited the clinic.

It should be noted that the preceding four findings on the CQT (College Qualification Test) were unexpected findings, all of which were in the direction contrary to the

hypothesis. In each case, the chronically ill subjects scored significantly higher on all the CQT scales when the males and females were compared together as one group. It would appear that the chronically ill subjects were better read or were more compulsive students than the male and female subjects who had never visited the clinic. However it is also interesting to note that when males were compared with males only, there were no significant differences on any CQT comparison.

Table 3

Non-Chronic Organics vs. Zero Visits

The GOS Social Scale mean of the Non-Chronic Organic Males was significantly lower (.05 level) than the GOS Social Scale mean of the Male Zero Visits. It appears that male subjects who were not chronically ill had a lesser degree of social understanding than male subjects who had never visited the clinic. This finding was in line with the prediction.

The GOS Child Status Scale mean of the Non-Chronic Organic Males was significantly lower (.05 level) than the GOS Child Status Scale mean of the Male Zero Visits. It

appears that male subjects who had never visited the clinic had a more positive regard for the abilities of children than male subjects who were not chronically ill (i.e. occasionally ill).

The CQT Verbal mean score of the Female Non-Chronic Organic Group was significantly higher (.05 level) than the CQT Verbal mean score of the Female Zero Visits Group. It appears that female subjects who had been occasionally ill had a wider command of the English language and a better chance at succeeding in college in subjects requiring verbal fluency than female subjects who had never visited the clinic.

There were no significant differences between the Male and Female Non-Chronic Organic and the Male and Female Zero Visits Groups on all comparisons.

Table 4

All Organics vs. Zero Visits

The GOS Anxiety Scale mean of the Male All Organic Group was significantly lower (.05 level) than the GOS Anxiety Scale mean of the Male Zero Visits Group. It appears that male subjects who were occasionally ill and male subjects who were chronically ill had a greater amount of

anxiety than male subjects who had never visited the clinic. This was in line with the prediction.

The GOS Social Scale mean of the Male All Organic Group was significantly lower (.01 level) than the Male Zero Visits Group. It appears that male subjects who were occasionally and chronically ill had a lesser degree of social understanding on the GOS Social Scale than male subjects who had never visited the clinic. This was in line with the prediction.

The GOS Total Scale of the Male All Organic Group was significantly lower (.05 level) than the Male Zero Visits Group. It appears that male subjects who were occasionally and chronically ill had a lesser degree of personality integration and consistency of general values than male subjects who had never visited the clinic, as expected.

The CQT Verbal mean of the Female All Organic Group was significantly higher (.05 level) than the CQT Verbal mean of the Female Zero Visits Group. It appears that female subjects who had been occasionally and chronically ill had a better chance at succeeding at subjects requiring verbal fluency than female subjects who had never visited the clinic. This finding was contrary to the hypothesis.

There was no significant differences between the total groups on all comparisons.

Table 5

Physical Injuries with Other Illnesses vs. Zero Visits

The GOS Social Scale mean of Male Physical Injuries with Other Illnesses Group was significantly lower (.05 level) than the Male Zero Visits Group. It appears that the male subjects who had an organic illness plus a physical injury had a lesser degree of social understanding than male subjects who had never visited the clinic. This was in line with the hypothesis.

The GOS Learning Scale mean of Female PI with O.I. Group was significantly higher (.05 level) than the GOS Learning Scale mean of the Female Zero Visits Group. It appears that female subjects who had an organic illness plus a physical injury had a broader concept of learning and a higher degree of recognition of the effects of subconscious learning than female subjects who nad never visited the clinic. This finding was contrary to the hypothesis.

There was no significant differences between the Male and Female PI with Other Illnesses Group and the Male and Female Zero Visits Group on any comparison.

Table 6

Physical Injuries Only vs. Zero Visits

There were no significant differences between the Male PI Only and the Male Zero Visits Groups on any comparison.

The GOS Social Scale mean of the Female PI Only was significantly (.001 level) higher than the GOS Social Scale mean of the Female Zero Visits Group. It appears that female subjects who had visited the clinic solely for treatment of physical injuries had a higher degree of social understanding than female subjects who had never visited the clinic. This was a finding contrary to the hypothesis.

The GPA (Grade Point Average) mean of the Female PI Only Group was significantly higher (.05 level) than the GPA mean of the Female Zero Visits Group. It appears that female subjects who had visited the clinic solely for treatment of physical injuries were more compulsive or conscientious students than female subjects who had never visited the clinic. This finding was contrary to the hypothesis.

The GOS Child Status Scale mean of the Male and Female PI Only Group was significantly lower (.01 level) than the GOS Child Status mean of the Male and Female Zero Visits Group. It appears that male and female subjects who had

visited the clinic solely for treatment of physical injuries had a lesser degree of the recognition of the importance of children than the male and female subjects who had never visited the clinic. This finding was in line with the prediction. The point of having the PI Only group was in order to test the variable of accident-proneness as a possible differentiating factor between the groups, but accident proneness did not differentiate on any variable between the males, and only differentiated on two GOS scales and the Grade Point Average between the females, and on only one GOS scale between the total groups when the sexes were combined.

Table 7

All Physical Injuries vs. Zero Visits

The GOS Social Scale mean of the Male All Physical Injuries Group was significantly lower (.05 level) than the GOS Social Scale mean of the Male Zero Visits Group. It appears that male subjects who had never visited the clinic had greater social understanding than male subjects who had visited the clinic for treatment of an organic illness plus a physical injury or for a physical injury alone. This was in line with the prediction.

The GOS Social Scale mean of the Female All Physical Injury Group was significantly higher (.05 level) than the GOS Social Scale mean of the Female Zero Visits Group, in contrast to the Male PI All Group. It appears that female subjects who had never visited the clinic had lesser social understanding than female subjects who had visited the clinic for treatment of an organic illness plus a physical injury or for a physical injury alone. This finding was in the direction opposite to that predicted.

The GOS Learning Scale mean of the Female All Physical Injury Group was significantly higher (.01 level) than the GOS Learning Scale mean of the Female Zero Visits Group. It appears that female subjects who had never visited the clinic had a narrower concept of learning and a lower degree of recognition of the effects of subconscious learning than female subjects who had visited the clinic for treatment of an organic illness plus a physical injury or for a physical injury alone. This finding was in the direction opposite to that hypothesized.

There were no significant differences between the Male and Female All Physical Injuries and the Male and Female Zero Visits on all comparisons.

Table 8

The GOS Social Scale mean of the Male Hospitalized Group was significantly lower (.01 level) than the GOS Social Scale mean of the Male Zero Visits Group. It appears that male subjects who had been hospitalized had a lesser degree of social understanding than male subjects who had never visited the clinic, as expected.

The GOS Child Status Scale mean of the Female Hospitalized Group was significantly higher (.01 level) than the GOS Child Status Scale mean of the Female Zero Visits Group. It appears that female subjects who had been hospitalized had a higher regard for the abilities of children and found their behavior more meaningful than female subjects who had never visited the clinic. This finding was contrary to the hypothesis.

The GOS Learning Scale mean of the Female Hospitalized Group was significantly higher (.01 level) than the GOS Learning Scale mean of the Female Zero Visits Group. It appears that female subjects who had been hospitalized had a broader concept of learning than female subjects who had never visited the clinic. This finding was contrary to the hypothesis.

The GOS Social Scale of the Male and Female Hospitalized Group was significantly lower (.05 level) than the GOS Social Scale mean of the Male and Female Zero Visits Group. It appears that male and female subjects who had been hospitalized had a lesser degree of social understanding than male and female subjects who had never visited the clinic, as expected.

Table 9

Hospitalized vs. Non-Hospitalized

There were no significant differences between the Male Hospitalized Group and the Male Non-Hospitalized Group on any comparison.

The GOS Social Scale mean of the Female Hospitalized Group was significantly lower (.05 level) than the GOS Social Scale mean of the Female Non-Hospitalized Group. It appears that female subjects who had not been hospitalized had a lesser degree of social understanding than female subjects who had been hospitalized, as expected.

The GOS Child Status Scale mean of the Female Hospitalized Group was significantly higher (.001 level) than the GOS Child Status Scale mean of the Female Non-Hospitalized

Group. It appears that female subjects who had been hospitalized had a higher regard for the abilities of children and found their behavior more meaningful than female subjects who had not been hospitalized. This finding was contrary to the hypothesis.

The GOS Learning Scale mean of the Female Hospitalized Group was significantly higher (.05 level) than the GOS Learning Scale mean of the Female Non-Hospitalized Group. It appears that female subjects who had been hospitalized had a broader concept of learning than female subjects who had not been hospitalized. This finding was contrary to the hypothesis.

The GOS Social Scale mean of the Male and Female Hospitalized Group was significantly lower (.001 level) than the GOS Social Scale mean of the Male and Female Non-Hospitalized Group. It appears that male and female subjects who had been hospitalized had a lower degree of social understanding than male and female subjects who had not been hospitalized, as expected.

It should be noted that the terms "Zero Visits" and "Healthy" indicate that for the past school year of 1959-1960, the student had not visited the MSU clinic and was

therefore assumed not to have had any seriously incapacitating illness, i.e., he was presumed to be healthy. The term "Non-Hospitalized" indicates that for the past school year the student had not been hospitalized at the MSU clinic (he could have been hospitalized at some other hospital). The data card had been filled out by the physician, not by the student; perhaps if the student himself had filled out the card it would have been possible to isolate those who had had absolutely no illness of any kind during the period studied. It is well-known that many students with colds or other minor complaints do not bother to go to the MSU clinic for treatment.

The GOS Anxiety Scale mean of the Male and Female Hospitalized Group was significantly lower (.001 level) than the GOS Anxiety Scale mean of the Male and Female Non-Hospitalized Group, as expected. Apparently male and female subjects who had been hospitalized had a great deal more anxiety than subjects who had not been hospitalized. The largest t-value found (out of 270 t-tests) was this t between the male and female hospitalized subjects and the male and female non-hospitalized subjects on the GOS Anxiety Scale, a t which was significant beyond the .001 level.

GOS t-tests Significant at the .001 Level

Out of a total of 270 t-tests or 27 group comparisons on ten GOS scores, 32 t-tests were significant at the .05 level and above.

Out of the 32 significant t-tests on the GOS scores, 12 were significant at the .05 level, 12 at the .01 level, and 8 at the .001 level.

Out of the 32 significant t-tests, 20 t-tests supported the hypothesis, i.e., the GOS means of the Sick Groups were significantly lower than the GOS means of the Healthy Groups.

Out of the 8 t-tests significant at the .001 level, 4 t-tests supported the hypothesis, i.e., the GOS means of the Healthy Groups were significantly higher than the GOS means of the Sick Groups.

The Sick Groups were significantly different from the Healthy Groups at the .001 level on the following GOS Scales: GOS Anxiety, GOS Social, GOS Child Status, GOS Learning, GOS Interest, and GOS Total Scales. Of these six scales, the GOS Anxiety Scale had the greatest t-value between the male and female hospitalized subjects and the male and female non-hospitalized subjects. It may therefore be concluded that the GOS Anxiety Scale was the best of the ten GOS Scales in significantly differentiating between male and female hospitalized

subjects and male and female non-hospitalized subjects with regard to anxiety.

Table 10

Total of Significant t-tests on the GOS Scales

Total no. of t-tests on GOS Scales	Sig. Level	No. of Sig. t-tests
270	.05	12
270	.01	12
270	.001	8

The GOS Anxiety Scale mean of the male and female hospitalized subjects was significantly lower than the GOS Anxiety Scale mean of the male and female non-hospitalized subjects, as expected. This is an indication that the hospitalized subjects manifested greater anxiety on the GOS Anxiety Scale than the non-hospitalized subjects(Table 11).

Table 11

GOS Anxiety Scale

Group	t	p
30 M & F Hospitalized vs. 174 M & F Non-Hospitalized	-20.42	.001

Table 12

GOS Social Scale

Group	t	p
5 F PI Only vs. 34 F Zero Visits	4.06	.001
30 M & F Hospitalized vs. 174 M & F Non-Hospitalized	-3.67	.001

The first group comparison above was contrary to the hypothesis. It appears that it was highly significant that female freshmen with physical injuries only had a higher degree of ability in assessing social situations more objectively than female freshmen who had not visited the clinic.

The second group comparison was in line with the hypothesis, as expected.

Table 13

GOS Child Status Scale

Group	t	p
14 F Hospitalized vs. 86 F Non-Hospitalized	4.14	.001

It appears that it was highly significant that female freshmen who had been hospitalized had a higher regard or more positive regard for abilities of children than female freshmen who had not been hospitalized, contrary to the hypothesis.

Table 14

GOS Learning Scale

Group	t	p
3 F Chronic Organic vs. 34 F Zero Visits	6.49	.001
5 F Physical Injury Only vs. 34 F Zero Visits	3.92	.001

It appears highly significant that female freshmen who had been diagnosed as chronically ill had a broader concept of learning than female freshmen who had not visited the clinic, contrary to the hypothesis.

It appears highly significant that female freshmen who had physical injuries only and were probably accident-prone had a broader concept of learning than female freshmen who had not visited the clinic, contrary to the hypothesis.

Table 15

GOS Interest Scale

Group	t	p
19 M & F Chronic Organic vs. 66 M & F Zero Visits	-4.33	.001

It appears highly significant that subjects who had been diagnosed as chronically ill had a narrower range of interests than subjects who had not visited the clinic, as expected.

Table 16

GOS Total Scale

Group	t	p
19 M & F Chronic Organic vs. 66 M & F Zero Visits	-3.56	.001

It appears highly significant that subjects who had been diagnosed as chronically ill had a lower degree of personality integration as indicated by the GOS Total score than subjects who had not visited the MSU clinic, as expected.

It may be concluded that there were highly significant differences in GOS Social, Child Status, Learning, Interest, and Total scores between subjects who had reported illnesses

and physical injuries and subjects who had not visited the MSU clinic.

It was therefore concluded that the GOS Social, GOS Child Status, GOS Learning, and GOS Total scales are the most important of the nine GOS scales in significantly differentiating between the Sick and Healthy Groups.

Conclusions on CQT Scores

Contrary to the hypothesis, the Sick Groups consistently scored higher on the CQT Total and CQT sub-scores than the Zero Visits Group. Statistically significant differences were found between certain of the Sick Groups and the Zero Visits Group.

Significant differences between subjects who had been diagnosed as chronically ill and subjects who had not visited the clinic were found on the CQT Total score.

Subjects who had been diagnosed as chronically ill and subjects who had not visited the clinic were significantly different on the CQT Verbal, CQT Information, and CQT Numerical scores. In addition, significant differences between occasionally ill females and females who had not visited the clinic were found; also between females who had been either chronically or occasionally ill or both, and females who had not visited the clinic.

It appears that subjects with physical illness had a larger fund of general information to draw from than subjects who had not visited the clinic, as indicated by their significantly higher CQT Information score. It may be that these chronically ill subjects were wider readers than the healthy subjects (perhaps confinement led them to read more) or else they had better retention. Being more widely read, the chronically ill subjects had a larger command of vocabulary as indicated by their significantly higher CQT Verbal score and could be predicted to have a better chance of succeeding in college at subjects requiring verbal ability than the healthy subjects.

Chronically ill subjects also had a higher degree of conceptual skill in simple mathematics than subjects who had not visited the clinic, from which it can be predicted that they would have a better chance of succeeding at subjects requiring a grasp of mathematical concepts than the healthy subjects.

Chronically ill subjects had a significantly higher total achievement score on the CQT Total score, from which it can be predicted that in general, they would have a better chance at succeeding in college than the subjects who had not visited the clinic.

It may be concluded that subjects who took better care of themselves and had reported their illnesses to the clinic were academically brighter than subjects who had not reported any illnesses. This finding should be checked with a larger sample.

Relevant Findings

Terwilliger found that freshmen subjects who had consulted school therapists tended to have slightly better grades than freshmen subjects who had not consulted therapists (31:288).

Assuming that every physical illness has its emotional components and every emotional disturbance has its physical components, a parallel may be drawn between Terwilliger's freshmen submects who had consulted school therapists because of emotional disturbance, and the present investigator's freshmen subjects who had consulted school physicians for physical disturbances or physical illness.

The present investigator obtained a finding contradictory to Terwilliger's finding on grades: the Chronic Organic female freshmen had a significantly lower Grade Point Average (GPA) than the Zero Visits freshmen, as hypothesized in the current study. Contrary to the

investigator's hypothesis (but similar to Terwilliger's finding above), the other significant comparison between the Sick and Healthy Groups was between the female Physical Injuries Only and the female Zero Visits, with the first group obtaining the significantly higher GPA. It appears that female subjects who had been treated for physical injuries alone were academically more capable than female subjects who had not visited the clinic. These female Physical Injuries Only may or may not have been accident-prone, a variable which could be investigated in future studies in connection with GPA.

Terwilliger also found significant differences in Taylor Manifest Anxiety scores, self-satisfaction and self-esteem scores between freshmen who had and who had not consulted therapists, with the former group scoring in the maladjusted direction on the Taylor Scale and obtaining lower self-satisfaction and lower self-esteem scores.

For comparison purposes, the GOS Anxiety Scale may be considered similar to the Taylor Anxiety Scale. The present study found results which support Terwilliger's findings on anxiety; significant differences between (1) Chronic Organic subjects and Zero Visits subjects and between

(2) All Organic males and Zero Visits males, with the Sick Groups manifesting a greater amount of anxiety in both cases. Terwilliger found his subjects who had consulted therapists for emotional disturbances to be more anxious on the Taylor Anxiety Scale, and the present investigator found the Sick Groups mentioned above to be more anxious on the GOS Anxiety Scale, than subjects who had not consulted the therapist and subjects who had not visited the MSU clinic.

Consistent with Terwilliger's findings is Mechanic and Volkhart's finding that students who perceived themselves to be under high stress were more frequent visitors to the Health Service (i.e. made three or more visits) than those who perceived themselves to be under low stress.

Roughly equating the effects of stress with the effects of anxiety, the present study found that the Sick Groups manifested a greater amount of anxiety or perceived themselves to be under greater stress than the Zero Visits Group. Assuming that Mechanic and Volkhart's observation that students under high stress make more frequent visits to the Health Service than those under low stress applies to the students in the present study, it may then be said

that presumably the Sick Groups or subjects who had reported for treatment of illness perceived themselves as being under high stress while the Zero Visits Group or subjects who had not reported any illness perceived themselves as being under low stress.

Interestingly enough, these two anxious Sick Groups, i.e. the Chronic Organic subjects and the All Organic male subjects, were also the same groups that achieved a significantly higher CQT Verbal score (higher than the Zero Visits Group). Assuming that the adjusted human being is capable of channeling his anxiety into constructive work, it appears that subjects who had been diagnosed as chronically ill were better able to channel their greater amount of anxiety (as indicated by GOS Anxiety scores) into academic work more effectively (as indicated by higher CQT scores) than subjects who had not reported to the MSU clinic.

Although Terwilliger's subjects who had consulted therapists had shown dissatisfaction with themselves by their lower self-satisfaction and self-esteem scores, they were rated as well liked by others as the controls were. The subjects who consulted therapists may also be said to

have perceived themselves to be under greater stress (i.e. inferring this from their lower self-satisfaction and self-esteem scores, a reflection of anxiety) than subjects who had not consulted the therapist.

Both Terwilliger's subjects who had consulted the therapists and the investigator's subjects who had consulted the school physicians therefore may be said to have perceived themselves under high stress, while subjects who had not consulted therapists and subjects who had not visited the MSU clinic perceived themselves under low stress.

Implications for Research

Future studies on illness should separate subjects with reported illness from subjects with unreported illness. Mechanic and Volkhart have shown the importance of finding the "true prevalence" of illness and "reported illness." Their data indicate that frequency of medical visits is a "function of the tendency to adopt the sick role, and only partly a function of stress experience." They found that in general, the "tendency to adopt the sick role" was a more influential variable than stress in deciding the frequency of medical visits. They state that "persons with a high inclination to adopt the sick role will, when confronted

with given symptoms, seek medical aid more quickly and more frequently than will persons with a lower inclination, provided that medical facilities are equally available" (19:55). In view of this finding, Mechanic and Volkhart stress the importance of developing more rigorous research methods to separate the processes leading to symptom formation from processes leading persons to seek medical aid (19:58).

The present study attempted to differentiate between physically ill and physically healthy freshmen, but only actually differentiated between subjects who reported their illnesses and injuries and subjects who may or may not have suffered from minor illnesses and failed to report for treatment at the MSU clinic.

Summary of Significance Findings

Out of a total of 405 t-tests on fifteen variables (GOS, GPA, CQT) between the Sick and Healthy Groups, 40 were significant at the .05 level. Of the 40, 16 were significant at the .05 level, 14 at the .01 level, and 10 at the .001 level.

Out of 270 t-tests on ten GOS scores, 32 were significant. Out of these 32, 12 were significant at the .05 level,

12 at the .01 level, and 8 at the .001 level. Out of the 32 t-tests, 20 t-tests supported the hypothesis, i.e., the GOS, GPA, and CQT means of the Sick Groups were lower than the means of the Healthy Groups.

Out of 27 t-tests on the Grade Point Average (GPA) variable, 2 were significant, 1 at the .05 level and the other at the .01 level. One was in the hypothesized direction.

Out of 108 t-tests on the College Qualification Test (CQT) scores, 6 were significant at the .05 level. Of the 6 t-tests, 3 were significant at the .05 level on the CQT Verbal scores; 1 was significant at the .01 level on the CQT Information score; 2 were significant at the .001 level on the CQT Numerical and CQT Total scores. All of the significant findings on the CQT were contrary to the hypothesis, i.e., the CQT means of the Sick Groups were higher than the CQT means of the Healthy Groups.

In general, findings tended to support the main hypothesis, with the Sick Groups manifesting a lesser degree of personality integration on the GOS than the Healthy Groups.

Summary of Conclusions

Conclusions on the GOS Scales

Subjects diagnosed as (1) chronically ill and (2) chronically and occasionally ill manifested significantly greater anxiety as indicated by the GOS Anxiety Scale, than subjects who had not visited the MSU clinic.

Subjects classified as (1) chronically ill and (2) chronically and occasionally ill and (3) subjects with three or more clinic visits and (4) hospitalized subjects manifested less social understanding and less ability to assess social situations objectively on the GOS Social Scale, than subjects who had not visited the MSU clinic. Contrary to expectation, subjects with (1) physical injuries only and subjects with (2) organic illness and physical injuries and (3) female subjects with chronic organic illness manifested a greater degree of social understanding and ability to assess social situations objectively on the GOS Social Scale, than subjects who had not visited the clinic.

Groups were not significantly different in their orientation to punishment as a solution to problems on the GOS Punitive Scale.

Male subjects who had been diagnosed as chronically ill and subjects who had physical injuries only had a lower regard for the abilities of children on the GOS Child Status Scale, than subjects who had not visited the clinic. Contrary to expectation, female hospitalized subjects manifested a higher regard for the abilities of children on the GOS Child Status Scale, than female subjects who had not visited the clinic and had not been hospitalized.

Subjects diagnosed as chronically ill manifested a lesser degree of development of general philosophical ideas and a lesser degree of consistency in general philosophical thinking on the GOS Theoretical-Philosophical Scale, than subjects who had not visited the MSU clinic.

Contrary to expectation, subjects with (1) three or more clinic visits and (2) chronic organic illness and (3) organic illness and physical injuries and (4) physical injuries only and (5) organic illness and physical injuries or physical injuries only and (6) hospitalized subjects manifested a broader concept of learning on the GOS Learning Scale, than subjects who had not visited the MSU clinic and subjects who had not been hospitalized.

Groups were not significantly different on the GOS

Feeling Orientation Scale in their perception of feeling as a "valid indicator in indicating appropriateness of response."

Subjects diagnosed as chronically ill manifested a narrower range of interests on the GOS Interest Scale, than subjects who had not visited the MSU clinic.

Subjects diagnosed as chronically and occasionally ill manifested a lesser degree of personality integration and a lower consistency of general values on the GOS Total Scale than subjects who had not visited the MSU clinic.

Groups were not significantly different on the GOS Negativism-Acquiescence Scale. Apparently there was no difference between subjects who had reported illnesses and subjects who had not reported any illness in agreement-disagreement response tendency on the GOS.

Conclusions on the GPA

Female subjects who had been diagnosed as chronically ill obtained significantly lower Grade Point Averages (GPA) than female subjects who had not visited the clinic, as expected. Contrary to the hypothesis, female subjects who had physical injuries only obtained significantly higher GPA than female subjects who had not visited the clinic.

Apparently female freshmen who were accident-prone and had reported these accidents were also academically more able than female freshmen who had not reported any physical injuries.

Conclusions on CQT Scores

Contrary to the hypothesis, the physically ill subjects consistently scored higher on all the CQT scores (CQT Total and sub-scores) than subjects who had not visited the clinic. Subjects who had been diagnosed as chronically or occasionally ill or both, obtained significantly higher CQT Verbal scores than subjects who had not visited the clinic. Subjects who had been diagnosed as chronically ill obtained significantly higher CQT Information, CQT Numerical and CQT Total scores than subjects who had not visited the MSU clinic.

It appears that subjects who had been diagnosed as chronically ill did not use illness as an escape from academic duties. It may be concluded that the chronically ill subjects had a larger command of vocabulary, a larger fund of general information, a higher degree of conceptual skill in simple mathematics, and a better chance of succeeding in college than subjects who had not visited the MSU clinic.

Chapter VI

Summary of the Study

Hypotheses

It was hypothesized that individuals susceptible to illness, as indicated by hospital visits, would differ significantly from physically healthy individuals, as indicated by absence of hospital visits, in their patterns of responses elicited by General Opinion Survey statements designed to indicate degree of personality integration.

Subjects

A representative sample was drawn from the Michigan State University (MSU) freshmen. There were 104 men and 100 women, all single American citizens within the confines of the campus.

Groups Compared

Subjects were classified into two main categories: the Sick Group and the Healthy Group. The classification was based on the information obtained from a data card filled out for each subject by the Director of the MSU Health Service, Dr. J. S. Feurig.

The following Sick Groups were compared with the Healthy controls (Zero Visits and Non-Hospitalized Groups):

1. (3 + Clinic Visits) vs. (Zero Visits)
2. (Chronic Organic) vs. (Zero Visits)
3. (Non-Chronic Organic) vs. (Zero Visits)
4. (All Organic) vs. (Zero Visits)
5. (Physical Injuries with Other Illnesses) vs. (Zero Visits)
6. (Physical Injuries Only) vs. (Zero Visits)
7. (All Physical Injuries) vs. (Zero Visits)
8. (Hospitalized) vs. (Zero Visits)
9. (Hospitalized) vs. (Non-Hospitalized)

Eliminations

Subjects with Structural Defects Only and Physical Injuries Only were eliminated from comparisons one to five above because they did not seem to fall clearly into either the sick or healthy category. Subjects with a diagnosis of Psychosomatic Illness were also eliminated from comparisons one to seven in order that the Sick Groups would be composed only of subjects with organic illness.

Comparisons

The sexes were compared both separately, and in a combination, for every group comparison. The Sick Groups were compared with the Healthy Groups by the t-test on fifteen variables. The fifteen variables tested were the General Opinion Survey scores (Anxiety, Social Understanding, Punitive, Child Status, Theoretical-Philosophical, Learning, Feeling Orientation, Interest, Negativism-Acquiescence, Total), the Grade Point Average (GPA), the College Qualification Test (CQT) scores (Verbal, Information, Numerical, and Total).

It was specifically hypothesized that the GOS, GPA, and CQT mean scores of the Sick Groups would be significantly lower than the GOS, GPA, and CQT means of the Healthy Groups.

Conclusions on the GOS Scales

In general, results of t-tests tended to support the hypothesis. Out of 270 t-tests on the ten GOS scales, 32 were significant: 12 at the .05 level, 12 at the .01 level, and 8 at the .001 level. It was concluded that there were highly significant differences in the GOS personality test scores between subjects who had reported their illnesses

and subjects who had not reported any illnesses to the MSU clinic. Of the GOS scales, the GOS Anxiety, Social, Child Status, Status, Learning, Interest and Total scales were concluded to be the most useful in significantly differentiating (.001 level) between the physically ill freshmen and the freshmen who had not visited the clinic.

Conclusions on the GPA

Out of 27 t-tests on the Grade Point Average (GPA) veriable, 2 were significant (.05 and .01 levels). It was concluded that female subjects who had been diagnosed as chronically ill obtained lower GPA probably partly due to chronic illness, but this finding should be checked with a larger sample. An interesting finding which should be checked with a larger sample was the finding that female subjects with physical injuries only obtained significantly higher GPA than female subjects who had not visited the clinic. It was concluded that accident-proneness and its relationship to illness should be investigated.

Conclusions on the CQT Scores

Out of 108 t-tests on the CQT scores, 6 were significant (3 at the .05 level on the CQT Verbal score, 1 at the .01 level on the CQT Information score, 2 at the .001 level on

the CQT Numerical and CQT Total scores). All of the significant findings on the CQT were contrary to the hypothesis. It was concluded that subjects who had reported their illnesses to the clinic were better academic material and had a greater chance of succeeding in college than subjects who had not reported any illnesses to the MSU clinic.

General Conclusion

It may be concluded that for the sample studied, freshmen subjects who had been diagnosed as suffering from physical ailments manifested a lesser degree of personality integration as indicated by the GOS, than subjects who had not visited the MSU clinic.

Apparently there exists a highly significant relationship between organic illness and personality integration as measured by the General Opinion Survey. Subjects susceptible to illness differed significantly in their patterns of responses on the GOS from subjects who had not reported any illness.

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Appendix

Table 1

Means and Standard Deviations of the Three + Clinic Visits Group on Fifteen Measures

	Males (30)		Females (23)		Total (53)	
Measures	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ
GOS ANXIETY	10.66	3.92	11.08	5.04	10.84	4.45
GOS SOCIAL	7.77	1.91	8.87	2.15	8.24	2.09
GOS PUNITIVE	7.43	3.00	7.91	2.08	7.64	2.65
GOS CHILD S.	4.90	1.79	5.26	1.62	5.06	1.73
GOS THEORETICAL	10.23	2.26	10.65	2.85	10.41	2.54
GOS LEARNING	6.43	1.91	7.65	1.58	6.96	1.87
GOS FEELING	5.17	1.10	5.22	1.50	5.19	1.29
GOS INTEREST	4.87	1.48	5.13	1.29	4.98	1.41
GOS TOTAL	61.60	9.88	66.35	8.64	63.66	9.65
GOS NEG.-ACQUIES.	65.40	11.71	68.43	7.50	66.72	10.21
GPA	2.07	.72	2.26	.59	2.15	.67
CQT VERBAL	42.17	11.32	47.48	10.99	44.47	11.48
CQT INFORMATION	49.30	9.03	43.96	8.38	46.98	9.14
CQT NUMERICAL	31.13	9.05	24.65	8.97	28.32	9.57
CQT TOTAL	122.60	22.79	116.09	20.91	119.77	22.23

Table 2

Means and Standard Deviations of the Chronic Organic Group on Fifteen Measures

Measures	Males (16) $\bar{X}$	Males (16) σ	Females (3) $\bar{X}$	Females (3) σ	Total (19) $\bar{X}$	Total (19) σ
GOS ANXIETY	9.25	4.43	10.33	5.31	9.42	4.60
GOS SOCIAL	7.69	1.68	10.67	2.05	8.16	2.06
GOS PUNITIVE	6.50	2.23	8.00	.82	6.74	2.15
GOS CHILD S.	5.12	1.83	4.33	1.70	5.00	1.83
GOS THEORETICAL	8.87	2.23	10.67	.94	9.16	2.18
GOS LEARNING	5.87	1.99	8.33	.47	6.26	2.05
GOS FEELING	4.81	1.38	5.33	.94	4.89	1.33
GOS INTEREST	3.87	1.32	4.33	1.25	3.95	1.32
GOS TOTAL	56.19	10.22	68.00	1.63	58.05	10.34
GOS NEG.-ACQUIES.	69.12	11.34	71.67	6.23	69.53	10.74
GPA	2.44	.66	1.74	.63	2.33	.71
CQT VERBAL	48.75	9.98	42.33	6.85	47.74	9.83
CQT INFORMATION	55.44	5.50	40.67	7.41	53.10	7.95
CQT NUMERICAL	37.44	7.33	28.00	6.16	35.95	7.94
CQT TOTAL	141.62	16.12	111.00	17.38	136.79	19.78

Table 3

Means and Standard Deviations of the Non-Chronic Organic Group on Fifteen Measures

	Males (45)		Females (59)		Total (104)	
Measures	$\bar{X}$		$\bar{X}$	σ	$\bar{X}$	σ
GOS ANXIETY	10.71	4.04	11.67	4.52	11.25	4.35
GOS SOCIAL	8.07	2.23	9.02	2.26	8.60	2.30
GOS PUNITIVE	7.47	2.89	8.15	2.56	7.85	2.73
GOS CHILD S.	4.58	2.07	5.37	1.65	5.03	1.89
GOS THEORETICAL	10.35	2.77	10.61	2.38	10.50	2.56
GOS LEARNING	7.02	1.65	7.05	1.83	7.04	1.75
GOS FEELING	4.91	1.35	5.07	1.65	5.00	1.53
GOS INTEREST	4.80	1.64	5.52	1.50	5.21	1.60
GOS TOTAL	62.58	10.68	66.66	10.36	64.89	10.69
GOS NEG.-ACQUIES.	68.18	11.56	68.00	8.66	68.08	10.02
GPA	2.03	.67	2.27	.59	2.17	.63
CQT VERBAL	43.20	12.66	47.98	12.86	45.91	12.99
CQT INFORMATION	49.09	9.86	43.66	8.09	46.01	9.30
CQT NUMERICAL	31.60	9.14	25.12	9.55	27.92	9.91
CQT TOTAL	123.89	25.20	116.76	24.93	119.84	25.29

Table 4

Means and Standard Deviations of the All Organics Group on Fifteen Measures

Measures	Males (61) $\bar{X}$	Males (61) σ	Females (62) $\bar{X}$	Females (62) σ	Total (123) $\bar{X}$	Total (123) σ
GOS ANXIETY	10.32	4.19	11.61	4.57	10.97	4.44
GOS SOCIAL	7.97	2.11	9.10	2.28	8.54	2.27
GOS PUNITIVE	7.21	2.76	8.14	2.50	7.68	2.67
GOS CHILD S.	4.72	2.02	5.32	1.67	5.02	1.88
GOS THEORETICAL	9.97	2.72	10.61	2.33	10.29	2.55
GOS LEARNING	6.72	1.82	7.11	1.80	6.92	1.82
GOS FEELING	4.88	1.36	5.08	1.63	4.98	1.50
GOS INTEREST	4.56	1.61	5.47	1.51	5.02	1.63
GOS TOTAL	60.90	10.93	66.72	10.12	63.84	10.92
GOS NEG.-ACQUIES.	68.43	11.51	68.18	8.59	68.30	10.15
GPA	2.14	.69	2.24	.60	2.19	.65
CQT VERBAL	44.65	12.26	47.71	12.69	46.19	12.57
CQT INFORMATION	50.75	9.35	43.51	8.09	47.10	9.46
CQT NUMERICAL	33.13	9.07	25.26	9.44	29.16	10.06
CQT TOTAL	128.54	24.44	116.48	24.65	122.46	25.28

Table 5

Means and Standard Deviations of the Physical Injuries with Other Illnesses Group on Fifteen Measures

	Males (21)		Females (12)		Total (33)	
Measures	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ
GOS ANXIETY	10.90	3.71	13.50	3.57	11.84	3.87
GOS SOCIAL	8.09	1.57	9.58	2.29	8.64	2.00
GOS PUNITIVE	7.86	2.35	7.92	2.93	7.88	2.58
GOS CHILD S.	4.86	2.31	6.00	2.00	5.27	2.27
GOS THEORETICAL	10.24	2.76	10.92	2.46	10.48	2.67
GOS LEARNING	6.81	1.81	7.50	1.75	7.06	1.82
GOS FEELING	5.00	1.27	5.08	1.66	5.03	1.42
GOS INTEREST	5.00	1.63	5.92	1.55	5.33	1.66
GOS TOTAL	63.28	9.83	70.83	10.13	66.03	10.58
GOS NEG.-ACQUIES.	66.43	11.51	64.83	7.97	65.85	10.39
GPA	2.13	.75	2.29	.75	2.19	.75
CQT VERBAL	42.19	12.25	46.50	11.70	43.76	12.23
CQT INFORMATION	50.43	9.37	42.25	6.94	47.45	9.43
CQT NUMERICAL	30.38	8.34	23.08	11.33	27.73	10.16
CQT TOTAL	123.00	25.10	111.83	21.50	118.94	24.45

Table 6

Means and Standard Deviations of the Physical Injuries Only Group on Fifteen Measures

Measures	Males (11) $\bar{X}$	Males (11) σ	Females (5) $\bar{X}$	Females (5) σ	Total (16) $\bar{X}$	Total (16) σ
GOS ANXIETY	11.18	4.80	12.60	4.67	11.62	4.80
GOS SOCIAL	7.09	3.06	10.80	.98	8.25	3.11
GOS PUNITIVE	7.18	2.72	7.40	1.02	7.25	2.33
GOS CHILD S.	4.09	1.83	4.40	1.96	4.19	1.88
GOS THEORETICAL	8.64	3.34	11.60	3.26	9.56	3.59
GOS LEARNING	6.91	2.68	7.80	.75	7.19	2.30
GOS FEELING	4.45	1.67	5.80	.75	4.87	1.58
GOS INTEREST	5.09	2.15	4.80	1.17	5.00	1.90
GOS TOTAL	57.54	16.06	70.00	9.46	61.44	15.45
GOS NEG.-ACQUIES.	64.27	12.98	69.80	6.70	66.00	11.68
GPA	2.30	.74	2.62	.48	2.40	.69
CQT VERBAL	46.00	15.86	48.80	14.80	46.87	15.59
CQT INFORMATION	52.27	8.38	48.80	12.92	51.19	10.15
CQT NUMERICAL	31.64	11.08	23.40	6.77	29.06	10.64
CQT TOTAL	129.91	27.98	121.00	20.30	127.12	26.15

Table 7

Means and Standard Deviations of the All Physical Injuries Group on Fifteen Measures

	Males (32)		Females (17)		Total (49)	
Measures	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	
GOS ANXIETY	11.00	4.12	13.23	3.94	11.37	4.20
GOS SOCIAL	7.75	2.25	9.94	2.07	8.51	2.42
GOS PUNITIVE	7.62	2.51	7.76	2.53	7.67	2.52
GOS CHILD S.	4.59	2.19	5.53	2.12	4.92	2.21
GOS THEORETICAL	9.69	3.07	11.12	2.74	10.18	3.03
GOS LEARNING	6.84	2.15	7.59	1.54	7.10	1.99
GOS FEELING	4.81	1.44	5.29	1.48	4.98	1.48
GOS INTEREST	5.03	1.83	5.59	1.54	5.22	1.75
GOS TOTAL	61.31	12.63	70.59	9.95	64.53	12.57
GOS NEG.-ACQUIES.	65.69	12.08	66.29	.95	65.90	10.83
GPA	2.19	.75	2.39	.70	2.26	.74
CQT VERBAL	43.50	13.72	47.18	12.73	44.77	13.50
CQT INFORMATION	51.06	9.09	44.18	9.59	48.67	9.83
CQT NUMERICAL	30.81	9.39	23.18	10.20	28.16	10.34
CQT TOTAL	125.37	26.33	114.53	21.56	121.61	25.31

Table 8

Means and Standard Deviations of the

Hospitalized Group on Fifteen Measures

Measures	Males (16) $\bar{X}$	Males (16) σ	Females (14) $\bar{X}$	Females (14) σ	Total (30) $\bar{X}$	Total (30)
GOS ANXIETY	10.43	4.66	11.71	4.66	11.03	4.70
GOS SOCIAL	7.56	1.80	8.07	2.49	7.80	2.17
GOS PUNITIVE	7.12	3.10	8.57	2.53	7.80	2.94
GOS CHILD S.	4.37	2.37	6.36	1.34	5.30	2.19
GOS THEORETICAL	9.37	2.09	10.71	2.18	10.00	2.23
GOS LEARNING	6.44	1.73	7.78	1.93	7.07	1.95
GOS FEELING	4.87	.93	5.07	1.62	4.97	1.30
GOS INTEREST	4.94	1.52	5.36	1.34	5.13	1.45
GOS TOTAL	59.62	10.60	67.93	10.50	63.50	11.34
GOS NEG.-ACQUIES.	69.87	10.06	67.28	9.99	68.67	10.11
GPA	2.12	.61	2.21	.51	2.16	.57
CQT VERBAL	46.44	13.17	45.14	11.29	45.83	12.34
CQT INFORMATION	51.31	8.66	42.00	7.62	46.97	9.42
CQT NUMERICAL	35.00	7.19	23.14	8.90	29.47	9.98
CQT TOTAL	132.75	22.90	110.28	18.90	122.27	23.92

Table 9

Means and Standard Deviations of the Non-Hospitalized Group on Fifteen Measures

Measures	Males (88) $\bar{X}$	Males (88) σ	Females (86) $\bar{X}$	Females (86) σ	Total (174) $\bar{X}$	Total (174) σ
GOS ANXIETY	11.07	4.05	11.57	4.81	11.32	4.45
GOS SOCIAL	8.49	2.61	9.30	2.21	8.89	2.46
GOS PUNITIVE	73.35	2.59	7.71	2.69	7.53	2.65
GOS CHILD S.	5.00	2.05	5.07	1.79	5.03	1.93
GOS THEORETICAL	10.19	3.27	10.65	2.85	10.42	3.08
GOS LEARNING	699.90	1.92	6.82	1.60	6.86	1.77
GOS FEELING	4.84	1.57	5.29	1.66	5.06	1.63
GOS INTEREST	4.79	1.87	5.42	1.69	5.10	1.81
GOS TOTAL	62.84	12.78	66.22	11.91	64.51	12.47
GOS NEG.-ACQUIES.	66.95	11.73	68.66	8.67	67.80	10.37
GPA	2.15	.77	2.26	.65	2.20	.71
CQT VERBAL	44.49	12.52	46.01	13.26	45.24	12.91
CQT INFORMATION	50.98	9.37	44.13	9.16	47.59	9.88
CQT NUMERICAL	32.48	10.80	25.78	9.94	29.17	10.91
CQT TOTAL	127.60	26.23	115.92	25.60	121.83	26.57

Table 10

Means and Standard Deviations of the Zero Visits Group on Fifteen Measures

	Males (32)		Females (34)		Total (66)	
Measures	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	
GOS ANXIETY	12.15	3.54	11.55	5.19	11.84	4.48
GOS SOCIAL	9.50	2.62	8.91	2.33	9.20	2.49
GOS PUNITIVE	7.56	2.46	7.35	3.05	7.45	2.78
GOS CHILD S.	5.53	2.21	5.15	2.00	5.33	2.11
GOS THEORETICAL	10.75	3.56	10.59	3.32	10.67	3.44
GOS LEARNING	7.00	1.71	6.59	1.44	6.79	1.59
GOS FEELING	4.91	1.63	5.47	1.75	5.20	1.71
GOS INTEREST	5.22	1.98	5.35	1.89	5.29	1.94
GOS TOTAL	66.75	12.73	65.56	14.24	66.14	13.54
GOS NEG.-ACQUIES.	66.53	10.79	68.70	9.52	67.65	10.21
GPA	2.12	.93	2.18	.68	2.15	.76
CQT VERBAL	44.62	12.08	41.91	12.24	43.23	12.24
CQT INFORMATION	51.12	9.35	43.62	9.49	47.26	10.14
CQT NUMERICAL	32.78	1012.21	26.26	10.82	29.42	11.97
CQT TOTAL	127.59	27.52	111.79	25.07	119.45	27.44

Table 10

Means and Standard Deviations of the Zero Visits Group on Fifteen Measures

	Males (32)		Females (34)		Total (66)	
Measures	$\bar{X}$	σ	$\bar{X}$	σ	$\bar{X}$	σ
GOS ANXIETY	12.15	3.54	11.55	5.19	11.84	4.48
GOS SOCIAL	9.50	2.62	8.91	2.33	9.20	2.49
GOS PUNITIVE	7.56	2.46	7.35	3.05	7.45	2.73
GOS CHILD S.	5.53	2.21	5.15	2.00	5.33	2.11
GOS THEORETICAL	10.75	3.56	10.59	3.32	10.67	3.44
GOS LEARNING	7.00	1.71	6.59	1.44	6.79	1.59
GOS FEELING	4.91	1.63	5.47	1.75	5.20	1.71
GOS INTEREST	5.22	1.98	5.35	1.89	5.29	1.94
GOS TOTAL	66.75	12.73	65.56	14.24	66.14	13.54
GOS NEG.-ACQUIES.	66.53	10.79	68.70	9.52	67.65	10.21
GPA	2.12	.93	2.18	.68	2.15	.76
CQT VERBAL	44.62	12.08	41.91	12.24	43.23	12.24
CQT INFORMATION	51.12	9.35	43.62	9.49	47.26	10.14
CQT NUMERICAL	32.78	1012.21	26.26	10.82	29.42	11.97
CQT TOTAL	127.59	27.52	111.79	25.07	119.45	27.44

Table 11

The t-tests of Thirty Male 3 + Clinic Visits Group vs. Thirty-two Male Zero Visits Group

Measures	t
GOS ANXIETY	- 1.443610
GOS SOCIAL	- 2.834990 **
GOS PUNITIVE	- .170537
GOS CHILD S.	- 1.166770
GOS THEORETICAL	- .662340
GOS LEARNING	- 1.139640
GOS FEELING	+ .706840
GOS INTEREST	- .750739
GOS TOTAL	- 1.689350
GOS NEG.-ACQUIES.	- .364612
GPA	- .238288
CQT VERBAL	- .769865
CQT INFORMATION	- .726499
CQT NUMERICAL	- .576052
CQT TOTAL	- .734187

*: Significant at the .05 level.
**: Significant at the .01 level.
***: Significant at the .001 level.

Table 12

The t-tests of Twenty-three Female 3 + Clinic Visits Group vs. Thirty-four Female Zero Visits Group

Measures	t
GOS ANXIETY	- .417982
GOS SOCIAL	- .080486
GOS PUNITIVE	+ .938759
GOS CHILD S.	+ .268906
GOS THEORETICAL	+ .086801
GOS LEARNING	+ 3.224900 **
GOS FEELING	- .686471
GOS INTEREST	- .595040
GOS TOTAL	+ .290637
GOS NEG.-ACQUIES.	- .139778
GPA	+ .563133
CQT VERBAL	+ 2.153670 *
CQT INFORMATION	+ .170506
CQT NUMERICAL	- .722476
CQT TOTAL	+ .831257

Table 13

The t-tests of Fifty-three Male and Female 3 + Clinic Visits Group vs. Sixty-six Male and Female Zero Visits Group

Measures	t
GOS ANXIETY	- .804059
GOS SOCIAL	- 1.587130
GOS PUNITIVE	+ .254905
GOS CHILD S.	- .536102
GOS THEORETICAL	- .341592
GOS LEARNING	+ .335056
GOS FEELING	- .026032
GOS INTEREST	- .730209
GOS TOTAL	- .848414
GOS NEG.-ACQUIES.	- .326875
GPA	.000
CQT VERBAL	+ .382742
CQT INFORMATION	- .107631
CQT NUMERICAL	- .392248
CQT TOTAL	+ .049294

Table 14

The t-tests of Sixteen Male Chronic Organics

vs. Thirty-two Male Zero Visits

Measures	t
GOS ANXIETY	- 1.096780
GOS SOCIAL	- 1.711580
GOS PUNITIVE	- .782107
GOS CHILD S.	- .366002
GOS THEORETICAL	- 1.334980
GOS LEARNING	- .947976
GOS FEELING	- .118600
GOS INTEREST	- 1.633070
GOS TOTAL	- 1.683350
GOS NEG.-ACQUIES.	+ .379348
GPA	+ .789199
CQT VERBAL	+ .675903
CQT INFORMATION	+ 1.232180
CQT NUMERICAL	+ 1.000460
CQT TOTAL	+ 1.364440

Table 15

The t-tests of Three Female Chronic Organics vs. Thirty-four Female Zero Visits

Measures	t
GOS ANXIETY	- .811929
GOS SOCIAL	+ 2.853980 **
GOS PUNITIVE	+ 1.176840
GOS CHILD S.	- 1.580290
GOS THEORETICAL	+ .132222
GOS LEARNING	+ 6.494900 ***
GOS FEELING	- .380208
GOS INTEREST	- 2.362640 *
GOS TOTAL	+ .995068
GOS NEG.-ACQUIES.	+ 1.372180
GPA	- 2.370230 *
CQT VERBAL	+ .160718
CQT INFORMATION	- 1.255290
CQT NUMERICAL	+ .748471
CQT TOTAL	- .135018

Table 16

The t-tests of Nineteen Male and Female Chronic Organics vs. Sixty-six Male and Female Zero Visits

Measures	t
GOS ANXIETY	- 2.756160 **
GOS SOCIAL	- 2.397850 *
GOS PUNITIVE	- 1.515040
GOS CHILD S.	- .876337
GOS THEORETICAL	- 2.831230 **
GOS LEARNING	- 1.459870
GOS FEELING	- 1.072560
GOS INTEREST	- 4.333610 ***
GOS TOTAL	- 3.565330 ***
GOS NEG.-ACQUIES.	+ .923584
GPA	+ 1.274420
CQT VERBAL	+ 2.146690 *
CQT INFORMATION	+ 3.394540 **
CQT NUMERICAL	+ 3.457650 ***
CQT TOTAL	+ 3.869670 ***

Table 20

The t-tests of One Hundred Four Male and Female Non-Chronic Organics vs. Six Male and Female Zero Visits

Measures	t
GOS ANXIETY	- 2.222880 *
GOS SOCIAL	- 2.857350 **
GOS PUNITIVE	- .626883
GOS CHILD S.	- 1.732560
GOS THEORETICAL	- 1.085590
GOS LEARNING	- .735979
GOS FEELING	- .089247
GOS INTEREST	- 1.627080
GOS TOTAL	- 2.211410
GOS NEG.-ACQUIES.	+ .790817
GPA	+ .116953
CQT VERBAL	+ .011352
CQT INFORMATION	- .181801
CQT NUMERICAL	+ .142926
CQT TOTAL	+ .164559

Table 26

The t-tests of Eleven Male Physical Injuries Only vs. Thirty-two Male Zero Visits

Measures	t
GOS ANXIETY	- .433204
GOS SOCIAL	- 1.663340
GOS PUNITIVE	- .293588
GOS CHILD S.	- 1.595080
GOS THEORETICAL	- 1.303600
GOS LEARNING	- .072327
GOS FEELING	- .574353
GOS INTEREST	- .126843
GOS TOTAL	- 1.218710
GOS NEG.-ACQUIES.	- .368637
GPA	+ .498531
CQT VERBAL	+ .185444
CQT INFORMATION	+ .281461
CQT NUMERICAL	- .211382
CQT TOTAL	+ .172747

Table 27

The t-tests of Five Physical Injuries Only

vs. Thirty-four Female Zero Visits

Measures	t
GOS ANXIETY	+ .709030
GOS SOCIAL	+ 4.060830 ***
GOS PUNITIVE	+ .086655
GOS CHILD S.	- 1.254120
GOS THEORETICAL	+ 1.016040
GOS LEARNING	+ 3.923650 ***
GOS FEELING	+ .939003
GOS INTEREST	- 1.264780
GOS TOTAL	+ 1.310470
GOS NEG.-ACQUIES.	+ .471634
GPA	+ 2.637070 *
CQT VERBAL	+ 1.617530
CQT INFORMATION	+ 1.429290
CQT NUMERICAL	- 1.143200
CQT TOTAL	+ 1.387010

Table 28

The t-tests of Sixteen Male and Female Physical Injuries Only vs. Sixty-six Male and Female Zero Visits

Measures	t
GOS ANXIETY	- .220037
GOS SOCIAL	- 1.508170
GOS PUNITIVE	- .373740
GOS CHILD S.	- 2.703930 **
GOS THEORETICAL	- 1.454710
GOS LEARNING	+ .885438
GOS FEELING	- .943839
GOS INTEREST	- .703743
GOS TOTAL	- 1.468280
GOS NEG.-ACQUIES.	- .682305
GPA	+ 1.626940
CQT VERBAL	+ 1.157990
CQT INFORMATION	+ 1.798040
CQT NUMERICAL	- .150739
CQT TOTAL	+ 1.339930

Table 29

The t-tests of Thirty-two Male All Physical Injuries vs. Thirty-two Male Zero Visits

Measures	t
GOS ANXIETY	- .978653
GOS SOCIAL	- 2.447490*
GOS PUNITIVE	+ .080189
GOS CHILD S.	- 1.425720
GOS THEORETICAL	- 1.088370
GOS LEARNING	- .265093
GOS FEELING	- .221044
GOS INTEREST	- .336311
GOS TOTAL	- 1.431280
GOS NEG.-ACQUIES.	- .240103
GPA	+ .299731
CQT VERBAL	- .283043
CQT INFORMATION	- .021779
CQT NUMERICAL	- .628981
CQT TOTAL	- .276615

Table 33

The t-tests of Fourteen Female Hospitalized vs.

Thirty-four Zero Visits

Measures	t
GOS ANXIETY	+ .125731
GOS SOCIAL	- 1.387730
GOS PUNITIVE	+ 1.748610
GOS CHILD S.	+ 2.873140 **
GOS THEORETICAL	+ .172809
GOS LEARNING	+ 2.764790 **
GOS FEELING	- .949360
GOS INTEREST	+ .024633
GOS TOTAL	+ .763595
GOS NEG.-ACQUIES.	- .580058
GPA	+ .201096
CQT VERBAL	+ 1.097990
CQT INFORMATION	- .756788
CQT NUMERICAL	- 1.265200
CQT TOTAL	- .273979

Table 35

The t-tests of Sixteen Male Hospitalized vs. Eighty-eight Male Non-Hospitalized

Measures	t
GOS ANXIETY	- .485235
GOS SOCIAL	- 1.679310
GOS PUNITIVE	- .263068
GOS CHILD S.	- .939344
GOS THEORETICAL	- 1.250900
GOS LEARNING	- .910484
GOS FEELING	+ .100658
GOS INTEREST	+ .332063
GOS TOTAL	- 1.025920
GOS NEG.-ACQUIES.	+ .985984
GPA	- .164687
CQT VERBAL	+ .517832
CQT INFORMATION	+ .130989
CQT NUMERICAL	+ 1.129350
CQT TOTAL	+ .766203

Table 36

The t-tests of Fourteen Female Hospitalized vs. Eighty-six Female Non-Hospitalized

Measures	t
GOS ANXIETY	+ .144327
GOS SOCIAL	- 2.395190 *
GOS PUNITIVE	+ 1.577130
GOS CHILD S.	+ 4.145340 ***
GOS THEORETICAL	+ .119471
GOS LEARNING	+ 2.445090 *
GOS FEELING	- .636417
GOS INTEREST	- .196895
GOS TOTAL	+ .741492
GOS NEG.-ACQUIES.	- .672937
GPA	- .429485
CQT VERBAL	- .347054
CQT INFORMATION	- 1.249440
CQT NUMERICAL	- 1.356890
CQT TOTAL	- 1.278170

Table 37

The t-tests of Thirty Male and Female Hospitalized vs. One Hundred and Seventy-four Male and Female Non-Hospitalized

Measures	t
GOS ANXIETY	-20.419600 ***
GOS SOCIAL	- 3.668990 ***
GOS PUNITIVE	+ .725199
GOS CHILD S.	+ .979844
GOS THEORETICAL	- 1.261020
GOS LEARNING	+ .848674
GOS FEELING	- .484871
GOS INTEREST	+ .145191
GOS TOTAL	- .658233
GOS NEG.-ACQUIES.	+ .652200
GPA	- .492868
CQT VERBAL	+ .359866
CQT INFORMATION	- .494943
CQT NUMERICAL	+ .222652
CQT TOTAL	+ .135425