THE RELATIONSHIP OF HEALTH KNOWLEDGES
TO HEALTH PRACTICES OF COLLEGE
FRESHMEN AT NORTH TEXAS
STATE UNIVERSITY

APPROVED:

Graduate Committee:

L. Fred Thomas
Major Professor

Jack Watson
Minor Professor

J. L. Eilders
Committee Member

Earl A. Atwood
Committee Member

Deane Fingery
Dean of the School of Education

Robert B. Touloue
Dean of the Graduate School
THE RELATIONSHIP OF HEALTH KNOWLEDGES
TO HEALTH PRACTICES OF COLLEGE
FRESHMEN AT NORTH TEXAS
STATE UNIVERSITY

DISSERTATION

Presented to the Graduate Council of the
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By

Millard Jay Fisher, A. B., M. Ed.

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CHAPTER I

INTRODUCTION

Current philosophy envisions health as a total entity, encompassing the harmonious interdependence and interrelatedness of the various physical, mental, and social dimensions necessary for a rich and rewarding life in today's world. In keeping with the present-day conception of health as human ecology, the frame of reference of the whole person is perceived as interacting with all the universal factors in the total environment that surrounds man. This includes a multidisciplinary perspective in that the content pertaining to effective living is obtained from many fields of study, such as biology, anatomy and physiology, medicine, psychiatry, psychology, and sociology.¹

The role of health knowledges and health practices is of paramount importance to the realization of the ecological approach to health. It is a primary responsibility of the health educator to provide knowledge of the facts based on

scientific evidence which is suitable to the needs and interests of the students. Since it appears that students will not think about a subject in terms of its importance unless it is vital to them, the acquisition of essential knowledges will be realized only when these knowledges are expressed meaningfully in terms of personal needs and interests which are congruous. Acquisition of specific health information, reflective of healthful living, is basic to desirable health behavior. Even though favorable health practices cannot be expected in the absence of knowledge of the facts, knowledge itself does not ensure sound health practices. Knowledge solely as a compendium of facts is not sufficient but merely a foundation upon which to build.\(^2\) It is apparent that health knowledges that have been acquired are worth very little unless they are utilized and applied toward sound health practices.

Health educators have been puzzled with the problem of the inability to present health information in such a way that would enhance or encourage the student to apply the information he has attained effectively. It seems apparent that the prelude for taking remediable steps in solving this

problem is to first establish a frame of reference in determining the extent to which students are putting into practice what they know. An interest in this relationship of health knowledges to health practices was instrumental in the undertaking of this research.

Statement of the Problem

The problem of this study was the relationship of health knowledges to health practices of college freshmen at North Texas State University.

Purposes of the Study

In order to further clarify and define the problem, the following purposes were formulated:

1. To determine the relationship of health knowledge and application to reported health practices of college freshmen at North Texas State University as measured by the Health Education Test: Knowledge and Application, and the Health Practice Inventory.

2. To help guide the instructor in the selection of objectives or desired outcomes as they relate to health education of a utilitarian nature and the needs of the students.
3. To establish evidence for determining the depth of instruction needed for individual students or classes.

4. To serve as a basis for the administration of a pre-test for entering college freshmen and a posttest of individual progress as a means of evaluating health knowledge and application, and practice achieved by the student.

5. To serve as a basis for the establishment of objectives or desired outcomes as they relate to health education of a utilitarian nature for students on the pre-college level.

Hypotheses

The study was designed to test the following hypotheses at the .05 level of significance:

1. There will be a significant relationship between health knowledge and application and reported health practices of college freshmen at North Texas State University, as measured by the total scores on the Health Education Test: Knowledge and Application and the Health Practice Inventory.

2. There will be a significant relationship between health knowledge and application and reported health practices of college freshmen at North Texas State University who score in the upper one-quarter on the Health Education
Test: Knowledge and Application, as measured by the total scores on the Health Education Test: Knowledge and Application and the Health Practice Inventory.

3. There will be a significant relationship between health knowledge and application and reported health practices of college freshmen at North Texas State University who score in the lower one-quarter on the Health Education Test: Knowledge and Application, as measured by the total scores on the Health Education Test: Knowledge and Application and the Health Practice Inventory.

4. There will be a significant relationship between health knowledge and application and reported health practices of male college freshmen at North Texas State University, as measured by the total scores on the Health Education Test: Knowledge and Application and the Health Practice Inventory.

5. There will be a significant relationship between health knowledge and application and reported health practices of male college freshmen at North Texas State University who score in the upper one-quarter on the Health Education Test: Knowledge and Application, as measured by the total scores on the Health Education Test: Knowledge and Application and the Health Practice Inventory.
6. There will be a significant relationship between health knowledge and application and reported health practices of male college freshmen at North Texas State University who score in the lower one-quarter on the Health Education Test: Knowledge and Application, as measured by the total scores on the Health Education Test: Knowledge and Application and the Health Practice Inventory.

7. There will be a significant relationship between health knowledge and application and reported health practices of female college freshmen at North Texas State University, as measured by the total scores on the Health Education Test: Knowledge and Application and the Health Practice Inventory.

8. There will be a significant relationship between health knowledge and application and reported health practices of female college freshmen at North Texas State University who score in the upper one-quarter on the Health Education Test: Knowledge and Application, as measured by the total scores on the Health Education Test: Knowledge and Application and the Health Practice Inventory.

9. There will be a significant relationship between health knowledge and application and reported health
practices of female college freshmen at North Texas State University who score in the lower one-quarter on the Health Education Test: Knowledge and Application, as measured by the total scores on the Health Education Test: Knowledge and Application and the Health Practice Inventory.

10. There will be a significant difference between mean scores of male and female college freshmen at North Texas State University on the Health Education Test: Knowledge and Application.

11. There will be a significant difference between mean scores of male and female college freshmen at North Texas State University on the Health Practice Inventory.

Background and Significance of the Study

In regard to the development of health education, health instruction in higher education was inaugurated more than 200 years ago. The original health instruction included medical lectures for the purpose of increasing the students' knowledge of the structure and functions of the body. With the acceptance of instruction as an integral part of the college curriculum came health textbooks which dealt primarily with
the facts of anatomy and physiology. The influence of college health instruction extended to the public schools in the late nineteenth century. At this time boys and girls in elementary and secondary schools were introduced to the study of anatomy and physiology in the name of health. The earliest health instruction was concerned with the acquisition of mere facts, and was limited in scope and usefulness, and it continued in this vein until the late 1920's.

In 1918, the "Cardinal Principles of Secondary Education" were adopted by the National Education Association. Number one on this list of seven objectives was "Health," indicating recognition of its importance by an authoritative education agency. Until the 1930's health instruction changed very little; the emphasis continued to be on body science to the

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5 Joint Committee on Health Problems in Education, op. cit., pp. 269-271.

exclusion of developing desirable health attitudes and practices among the students.  

Prior to the depression years of the thirties, President Herbert Hoover called the first White House Conference on Child Health and Protection. Similar conferences have been held every ten years. Delegates to the conferences represent every aspect of school and community life which affects the welfare of children. The attention to school health instruction which was initiated through these conferences has led to the present basic principles upon which school health programs are founded.

According to Williams and Brownell:

... instruction in health touches the whole of living. It is not restricted to digestion, exercise, air, and sleep, or to such morbid matters as tuberculosis, heart disease, and diabetes. It relates to ways of thinking quite as surely as to the products of thinking, to superstitions equally with scientific facts. All the responses that an individual takes as a receiving, correlating, and responding organism constitute his life as it goes on, and it is with this living that hygiene deals.  

7 Deobold Van Dalen and Marcella M. Van Dalen, op. cit., pp. 192-194.

Health instruction is worthless to the individual unless the knowledge gained is utilized in practice by the learner. According to Hussey, "Aside from heredity, health practices are mainly responsible for the health status of the individual." 9

As the role of health education in institutions of higher education came to be defined, methods for evaluating the outcomes of health education were developed, and various tests, scales, inventories, etc. became prevalent. Williams and Shaw delineated tests and measurements of health education into three categories:

1. One is the type that attempts to measure status;
2. A second attempts to measure objectives in health instruction, as represented in habits, interests or attitudes, and knowledge;
3. And a third attempts appraisal of the whole school health education program. 10

It is significant that many authorities believe that the construction of suitable tests for evaluating knowledges,

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attitudes, and practices (those mentioned in group number two above, and directed toward the evaluation of the outcomes of health instruction) will be the most important contribution to the interests of health education.\textsuperscript{11}

Turner gives the following reasons for the importance of health education: (1) present health practices of the American people are poor, (2) there are many faculty attitudes prevalent toward disease, (3) there is a lack of basic information concerning health, and (4) poor health habits adversely affect the health of the individual.\textsuperscript{12}

Knutson, Chief of the Behavioral Studies, Department of General Health Services of the United States Public Health Service said: "Many studies have indicated that knowledge of the facts alone is not sufficient to change behavior. The facts must not only be known, but they must be understood and believed."\textsuperscript{13} This objective of behavior

\textsuperscript{11}Ibid., p. 292.

\textsuperscript{12}Clair E. Turner, \textit{School Health and Health Education} (St. Louis, 1952), pp. 115-117.

\textsuperscript{13}Andie L. Knutson, \textit{Evaluation of College Health Education}, Address Given Before the College Health Education Section, American Association for Health, Physical Education, and Recreation (Chicago, 1956).
modification is recognized as important by the American Association of School Administrators in their definition of health education: "... the area of the curriculum which helps boys and girls to develop the knowledge and attitudes that result in desirable health behavior."\textsuperscript{14}

The Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association stresses the importance of practice and application of health instruction in the following statement:

Practice and application of health instruction are tests of the effect and worth of such instruction. No learning should be regarded as accomplished until pupils put into practice what they are taught.\textsuperscript{15}

In discussing the importance of health knowledge, Kilander believes that it is essential in aiding the individual to make satisfactory responses to new situations. He said

\textsuperscript{14}American Association of School Administrators, Health in Schools, Twentieth Yearbook (Washington, 1951), p. 143.

\textsuperscript{15}Joint Committee on Health Problems in Education of the National Education and the American Medical Association, Health Education: A Program for Public Schools and Teacher Training Institutions (New York, 1930), p. 119.
Knowledge is needed in furnishing rational motives for attitudes and habits. We may know why we should eat certain foods without this knowledge having any appreciable effect on our conduct, just as we may know certain rules of grammar and yet speak incorrectly. However, when knowledge stimulates self-analysis and serves as a motivation, then it is the type of knowledge desired in health education. It is this type of knowledge especially which we should seek to measure.\(^\text{16}\)

In pursuing a thorough investigation of the literature, no studies were found which compared health knowledge and application to health practices of college freshmen. Such a study should contribute to institutions of higher education by serving as an aid in the enhancement of diagnostic and analytical measurement in health education.

**Definition of Terms**

For the purpose of this study, the following terms were defined:

1. **Application of health education** refers to the utilization and adaptation of health knowledge as indicated by the sub-score total of "Application" on the Health Education Test: Knowledge and Application.

2. **Knowledges of health education** refers to the framework from which judgments and decisions are made in the application of health education, as indicated by the sub-score total of "Knowledge" on the Health Education Test: Knowledge and Application.

3. **Practices of health education** refers to the reported health habits of one's routine living, as indicated by the total score on the Health Practice Inventory.

4. **Human ecology** refers to the whole man's dynamic interaction with his total environment.

5. **Health** refers to a quality of life possessing the harmonious interdependence and interrelatedness of physical, mental, and social dimensions of man.

6. **Health education** refers to the provision of learning experiences which favorably influence attitudes, practices, and knowledge relative to individual and community health.

**Limitations of the Study**

The basic limitations of this study were as follows:

1. This study was subject to the various limitations concomitant to research data collected from test respondents, such as the possibility of dishonest responses.
2. This study was limited to 215 college freshmen enrolled in the required activity physical education program at North Texas State University during the Fall Semester of 1968.

Basic Assumptions

The following basic assumptions are evident in this study:

1. It was assumed that the sample was representative of the total population from which the sample was derived.

2. It was assumed that the subjects participating in this study responded to the instruments honestly and accurately.
CHAPTER II

REVIEW OF THE LITERATURE

Related Literature

The major health problems confronting collegiate institutions center around the control of respiratory infection, reduction or elimination of foodborne infections, minimization of athletic injuries, and most important, educating the entire college community concerning appropriate means for preventing illness and promoting good health.¹

In recent years there has been greater agreement as to the role and values of health education in our schools. According to an authoritative joint committee, "School health education has come to mean the provision of learning experiences designed to influence knowledge, attitudes, and practices relating to individual and community health."² Bucher


is in agreement with this contributing interrelationship existent among health knowledge, health attitudes, and health practices, and he believes that desirable health practices reflect the application of wholesome health habits to one's routine life. Generally, educators stress the premise that knowledge of the facts focused on healthful living is basic for desirable health behavior, but the health of the individual will be affected only by the application of this knowledge.

In regard to the development of health knowledge, Bucher views it as being multifarious: (1) utilization of scientific health data for the purpose of personal guidance, (2) utilization of this information for students for the recognition and solving of health problems, and (3) utilization of this information as a valuable aid in the formulation of desirable health attitudes. In support of this position in regard to areas of health knowledge, he stated:

Some of the areas of health knowledge that should be understood by students and adults include nutrition, the need for rest, sleep, and exercise, protection of the body against changing temperature conditions, contagious

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disease control, the dangers of self-medication, and community resources for health.⁴

Schneider found that evidence obtained from testing health knowledge supported the thesis that there is a positive relationship between health knowledges and health practices. He found that students who were better informed as to the facts of health tended to practice healthful living more readily.⁵

Kilander has carried on extensive studies relative to the health knowledge of Americans for more than twenty-five years. Based on this comprehensive and intimate background of knowledge about testing, some implications of Kilander's findings have been the following:

1. Few individuals are found to be so adequately informed in all of the various areas of health knowledge as to be able to act wisely for their own personal needs. For example, only about one-half of the public tested knew enough about nutrition to make it possible to select a balanced meal in a cafeteria without consideration of the cost of that meal.

2. There has been a slight but steady improvement in the level of information held by students and adults over the years covered by this study. This change has not been equal in

⁴Bucher, op. cit., p. 211.

each of the areas of health knowledge. Individuals still hold many misconceptions about nutrition, weight reducing, tuberculosis, prenatal influences, mental health, and first aid procedures. Outright superstitions are not held as extensively by secondary school and college students and the young adults as formerly, but other adults continue to hold on to many misconceptions.

3. The level of information is found to be not very different for differing parts of the United States, when sufficiently large and varied samplings of the population are taken. However, the range within a given classroom or other group varies considerably more than the mean scores between groups.

4. There is a continuous rise in the level of health information for successive grades in school. This rise tends to level off in the senior year of high school.

5. Intelligence has considerable influence upon the level of health knowledge, as is to be expected. So also does the home and community environment. The scores on health knowledge tests of younger secondary school students seem to be more affected by the type of home environment than the scores of older students.

6. The relationship between health information and health practices is, in general, positive. Those individuals who are better informed tend to have better health practices.  

Some additional general conclusions deduced from the findings of Kilander's studies have been the following:

1. It is difficult to determine which of several factors have contributed most to the increases in health

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knowledge. Not only has school health instruction been an important factor, but other factors such as television, radio, newspapers, and magazines seemed to have contributed to improved knowledge. However, it appears that many of these media have contributed also to the misinformation of the public.

2. Instruction must meet the current needs of students.

3. It is not known to what extent, regarding causation or explanation of factors involved, but college students are better informed than their former school classmates who did not go to college.

4. College students, freshmen as well as seniors, when compared with high school seniors of approximately the same level of intelligence, are not likely to score higher on health knowledge tests unless they had been exposed to specific additional health instruction since leaving high school.

5. It appears that science courses on the high school level contribute more toward an increase in health information than those at the college level, due to the inclusion of greater health content in high school science courses.
6. The home environment influences considerably the extent to which students have formulated and retained various misconceptions and superstitions.

7. High school and college girls are better informed to a slight degree than their male counterparts on the subject of nutrition, but the males select food more wisely, and in general, tend to eat better. Girls who are better informed tend to eat better than the less informed girls.

8. Teachers are not any better informed than lay people in the area of health.  

If the acquisition of health knowledge is to modify or improve health practices, health educators must be concerned with the reasons that cause young people to live healthfully or unhealthfully. Many leaders in health education have expressed concern for an increase of the expenditure of energy in the form of research. The American Association for Health, Physical Education, and Recreation Health Education Planning Conference of October, 1959, made twenty-two recommendations for the future of its discipline, and eight of these referred

specifically to research needs. Derryberry said, "Probably there has never been a time when so much human effort was being expended on investigation of the phenomena around us." Russell reported that The Research Quarterly, which is an official publication of the American Association for Health, Physical Education, and Recreation and is under the direction of the Research Council, devoted only about 12 per cent of its total coverage to reports dealing with health and health education. The general topical areas of research in health and health education reported by The Research Quarterly for the years 1951-1960, indicating the number and percentage of studies in relation to the general topics covered, are shown in Table I.

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<table>
<thead>
<tr>
<th>Topic</th>
<th>Number of Studies</th>
<th>Percent of Studies</th>
</tr>
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<tbody>
<tr>
<td>Curriculum Development, Evaluation or Improvement (concepts, attitudes, practices, needs, interests and special areas)</td>
<td>15</td>
<td>25</td>
</tr>
<tr>
<td>Testing: Knowledge and Attitude</td>
<td>9</td>
<td>15</td>
</tr>
<tr>
<td>Relation of Growth, Personality or Environment to Health</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Nutritional Supplementation and Other Nutritional Research</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Effects of Specific Substances on Health or Performance</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>Evaluation of Materials or Programs</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Teacher Preparation</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Effects of Activity on Health</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Health Services and Health Personnel</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Job Analysis</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Accidents and the Health Program</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Analysis of Research</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

In examining this table one can see that studies relating to the curriculum comprised about 25 per cent of all the studies. Moreover, only nine studies, or 15 per cent, were concerned with the area of testing knowledge and attitudes.

For the years 1930-1949, Loucks found that health and health education reports constituted only 19 per cent of the total coverage of material reported by *The Research Quarterly*. Russell found that health and health education reports constituted only 12 per cent of the amount of material reported by the same publication for the years 1951-1960.

A tabular analysis of the methodology used in health and health education research for the years 1951-1960, as reported by *The Research Quarterly*, is exhibited in Table II.

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### TABLE II

**METHODS AND PROCEDURES UTILIZED IN HEALTH AND HEALTH EDUCATION RESEARCH, 1951-60**

<table>
<thead>
<tr>
<th>Method or Procedure</th>
<th>Number of Studies</th>
<th>Percent of Studies</th>
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<tr>
<td>Normative Survey--Inventory or Questionnaire</td>
<td>11</td>
<td>19</td>
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<tr>
<td>Development of an Instrument--Validation</td>
<td>9</td>
<td>15</td>
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<tr>
<td>Review of Literature</td>
<td>7</td>
<td>12</td>
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<tr>
<td>Review of Materials--Use of a Jury</td>
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<tr>
<td>Comparison of Persons--Different Environments</td>
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<td>9</td>
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<tr>
<td>Normative Survey--Measuring Knowledge, Attitudes, Interests</td>
<td>4</td>
<td>7</td>
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<tr>
<td>Normative Survey--Available Data</td>
<td>4</td>
<td>7</td>
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<tr>
<td>Experimental--Two Groups, Compare</td>
<td>4</td>
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<tr>
<td>Experimental--Control, Test, Retest</td>
<td>3</td>
<td>5</td>
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<tr>
<td>Analysis of Growth Data</td>
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<tr>
<td>Evaluation of Materials</td>
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<td>3</td>
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<tr>
<td>Review of Materials--Develop Concepts, Compare</td>
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<td>2</td>
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<tr>
<td>Normative Survey--Interview</td>
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<td>2</td>
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<td>Critical Incident</td>
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<td>2</td>
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<tr>
<td>Correlation of Test with Classifications</td>
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<td>2</td>
</tr>
</tbody>
</table>

Figures in Table II total more than 100 per cent due to the fact that some studies were classified in more than one way.

Rosenstock summarized his thinking relating to needs for investigation in health education by observing that research is needed which applies valid methods in the diagnosis of health education problems, and for educating the populace individually and in groups to real life health situations.\(^{12}\) Veenker reiterated that many health reports provide only fragmentary evidence of test results, and that few health studies may be classified as "pure" test research. Most of those studies are concerned with many purposes. In an attempt to synthesize some of the major results of testing procedures in health research, Veenker reported that test results provided substantial evidence to support the following conclusions:

1. Appropriate testing procedures yield significant information basic to effective health education curriculum construction.
2. Health behavior can be favorably changed through health instruction.

3. Health behavior is most favorably influenced by direct instruction in the concentrated health course.

4. Pupil achievement appears to be greatest in health knowledge and least in health practices.

5. Where sex differences exist in the health knowledge, attitudes, and practices of pupils, those differences tend to favor girls over boys.\(^{13}\)

In evaluating the multitude of purposes of testing describing the status of the health knowledge, attitudes, and practices of school age children, Veenker made the following observation:

\[\ldots\] no source was found to indicate test results gained by the administration of health knowledge tests, attitude scales, or practice inventories as a part of the standardized achievement testing program in schools in the United States.\(^{14}\)

Even though considerable time and energy has been expended by health educators in the establishment and promotion of their discipline, much remains to be done. Many studies have undoubtedly advanced the health education movement and have enhanced the understanding of many topical areas and problems concerned with attitudes, interests,


\(^{14}\)Ibid., p. 35.
needs, and knowledges; however, many areas have as yet to be investigated through research methodology.

Related Research

Many of the studies which follow purport to measure not only health knowledges and health practices, but measure also needs, interests, and attitudes, comparatively or in several combinations thereof.

Southworth, Latimer, and Turner administered four health tests, which they designed and constructed, to a state-wide sample of high school pupils in Massachusetts. Their findings indicated that the quality of health practices remained constant throughout the high school period with no improvement from grade to grade. On the health knowledge test, there was a slight improvement from grade to grade.\textsuperscript{15}

Irwin and Boyd, after making a frequency check of thirteen selected textbooks of college health, concluded that those areas receiving the greatest emphasis included

Byrd compiled a list of twenty-one major health-problem areas containing 300 subdivisions pertaining to specific health problems. This list of 300 was prepared from 10,000 scientific and public health articles appearing in medical, public health, and scientific journals from 1942 to 1948. His findings indicated that the area of "Health as a Social Accomplishment" was ranked as the greatest problem. Some of the subdivisions of this area were "Life Expectancy in Other Countries," "Conquest of Diseases," "Prevalence of Sickness," and "World Food and Medical Relief." The area of "Health as a Social Problem" was ranked as the second greatest problematical area. Some of the subdivisions of this area were "Housing and Health," "Overpopulation and Health," "Atomic Warfare," and "River Pollution and Health." The area of "Nutrition and Health" was ranked as the third greatest health problem. Some of the subdivisions of this

area were "Housing and Health," "Overpopulation and Health," "Atomic Warfare," and "River Pollution and Health." The area of "Nutrition and Health" was ranked as the third greatest health problem. Some of the subdivisions of this area were "Health Hazards With Foods," "Importance of Minerals," "World Food Needs," "Nutrition and Body Weight," "Nutrition Deficiencies," and "Practical Selection of Foods."\textsuperscript{17}

Lantagne studied the determination of health interests of 3,000 secondary school students. After establishing acceptable validity and reliability measures, he grouped the interests of the 3,000 students into twenty-one major health areas and denoted the percentage of students interested in each area. The area of "Habit-forming Substances" was ranked number one, since it was considered the most interesting by 38 per cent of the students. The area of "Family Health" was ranked number two, since it was considered most interesting by 36.4 per cent of the students. The area of "Safety" was ranked third, since it was indicated to be most interesting by 36.2 per cent of the students. The area of "Mental Health

\textsuperscript{17}Oliver E. Byrd, "Health Problems of Significance for Course and Curriculum Construction," \textit{The Research Quarterly}, XXI, No. 1 (March, 1950), 3-10.
and Disease" was ranked fourth, since 31.0 per cent of the pupils indicated this area to be most interesting. The area of "International Health" was ranked last with 14.0 per cent of the students indicating an interest in that area.  

Orr administered a health interest inventory to 250 public school seniors. The results indicated that "Mental Health" rated highest in the students' health interests. "Nutrition" was rated lowest by the students.  

Schaller developed an inventory purported to measure needs and interests of secondary school students. He ranked the ten health areas of felt need expressed by the students, and likewise, ranked the same areas in regard to felt interest as indicated by the same students. The area of "Understanding Mental Health and Mental Illness" was ranked number one as a felt need by the students with 67.49 per cent giving it emphasis; likewise, this same area was ranked number one

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as a felt interest by the students with 68.51 per cent stressing emphasis. The area of "The Importance of Activity and Rest" was ranked number two as a felt need by 62.20 per cent of the students; but, this same area was ranked third as a felt interest by 63.87 per cent of the students. The area of "Personal Care of the Body" was ranked number three as a felt need by 61.81 per cent of the students, while this same area was ranked second as a felt interest by 66.70 per cent of the students. The area of "Structure and Function of the Human Body" was ranked last as a felt need by the students with 55.33 per cent giving it emphasis, whereas the area of "Food Needs of the Body" was ranked last as a felt interest by the students with 50.99 per cent giving it emphasis. 20

Humphrey investigated the health problems of interest of a group of sixty sophomore men enrolled in a Personal and Community Hygiene course. After the students indicated the three problems which they felt they would like to discuss in the course (indicated by free writing), there evolved twenty classifications of various health problems of interest. This

resulted in a free response technique developed as a check list in which the class once again indicated their interests. In the "Free Writing Technique," 68.3 per cent of the students indicated "Nutrition and Foods" to be the problem of greatest interest; on the "Free Response Check List Technique," 38.3 per cent (ranked third) indicated "Nutrition and Foods" to be a problem of interest. In the "Free Writing Technique," the area of "Communicable Diseases" was ranked second by 38.3 per cent of the students as a problem of interest; on the "Free Response Check List Technique," this same area was ranked number two by 46.6 per cent of the students. The problems of least interest to the students were "Elimination" in the "Free Writing Technique," with 1.6 per cent of the pupils indicating an interest in this problem, and "Socialized Medicine" in the "Free Response Check List Technique," with 1.6 per cent of the students indicating an interest in this problem.21

Rooks studied the college freshmen's knowledge of and interest in personal hygiene. The total number of students

tested was 764. Some of the findings regarding students' knowledge of personal hygiene were

1. Approximately one-third of the freshmen studied indicated that they had not had a health course in the public schools.

2. When a comparison was made regarding the type of instruction given in high school, no significant difference was found in health knowledge.

3. No significant difference was found between those who had sex education in high school and those not having had sex education in high school.

4. Of the 764 freshmen students investigated, 65 percent did not regularly read magazines containing health articles. Perhaps more significantly, of those who did read articles in this area, approximately one-half read literature which contained unscientific health information and fallacious advertisements.

5. There was a serious lack of knowledge of hygienic facts, principles, and the simple structure and normal functioning of the human body.

6. The inability to discriminate between genuine and false advertising pertaining to health and disease was evident.
7. Many commonly held misbeliefs and fallacies in regard to the health of the people were not removed by the high schools.\textsuperscript{22}

Some of the findings regarding interests in personal hygiene that were revealed by Rooks were

1. The type of health training received in high school had little effect on the desire for health training in college.

2. Knowledge or lack of knowledge of personal hygiene content did not add to or detract from interest in a college course.

3. Approximately 70 per cent of all the groups studied were interested in a personal hygiene course in college.

4. The type of health training received in high school had little effect on interests in health course content.

5. Even though certain topical areas ranked high in interest as compared to others, wide individual differences were shown.\textsuperscript{23}


\textsuperscript{23}Ibid.
Dearborn found that there was a consistent and significant difference in health knowledge achievement between college and university students and junior college students, as measured by the Dearborn College Health Knowledge Test. Some additional findings by Dearborn were

1. The mean scores of 44 per cent and 54 per cent demonstrated the need to make health instruction available in college and to improve such instruction in high school.

2. The range of mean section scores of twenty points for colleges and universities and twenty-four points for junior colleges shows a wide variation in the knowledge possessed by the students in the several health areas.

3. The colleges and universities had a high mean score of 64 per cent for the section on "Prevention and Control of Disease," and their lowest mean score was 44 per cent for the section on "Exercise and Body Mechanics." The junior colleges had their highest mean section score of 58 per cent for the topic of "Hygiene of Environment," and their lowest mean section score was 34 per cent for the area of "Exercise and Body Mechanics."

4. The wide range of mean item scores, eighty points, demonstrates the great difference in sound information
between section areas and also in the various concepts and facts within a given area.

5. The wide range of individual student scores, eighty points, demonstrates the great differences in health knowledge achievement among the students that were tested.24

Maggio studied the relationship between the amount of time spent for health instruction in high school and the health information and health practices of 200 university freshman women. A check list to determine the amount of time spent for health instruction in high school was constructed by Maggio. In addition, the Kilander Health Knowledge Test and the Moran Health Practice Inventory served as measuring instruments to obtain the data needed for this study. She found that the health practices and health information of the university freshman women, as measured by the tests, showed no significant relationship.25


Moran investigated selected health practices of resident undergraduate women students as revealed by a health practice inventory constructed by Moran. By classes, seniors professed to have more safe practices than any of the other classes, and freshmen reported more hazardous practices. Reported practices in the area of "Nutrition" revealed that improvement in this area seemed important to all classes, with special attention toward better nutritional practices being expressed by freshmen. The data indicated that practices in the area of "Safety" ranked highest in the percentage of safe practices expressed by all classes, while the area of "Posture" was ranked lowest in the percentage of safe practices expressed by the same students.²⁶

Anderson studied the health information, practices, and interests of boys and girls in grades ten, eleven, and twelve at San Angelo Senior High School. Four tests, constructed by Southworth, Latimer, and Turner, were used to measure health practices, health knowledges, health attitudes, and health

interests of the 600 students tested. The findings indicated a need for health instruction in health information, attitudes and practices for the students in San Angelo High School. In addition, the total number of students tested had deficient attitudes toward health matters and expressed less interests in health matters than participants in two related studies.  

Taylor made a comparative study of the health attitudes and practices of 109 first-year college students taking a required course in personal hygiene with the health attitudes and practices of eighty-three first-year college students not taking a required course in personal hygiene. The Byrd Health Attitude Scale and the Health Practice Inventory by Johns and Juhnke were the instruments used. Some of the findings by Taylor are as follows:

1. There was a slight relationship between the health attitudes and practices of the experimental group at the beginning of the semester.

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2. There was a substantial relationship between the health attitudes and practices of the experimental group at the end of the semester.

3. There were substantial relationships between the health attitudes and practices of the control group both at the beginning and the end of the semester.  

Newsom investigated the relationship of health knowledge and health practices of high school students in grades ten, eleven, and twelve. The instruments of measurement used were Shaw, Troyer, and Brownell's *Health Education Test: Knowledge and Application* and Johns and Juhnke's *Health Practice Inventory*. He concluded that the area of "Mental Health" showed the greatest amount of health knowledge and most favorable health practices. The area of "Nutrition" showed the least amount of health knowledge and least favorable health practices.  

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Washnik reported that the Health Section of the New Jersey Association of Health and Physical Education undertook a project to find out what the high school senior knows about health in the schools of New Jersey. The *Health Education Test: Knowledge and Application* by Shaw, Troyer, and Brownell was used as the instrument for testing. The findings indicated that there was a moderate correlation (.42) between health knowledge and application of knowledge. Concerning specific areas of health instruction, the students scored highest in "Mental Health" and lowest in "Safety and First Aid," with "Nutrition" being the next to the lowest score.\(^30\)

Sutton appraised the health attitudes and practices of college students in a foundations of health course for the purposes of determining needed areas of emphasis in instruction and to provide a means of evaluating the effectiveness of instruction. The results indicated that the instruction

which was provided did result in an improvement in both health attitudes and practices.\textsuperscript{31}

Masley investigated selected socio-economic, environmental, and educational factors in the home, the school, and the community in regard to their influence upon certain health-education outcomes among 473 freshmen college women at Pennsylvania State College during the school year 1949-1950. A detailed inventory form was prepared for the purpose of collecting data regarding the students' home, high school, and community environments, and the needs and problems they had encountered prior to coming to college. The subjects were given the following standardized tests: \textit{Pennsylvania State College Academic Aptitude Examination}, \textit{Bernreuter Personality Inventory}, \textit{Strong Vocational Interest Blank}, \textit{Kilander Health Knowledge Test}, and the \textit{Johns' Health Practice Inventory}. Some of the findings in this study were as follows: Significant correlations existed between health knowledge and home environment (\textdagger; .139); health knowledge and the school health instruction program (.135); health knowledge and scholastic

aptitude (.504); and health knowledge and self-sufficiency (.141). Correlations exemplary of low relationship included health practices and health knowledge (.086), health practices and scholastic aptitude (.023), and health practices and the amount of instruction in school (.051). There was a greater relationship between scholastic aptitude and health knowledge, than between health knowledge and socio-economic, environmental, and educational factors. Exposure to the biological sciences in high school was related significantly to increased health information. No significant findings were indicated for health knowledge or health practices in relation to the choice of fields of study in the curriculum or the occupation of the parents.32

In investigating the health knowledge of college freshmen at Catawba College, Salisbury, North Carolina, Kraiss constructed and administered an original health knowledge test. Among her findings were the following: (1) there was

a pronounced lack of health information; (2) this lack of knowledge was detectable particularly in the areas of knowledge related to the "Circulatory System," "Sex," "Venereal Diseases," and "Inheritance"; (3) the students appeared to be fairly well informed regarding the "Eyes, Ears, and Throat," "Sanitation," the "Nervous System," "Diseases, Infection, and Immunity"; (4) women were better informed than men in the areas of "Nutrition," "Food," and Digestion," but men were better informed than women in the area of "Sex"; and (5) regarding implications for the secondary schools, strong evidence supported a need for the provision of better health education opportunities for pupils in regard to the acquaintance of methods for the provision and maintenance of good health, personal and community hygiene and sanitation, and wholesome health practices.33

Cox used an adaptation of a health knowledge test prepared by Merkeley, and administered it to 157 women enrolled in Glendale Junior College in the Fall, 1935. She found that

the students tested were best informed in the areas of "Mental Health" and "Personal Hygiene," while they were least informed in the areas of "Sex," "Hygiene," "Diseases," and "Nutrition."  

Merkeley collected data from 1,138 freshman women, enrolled in four colleges in Southern California in September, 1930, and February, 1931. She constructed the hygiene test which was used in the study. The findings indicated that the majority of the girls who were tested had an adequate knowledge of "Mental Hygiene," "Personal Hygiene," and "Hygiene of the Muscular and Skeletal Systems." However, findings indicated that most of the girls were deficient in their knowledge of "Inheritance," "Sex Hygiene," "Hygiene of Nutrition," "Hygiene of Disease," and "Principles of First Aid and Caring for the Sick." Most participants of the study did well on those areas of the test in which they had received prior instruction in high school.


Neher constructed an original health inventory and administered it to 2,415 pupils enrolled in the ninth, tenth, eleventh, and twelfth grades of six junior high schools and seven senior high schools located in and around Los Angeles. Various racial groups, social and economic levels, and a wide range of mental ability were prevalent in the sample taken. The following correlations were established in this study: between health status and practice, .26; between health practice and knowledge, .17; between health practice and attitudes, .22; between health knowledge and attitudes, .39; between health attitudes and status, .03. The findings indicated that girls scored significantly higher than boys in the field of health knowledge. Moreover, there was no relationship between what pupils knew and thought about health and the health habits they practiced.  

Cambron made an analysis of health knowledge possessed by 625 freshmen and 365 senior students at North Texas State College in 1949-1950, after administering the Kilander Health Knowledge Test. Findings indicated that seniors tended to

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make higher scores on the health knowledge test than freshmen. However, superior scores were apparently not due to superior intelligence scores. The freshmen mean intelligence score was 93.68, and the mean score for seniors was 88.25. The mean score for women on the health knowledge test was higher than for men, for both freshmen and seniors. The one area, out of a possible six, in which men made a slightly higher mean score was in the area of "Safety and First Aid." In the area of "Nutrition" women made a highly significant score as compared to men. In the area of "Mental and Social Hygiene" there was a progressively marked improvement in knowledge between the freshmen and senior years. Also, it was found that intelligence was a significant factor in the development of health knowledge. Likewise, there was a tendency for subjects who had more health and science courses in high school to make higher knowledge mean scores than those who had fewer courses of this nature. This trend was more pronounced among women than among men.  

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Brown tested 100 freshman women students at the University of Illinois to determine the relationship of health attitudes and health knowledge to their health practices. Each student completed three health tests: Johns and Juhnke's Health Practice Inventory, Kilander Health Knowledge Test, and Richardson's Health Attitudes Test. The results indicated that the total health practice scores were favorable and considerably above the average established by the Johns and Juhnke percentile norms. However, considerable variation was evident in the specific health areas. In the final analysis, no significant relationship (at the .05 level of confidence) existed between health attitudes and health knowledge and health practices. Similarly, no relationship existed between health knowledge and health practices when the effects of attitudes on both were removed. 38

In measuring the health knowledge, attitudes, and practices of 1,000 junior high school pupils, Colebank found significant relationships between knowledge and attitude (.64),

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and between academic intelligence and health behavior (.60). For health attitudes and health practices a coefficient of correlation of .47 was indicated, and for knowledge and practices a correlation of .35 was determined. A coefficient of correlation of .36 was determined for health behavior and socioeconomic status as measured by a socioeconomic test.

Although it was evident that health knowledge and health attitude scores were progressively better from grade to grade, seventh grade students scored slightly higher than eighth and ninth grade students in health practices. In a later study, Wilkes analyzed the health practices of junior high school pupils in Los Angeles. Her findings were consistent with those of Colebank.

In a study by Murai, the Johns and Juhnke Health Practice Inventory was administered to (1) fifty-four girls entering the Department of Physical Education for Women at

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the University of Illinois, (2) eighteen girls entering the
professional physical education school at Tokyo Women's
Christian College in Tokyo, Japan, and (3) forty girls who
were not physical education majors at Tokyo Women's Chris-
tian College. The major findings by Murai were as follows:

1. The freshman women physical education majors at
the University of Illinois had better health practices than
freshman women physical education majors at Tokyo Women's
Christian College. However, health practices of the Illi-
nois majors were more significant in only four of the thir-
teen majors areas: "Physical Activity and Recreation,"
"Prevention and Control of Chronic Diseases," "Mental Health,"
and "Family Health."

2. The freshman women physical education majors at
Tokyo Women's Christian College did not have better prac-
tices than the freshman women who were non-professional.
However, the majors did show superiority significantly in
three areas: "Personal Health," "Mental Health," and "Con-
sumer Health."

3. As a whole, all three groups scored well above the
Johns and Juhnke percentile norms for the revised Health
Practice Inventory. One hundred per cent of the majors from the University of Illinois scored above the fiftieth percentile; 78 per cent of the majors from the Tokyo Women's Christian College scored above the fiftieth percentile; and 75 per cent of the non-majors scored above the fiftieth percentile.  

Bobbitt and Sellery appraised health instruction in selected grades of elementary and secondary schools and colleges in the city of Los Angeles. They discovered that the high school students who scored well on either a health knowledge test or a health practice inventory seemed to have a more favorable attendance record in school.  

In a study by Sheedy, the Johns and Juhnke Health Practice Inventory, the Kilander Health Knowledge Test, and the Heston Personal Adjustment Inventory were administered to 182 subjects, forming three groups of students: (1) senior high school, (2) college freshmen and sophomores, and (3)  

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graduate students in psychology. Correlations between and within groups were run to determine the respective effect of health knowledge and emotional stability on the health practices of the subjects studied. In addition, three other correlations involving the age of the subjects and their scores on the three tests were determined. Sheedy concluded the following:

1. Regarding desirable health practices, emotional stability was considered to be a more important component than the amount of health knowledge an individual possessed.

2. On the whole, when students are older they show better health practices and greater health knowledge.

3. The larger group of subjects exhibited the most significant relationships between and within the groups.

4. More extensive courses in health instruction are needed for Canadian students.

5. A significant relationship between the age of the subject and his score on the Kilander Health Knowledge Test was evident.  

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A comprehensive six-year evaluative study of school health education in the area of Los Angeles, California, was started in 1954. One part of the study was devoted to the appraisal of pupil health behavior in regard to health knowledge, health attitudes, and health practices. The effectiveness of health instruction was determined by pretesting and posttesting. Test results revealed that achievement in health knowledge appeared to be superior to achievement in attitude development. Moreover, achievement in health practices appeared to be inferior to both knowledge and attitudes. In making a composite analysis of the various health areas evaluated, it was found that "Nutrition," "Safety," and "Care of the Body" were the areas in which the students were best informed, while "Dental Health," "Mental Health," "Consumer Health," and "Community Health" were the least informed areas. It was concluded that changes in health behavior can be evaluated in short periods of appraisal by pretesting, instruction, and posttesting, and that the influence of instruction on changing health practices can be best evaluated by longitudinal studies.

Extensive research involving the measurement and investigation of several components of health education has been conducted and reported in various medical, public health, and other allied scientific literature pertinent to the discipline of health. Although it appears that important gains have been made in the measurement of health knowledge, practices, and other related areas, such as attitudes and interests, additional research is needed. Application of scientific information to man's routine of living is one of the inherent problems in the utilization of research for the purpose of bridging the gap that exists between knowledge and its application to the lives of the populace.

The literature has revealed several studies which support the basic tenets of the need to exhibit balance between health knowledges and health practices. Most authorities agree that those individuals who are better informed tend to have better health practices. The most conclusive evidence supporting this harmonious relationship between health knowledges and health practices was found in Kilander's study. However, since an abundance of research studies in health education deal with a

multitude of purposes, some of the evidence is contradictory and questionable in nature. The findings of this study should help educators understand the vital needs of students, to focus attention on problematical areas which are prevalent, and aid in the selection of appropriate methodology.
CHAPTER III

PROCEDURES

Procedures for Collecting the Data

North Texas State University, located at Denton, Texas, was the institution selected for use in this study. Permission to administer tests to the freshman subjects in the required activity physical education program was granted by the chairmen of both the men's physical education department and the women's physical education division.

Eleven university instructors and fourteen assistants, who taught in the required physical education program, were interviewed to determine their cooperativeness and availability to participate in the study. These interviews transpired two weeks prior to the scheduled testing dates. All of the instructors who were interviewed sanctioned the use of their classes and cooperated fully with the investigator.

There were forty-six male class sections and seventy-nine female class sections in the required activity physical education program during the Fall Semester, 1968. The
methodology used for choosing the number of subjects to be tested was by the utilization of a table of random numbers for selecting class sections, until a sufficient number of sections was obtained in order to assure a minimum of 200 college freshman students (100 males and 100 females). This resulted in the selection of five male classes which had a total enrollment of 124 freshmen, and the six female classes which had a total enrollment of 121 freshmen, yielding a grand total of 245 freshman students. However, a number of students failed to be present to take the Health Practice Inventory or the Health Education Test and were eliminated from the study. This reduced the total number to 215 (101 males and 114 females). The size of each male class utilized in this study was twenty-five, eighteen, twenty-nine, twenty-four, and twenty-eight, respectively. The size of each female class utilized in this study was sixteen, seventeen, nineteen, twenty, thirty-one, and eighteen, respectively. In all classes, there was a total number of twenty-four students who were classified above the freshman level. These students took part in their regularly scheduled physical education activity, but they did not participate in the study.
Male and female classes were tested separately. The female classes were tested from September 30, 1968, to October 4, 1968. The male classes were tested from October 8, 1968, to October 17, 1968. The Health Practice Inventory was administered during one class period and the Health Education Test was administered to the same group at their next class meeting.

In order to maintain uniformity in the administration of the instruments, the investigator administered all the tests and was cognizant of the importance of proceeding with the standardized directions. The answer sheets as well as the instruments used were standardized.

Upon receiving copies of the Health Practice Inventory and appropriate answer sheets, the students were asked to read silently the directions for taking the test as the test administrator read the directions aloud. The necessary provisions for taking the test were stipulated carefully by the administrator of the test as follows:

1. Fill in the data requested on the answer sheet.
2. Indicate your answers in regard to what you do in everyday life. You are to record what you actually do, not what you think you should do.
3. Your answers are confidential and in no way affect your grade or reputation.

4. No time limit is set for completion of the Inventory.

5. Draw a circle around the number preceding the terms "Rarely," "Sometimes," "Usually," "Always," or "Never," to indicate the term that most nearly relates to your current health practice; begin working.

At the next regular class meeting, which was two days following the administration of the Health Practice Inventory, the Health Education Test: Knowledge and Application was administered to the same students. The format for the administration of the Health Education Test was similar to that of the Health Practice Inventory, but within the framework of directions for the Health Education Test. The necessary directions for taking the test were stipulated carefully by the administrator of the test as follows:

1. Fill in the data requested on the answer sheet.

2. The test requires no more than forty-five minutes of working time.

3. No definite time limit is established for the multiple-choice items of Part I or for the problem items of Part II.
4. For Part I, there are four possible answers for each item. The letter indicating the correct item is to be placed on the answer sheet.

5. For Part II, there are four problems with several conclusions. If the conclusion is true, a "T" is placed on the answer sheet; if the conclusion is false, an "F" is placed on the answer sheet.

6. After twenty minutes of working time, the students were reminded that within five minutes they should be ready for the problems beginning with item sixty-one.

Description of the Instruments

The Health Education Test: Knowledge and Application (Form A) was developed by Shaw, Troyer, and Brownell for pupils in secondary schools and colleges. The test consists of sixty multiple-choice and forty true-false items. The multiple-choice items deal with important health facts and concepts. The true-false items were designed to require the students to apply health knowledge to problematical situations. The test samples the following topics in health education: health status; personal appearance; foods and nutrition; play and recreation; dental health; care of the
special senses; temperance; mental health; social health; heating, lighting, and ventilation; child care; home care of the sick; community health protection; disease prevention and control; and safety and first aid.  

Shaw, Troyer, and Brownell stated: "Because of the inter-relationships between the above topics in normal living, more test items contain significant applications to two or more of these divisions."  

In establishing the validity of the instrument, Shaw, Troyer, and Brownell carefully analyzed numerous health syllabi, textbooks, bulletins, and other printed materials in the formulation of the basis for the selection of test items. All items were checked and approved by experts in nutrition, public health and medicine, and by teachers of health, biology, and physical education.  

In establishing the reliability of the instrument, Shaw, Troyer, and Brownell utilized experimental forms of the test.

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2. Ibid.

3. Ibid., p. 2.
which included a wide variety of health items. The items finally selected range in difficulty from 10 to 90 per cent, and differentiate clearly between "good" and "inferior" students. Reliability coefficients of the experimental Forms A and B were .90 and .91, as determined by the split-halves method.

The establishment of norms for the test are based on scores of 6,753 students from schools in the East, West Central, and Southern sections of the United States.

The test requires forty-five minutes of working time; however, no definite time limit is established for each part. After twenty minutes of working time, students are to be reminded that within five minutes they should be ready for the problems beginning with item sixty-one.

The Health Practice Inventory was developed by Johns and Juhnke for pupils in high school and college. It is a revision of the original Health Practice Inventory published in 1943, which consisted of thirty-six health practice statements reduced from an approved list of health practice items. Three investigations involving 1,900 high school, junior college, and university students brought

\(^4\)Ibid.
about the selection of the final form. According to the authors, "The statements selected were of the highest discriminating value; that is, they distinguished the worthwhile practices of students from the poor health practices."\(^5\)

The revision of the inventory involved the following procedures:

1. An analysis was made of twenty-one reference books in health education for high school and college students. This procedure was similar to the way the items on the original Inventory were obtained. This aspect of the study provided health practice statements which recognized authorities in the field of health education considered significant in everyday living.

2. The results of the health practice analysis of reference books were compared with the items of the 1943 Health Practice Inventory. Revisions and additions of items were made to the first preliminary form of the revised Inventory. Three forms of the revised edition were administered to a total of 768 high school, junior college, and university students.

3. With the revision and addition of items, the Inventory was enlarged from thirty-six to one hundred items. The items were organized by areas, to facilitate counseling and to assist in the planning of instruction.

4. The first preliminary revised form was correlated with the original Health Practice Inventory. The result was a correlation coefficient of .843. In addition, individual items were validated through biserial correlations of

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each individual's score on the total first form and third form, with his score on each item of the revised form.

5. The second preliminary revised form was processed similarly to the original Health Practice Inventory by submitting it to a jury of authorities in the field of health education. These experts, selected for their experience and competency in particular areas comprising the Inventory, appraised the Inventory in its entirety, as well as each specific health practice statement.

6. Percentile norms were established for the Inventory using scores obtained from a sampling of high schools, colleges, and universities.

7. Reliability and validity were established for the revised Inventory.

8. New scoring methods were devised to facilitate the instructor's use of the Inventory itself, and use of answer sheets scored either manually or by machine.6

The validity of the instrument was established by Johns and Juhnke as follows:

1. By careful selection of items from authoritative health education references.

2. By a student-roommate study in which the student rated himself, and his roommate also rated the student's practices, followed by a statistical study of the ratings.

3. By a critical analysis on the part of recognized authorities in health education of the total Inventory and revised Inventory of each health practice statement.

4. By a study in which the senior author observed the health practices of fifteen fraternity men over a two and one-half months'
period and compared the students' own ratings with those actually observed.

5. By an objective study of a high-school hygiene class in which objective measures were applied as a check against student responses on the Inventory.

6. By determining discrimination values for each health practice statement on both the original and revised Inventory.

7. By determining through biserial correlations the validity of each item appearing on the revised Inventory.\(^7\)

In establishing the reliability of the instrument, Johns and Juhnke utilized three experiments with the original Inventory and experiments with three forms of the revised Inventory. The resulting reliability coefficients were .87, .88, .86 and .84, .73, .87, respectively.\(^8\) The revised form was used in this study.

The Health Practice Inventory consists of 100 practice statements representing a comprehensive scope of health education topics. The topics are personal health; nutrition; dental health; physical activity and recreation; rest, sleep, and relaxation; prevention and control of communicable disease; prevention and control of chronic disease; stimulants and depressants; mental health; family health; consumer health; community health; and safety education.

\(^7\)Ibid., pp. 4-5.

\(^8\)Ibid., p. 4.
On each health practice statement the student is instructed to select one of the five answers that is available which evaluates the extent of his health practice. A perfect total score is 500. The Inventory normally requires thirty minutes for completion. However, no time limit is required.  

Procedures for Treating the Data

After the data were collected, the tenability of the hypotheses of this study was tested by the following statistical treatment:

The research hypotheses were restated in the null form for statistical treatment. Each of the first nine hypotheses was tested by the utilization of the Pearson Product Moment Coefficient of Correlation. Thereafter, an appropriate table was consulted to determine the significance of the difference of \( r \) from .00 in each of the hypotheses. Hypotheses ten and eleven were tested by the utilization of the significance of the difference between two means. Thereafter, Fisher's \( t \) test was used to ascertain the degree of confidence which could be put in the difference between the means. The findings were arbitrarily accepted or rejected at the .05 level of significance.
The results of the statistical treatment are reported in detail in Chapter IV. Formulation of conclusions, implications, and recommendations are found in Chapter V and are consistent with the data obtained.
CHAPTER IV

PRESENTATION AND ANALYSIS OF THE DATA

This was a study of the relationship of health knowledges to health practices of college freshmen at North Texas State University. The basic purpose of this study was to ascertain the relationship of health knowledge and application to reported health practices of college freshmen at North Texas State University as measured by the Health Education Test: Knowledge and Application, and the Health Practice Inventory. The Health Practice Inventory was administered to 215 college freshmen (101 males and 114 females) enrolled in the required activity physical education program at North Texas State University in the Fall Semester, 1968. Within a relatively short duration (two days) following the administration of the Health Practice Inventory, the Health Education Test was administered to the same students. The two variables used in this study were health knowledges and health practices, as measured by the instruments mentioned above. The data obtained from these tests are the basis for the findings of the study.
To test the hypotheses of this study, the Pearson Product Moment Coefficient of Correlation (r) was utilized to test the first nine hypotheses. Hypotheses ten and eleven were tested by using the significance of the difference between two means. Fisher's $t$ test was used to ascertain whether a significant difference existed between the resultant mean scores of health knowledges and health practices as measured by the instruments selected for this study.

The formulas used in the computation of $r$ and Fisher's $t$ test were the standard formulas used at the North Texas State University Computer Center and were taken from McNemar. The data were punched on IBM cards and all the statistical analyses were computed at the computer center. The research hypotheses were restated in the null form for statistical treatment. The .05 level of significance was arbitrarily established as the level at which the hypotheses would be accepted. The .01 level was considered to be highly significant.

---

Data Related to Hypothesis 1

It was stated in Hypothesis 1 that there will be a significant relationship between health knowledge and application and reported health practices of college freshmen at North Texas State University, as measured by the total scores on the Health Education Test: Knowledge and Application and the Health Practice Inventory.

The means, standard deviations, value of $r$, and level of significance between the students' total scores on the Health Education Test: Knowledge and Application and the Health Practice Inventory are presented in Table III.

TABLE III

MEANS, STANDARD DEVIATIONS, VALUE OF $r$, AND LEVEL OF SIGNIFICANCE BETWEEN HEALTH KNOWLEDGE AND APPLICATION AND REPORTED HEALTH PRACTICES OF COLLEGE FRESHMEN

(N = 215)

<table>
<thead>
<tr>
<th>Health Knowledge and Application</th>
<th>Health Practices</th>
<th>Value of $r$</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>64.4883</td>
<td>7.9637</td>
<td>361.8883</td>
<td>27.4927</td>
</tr>
</tbody>
</table>

*Not significant at the .05 level.
Hypothesis 1 was tested utilizing 200 degrees of freedom. The two-tailed test was used, and the $r$ value must have reached .14 for acceptance of the research hypothesis. Two hundred fifteen students were included in the computation of the total scores on both the Health Education Test: Knowledge and Application and the Health Practice Inventory related to Hypothesis 1.

An examination of Table III indicates that there was no significant relationship between health knowledge and application and reported health practices of college freshmen. Therefore, the research hypothesis was rejected.

Data Related to Hypothesis 2

It was stated in Hypothesis 2 that there will be a significant relationship between health knowledge and application and reported health practices of college freshmen at North Texas State University who score in the upper one-quarter on the Health Education Test: Knowledge and Application, as measured by the total scores on the Health Education Test: Knowledge and Application and the Health Practice Inventory.

---

The means, standard deviations, value of $r$, and level of significance between the total scores of college freshmen who scored in the upper one-quarter on the Health Education Test: Knowledge and Application, as measured by the total scores on the Health Education Test: Knowledge and Application, and the Health Practice Inventory are presented in Table IV.

**TABLE IV**

**MEANS, STANDARD DEVIATIONS, VALUE OF $r$, AND LEVEL OF SIGNIFICANCE BETWEEN HEALTH KNOWLEDGE AND APPLICATION AND REPORTED HEALTH PRACTICES OF COLLEGE FRESHMEN WHO SCORED IN THE UPPER ONE-QUARTER ON THE HEALTH EDUCATION TEST: KNOWLEDGE AND APPLICATION (N = 54)**

<table>
<thead>
<tr>
<th>Health Knowledge and Application</th>
<th>Health Practices</th>
<th>Value of $r$</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>73.2592</td>
<td>3.0561</td>
<td>368.4444</td>
<td>27.8915</td>
</tr>
</tbody>
</table>

*Significance approaches the .01 level.

Hypothesis 2 was tested utilizing 50 degrees of freedom. The two-tailed test was used, and the $r$ value must have reached .27 for acceptance of the research hypothesis. $^3$

$^3$Ibid.
Fifty-four students were included in the computation of those who scored in the upper one-quarter on the Health Education Test: Knowledge and Application, as measured by the total scores on the Health Education Test: Knowledge and Application and the Health Practice Inventory relative to Hypothesis 2.

An examination of Table IV indicates that there was a significant relationship between health knowledge and application and reported health practices of college freshmen who scored in the upper one-quarter on the Health Education Test: Knowledge and Application. Therefore, the research hypothesis was accepted.

Data Related to Hypothesis 3

It was stated in Hypothesis 3 that there will be a significant relationship between health knowledge and application and reported health practices of college freshmen at North Texas State University who score in the lower one-quarter on the Health Education Test: Knowledge and Application, as measured by the total scores on the Health Education Test: Knowledge and Application and the Health Practice Inventory.
The means, standard deviations, value of r, and level of significance between the total scores of college freshmen who scored in the lower one-quarter on the Health Education Test: Knowledge and Application, as measured by the total scores on the Health Education Test: Knowledge and Application and the Health Practice Inventory are presented in Table V.

TABLE V

MEANS, STANDARD DEVIATIONS, VALUE OF r, AND LEVEL OF SIGNIFICANCE BETWEEN HEALTH KNOWLEDGE AND APPLICATION AND REPORTED HEALTH PRACTICES OF COLLEGE FRESHMEN WHO SCORED IN THE LOWER ONE-QUARTER ON THE HEALTH EDUCATION TEST: KNOWLEDGE AND APPLICATION (N = 54)

<table>
<thead>
<tr>
<th>Health Knowledge and Application</th>
<th>Health Practices</th>
<th>Value of r</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>53.9074</td>
<td>5.9791</td>
<td>359.2962</td>
<td>29.6634</td>
</tr>
</tbody>
</table>

*Not significant at the .05 level.

Hypothesis 3 was tested utilizing 50 degrees of freedom. The two-tailed test was used, and the r value must have reached .27 for acceptance of the research hypothesis.}

Ibid.
Fifty-four students were included in the computation of those who scored in the lower one-quarter on the Health Education Test: Knowledge and Application, as measured by the total scores on the Health Education Test: Knowledge and Application and the Health Practice Inventory relative to Hypothesis 3.

An examination of Table V indicates that there was no significant relationship between health knowledge and application and reported health practices of college freshmen who scored in the lower one-quarter on the Health Education Test: Knowledge and Application. Therefore, the research hypothesis was rejected.

Data Related to Hypothesis 4

It was stated in Hypothesis 4 that there will be a significant relationship between health knowledge and application and reported health practices of male college freshmen at North Texas State University, as measured by the total scores on the Health Education Test: Knowledge and Application and the Health Practice Inventory.

The means, standard deviations, value of $r$, and level of significance between the male students' total scores on the
Health Education Test: Knowledge and Application and the Health Practice Inventory are presented in Table VI.

**TABLE VI**

MEANS, STANDARD DEVIATIONS, VALUE OF \( r \), AND LEVEL OF SIGNIFICANCE BETWEEN HEALTH KNOWLEDGE AND APPLICATION AND REPORTED HEALTH PRACTICES OF MALE COLLEGE FRESHMEN (\( N = 101 \))

<table>
<thead>
<tr>
<th>Health Knowledge and Application</th>
<th>Health Practices</th>
<th>Value of ( r )</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>62.4851</td>
<td>8.2072</td>
<td>356.1485</td>
<td>28.4766</td>
</tr>
</tbody>
</table>

*Not significant at the .05 level.

Hypothesis 4 was tested utilizing 100 degrees of freedom. The two-tailed test was used, and the \( r \) value must have reached .20 for acceptance of the research hypothesis. One hundred one male students were included in the computation of the total scores on both the Health Education Test: Knowledge and Application and the Health Practice Inventory related to Hypothesis 4.

An analysis of Table VI indicates that there was no significant relationship between health knowledge and application and reported health practices of male college freshmen. Therefore, the research hypothesis was rejected.

Data Related to Hypothesis 5

It was stated in Hypothesis 5 that there will be a significant relationship between health knowledge and application and reported health practices of male college freshmen at North Texas State University who score in the upper one-quarter on the Health Education Test: Knowledge and Application, as measured by the total scores on the Health Education Test: Knowledge and Application and the Health Practice Inventory.

The means, standard deviations, value of r, and level of significance between the total scores of male college freshmen who scored in the upper one-quarter on the Health Education Test: Knowledge and Application, as measured by the total scores on the Health Education Test: Knowledge and Application and the Health Practice Inventory are presented in Table VII.
TABLE VII

MEANS, STANDARD DEVIATIONS, VALUE OF r, AND LEVEL OF SIGNIFICANCE BETWEEN HEALTH KNOWLEDGE AND APPLICATION AND REPORTED HEALTH PRACTICES OF MALE COLLEGE FRESHMEN WHO SCORED IN THE UPPER ONE-QUARTER ON THE HEALTH EDUCATION TEST: KNOWLEDGE AND APPLICATION (N = 25)

<table>
<thead>
<tr>
<th>Health Knowledge and Application</th>
<th>Health Practices</th>
<th>Value of r</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>71.5200</td>
<td>3.1384</td>
<td>356.6400</td>
<td>28.4181</td>
</tr>
</tbody>
</table>

*Not significant at the .05 level.

Hypothesis 5 was tested utilizing 23 degrees of freedom. The two-tailed test was used, and the r value must have reached .40 for acceptance of the research hypothesis. Twenty-five male students were included in the computation of those who scored in the upper one-quarter on the Health Education Test: Knowledge and Application, as measured by the total scores on the Health Education Test: Knowledge and Application and the Health Practice Inventory relative to Hypothesis 5.

---

6 Ibid.
An examination of Table VII indicates that there was no significant relationship between health knowledge and application and reported health practices of male college freshmen who scored in the upper one-quarter on the Health Education Test: Knowledge and Application. Therefore, the research hypothesis was rejected.

Data Related to Hypothesis 6

It was stated in Hypothesis 6 that there will be a significant relationship between health knowledge and application and reported health practices of male college freshmen at North Texas State University who score in the lower one-quarter on the Health Education Test: Knowledge and Application, as measured by the total scores on the Health Education Test: Knowledge and Application and the Health Practice Inventory.

The means, standard deviations, value of r, and level of significance between the total scores of male college freshmen who scored in the lower one-quarter on the Health Education Test: Knowledge and Application, as measured by the total scores on the Health Education Test: Knowledge and Application and the Health Practice Inventory are presented in Table VIII.
TABLE VIII

MEANS, STANDARD DEVIATIONS, VALUE OF r, AND LEVEL OF SIGNIFICANCE BETWEEN HEALTH KNOWLEDGE AND APPLICATION AND REPORTED HEALTH PRACTICES OF MALE COLLEGE FRESHMEN WHO SCORED IN THE LOWER ONE-QUARTER ON THE HEALTH EDUCATION TEST: KNOWLEDGE AND APPLICATION (N = 25)

<table>
<thead>
<tr>
<th>Health Knowledge and Application</th>
<th>Health Practices</th>
<th>Value of r</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean 51.5600  SD 6.5548</td>
<td>Mean 356.3200 SD 33.9785</td>
<td>r .0523</td>
<td>NS*</td>
</tr>
</tbody>
</table>

*Not significant at the .05 level.

Hypothesis 6 was tested utilizing 23 degrees of freedom. The two-tailed test was used, and the r value must have reached .40 for acceptance of the research hypothesis.\(^7\) Twenty-five male students were included in the computation of those who scored in the lower one-quarter on the Health Education Test: Knowledge and Application, as measured by the total scores on the Health Education Test: Knowledge and Application and the Health Practice Inventory relative to Hypothesis 6.

\(^7\)Ibid.
An analysis of Table VIII indicates that there was no significant relationship between health knowledge and application and reported health practices of male college freshmen who scored in the lower one-quarter on the Health Education Test: Knowledge and Application. Therefore, the research hypothesis was rejected.

Data Related to Hypothesis 7

It was stated in Hypothesis 7 that there will be a significant relationship between health knowledge and application and reported health practices of female college freshmen at North Texas State University, as measured by the total scores on the Health Education Test: Knowledge and Application and the Health Practice Inventory.

The means, standard deviations, value of r, and level of significance between the female students' total scores on the Health Education Test: Knowledge and Application and the Health Practice Inventory are presented in Table IX.

Hypothesis 7 was tested utilizing 100 degrees of freedom. The two-tailed test was used, and the r value must have reached .20 for acceptance of the research hypothesis.  

---

8Ibid.
One-hundred fourteen female students were included in the computation of the total scores on both the Health Education Test and the Health Practice Inventory related to Hypothesis 7.

TABLE IX

MEANS, STANDARD DEVIATIONS, VALUE OF r, AND LEVEL OF SIGNIFICANCE BETWEEN HEALTH KNOWLEDGE AND APPLICATION AND REPORTED HEALTH PRACTICES OF FEMALE COLLEGE FRESHMEN (N = 114)

<table>
<thead>
<tr>
<th>Health Knowledge and Application</th>
<th>Health Practices</th>
<th>Value of r</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean 66.2631</td>
<td>SD 7.2958</td>
<td>Mean 366.9736</td>
<td>SD 25.5344</td>
</tr>
</tbody>
</table>

*Not significant at the .05 level.

An analysis of Table IX indicates that there was no significant relationship between health knowledge and application and reported health practices of female college freshmen. Therefore, the research hypothesis was rejected.
Data Related to Hypothesis 8

It was stated in Hypothesis 8 that there will be a significant relationship between health knowledge and application and reported health practices of female college freshmen at North Texas State University who score in the upper one-quarter on the Health Education Test: Knowledge and Application, as measured by the total scores on the Health Education Test: Knowledge and Application and the Health Practice Inventory.

The means, standard deviations, value of r, and level of significance between the total scores of female college freshmen who scored in the upper one-quarter on the Health Education Test: Knowledge and Application, as measured by the total scores on the Health Education Test: Knowledge and the Health Practice Inventory are presented in Table X.

Hypothesis 8 was tested utilizing 26 degrees of freedom. The two-tailed test was used, and the r value must have reached .37 for acceptance of the research hypothesis.\(^9\) Twenty-eight female students were included in the computation of those who scored in the upper one-quarter on the Health Education Test: Knowledge and Application, as measured by the total scores on the Health Education Test: Knowledge and the Health Practice Inventory.

---

\(^{9}\)Ibid.
Education Test: Knowledge and Application, as measured by the total scores on the Health Education Test: Knowledge and Application and the Health Practice Inventory relative to Hypothesis 8.

TABLE X

MEANS, STANDARD DEVIATIONS, VALUE OF r, AND LEVEL OF SIGNIFICANCE BETWEEN HEALTH KNOWLEDGE AND APPLICATION AND REPORTED HEALTH PRACTICES OF FEMALE COLLEGE FRESHMEN WHO SCORED IN THE UPPER ONE-QUARTER ON THE HEALTH EDUCATION TEST: KNOWLEDGE AND APPLICATION (N = 28)

<table>
<thead>
<tr>
<th>Health Knowledge and Application</th>
<th>Health Practices</th>
<th>Value of r</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>74.4642</td>
<td>2.9213</td>
<td>376.6071</td>
<td>27.6474</td>
</tr>
</tbody>
</table>

*Not significant at the .05 level.

An examination of Table X indicates that there was no significant relationship between health knowledge and application and reported health practices of female college freshmen who scored in the upper one-quarter on the Health Education
Test: Knowledge and Application. Therefore, the research hypothesis was rejected.

Data Related to Hypothesis 9

It was stated in Hypothesis 9 that there will be a significant relationship between health knowledge and application and reported health practices of female college freshmen at North Texas State University who score in the lower one-quarter on the Health Education Test: Knowledge and Application, as measured by the total scores on the Health Education Test: Knowledge and Application and the Health Practice Inventory.

The means, standard deviations, value of r, and level of significance between the total scores of female college freshmen who scored in the lower one-quarter on the Health Education Test: Knowledge and Application, as measured by the total scores on the Health Education Test: Knowledge and Application and the Health Practice Inventory are presented in Table XI.

Hypothesis 9 was tested utilizing 26 degrees of freedom. The two-tailed test was used, and the r value must have reached .37 for acceptance of the research hypothesis.10

10 Ibid.
Twenty-eight female students were included in the computation of those who scored in the lower one-quarter on the Health Education Test: Knowledge and Application, as measured by the total scores on the Health Education Test: Knowledge and Application and the Health Practice Inventory relative to Hypothesis 9.

TABLE XI

MEANS, STANDARD DEVIATIONS, VALUE OF r, AND LEVEL OF SIGNIFICANCE BETWEEN HEALTH KNOWLEDGE AND APPLICATION AND REPORTED HEALTH PRACTICES OF FEMALE COLLEGE FRESHMEN WHO SCORED IN THE LOWER ONE-QUARTER ON THE HEALTH EDUCATION TEST: KNOWLEDGE AND APPLICATION (N = 28)

<table>
<thead>
<tr>
<th>Health Knowledge and Application</th>
<th>Health Practices</th>
<th>Value of r</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean 56.2500 SD 4.0108</td>
<td>Mean 362.7857 SD 25.3213</td>
<td>.0162</td>
<td>NS*</td>
</tr>
</tbody>
</table>

*Not significant at the .05 level.

An analysis of Table XI indicates that there was no significant relationship between health knowledge and application and reported health practices of female college freshmen who
scored in the lower one-quarter on the Health Education Test: Knowledge and Application. Therefore, the research hypothesis was rejected.

Data Related to Hypothesis 10

It was stated in Hypothesis 10 that there will be a significant difference between mean scores of male and female college freshmen at North Texas State University on the Health Education Test: Knowledge and Application.

The means, standard deviations, Fisher's $t$ value, and level of significance between the mean scores of male and female college freshman students on the Health Education Test: Knowledge and Application are presented in Table XII.

Hypothesis 10 was tested utilizing 100 degrees of freedom. The two-tailed test was used, and the value of $t$ (the critical ratio), must have reached 1.96 for acceptance of the research hypothesis. Two-hundred fifteen students were included in the computation of the resultant mean scores of male and female college freshmen on the Health Education Test: Knowledge and Application related to Hypothesis 10.

\[\text{Ibid., p. 183.}\]
TABLE XII

MEANS, STANDARD DEVIATIONS, FISHER'S $t$ VALUE, AND LEVEL OF SIGNIFICANCE BETWEEN MEAN SCORES OF MALE AND FEMALE COLLEGE FRESHMEN ON THE HEALTH EDUCATION TEST: KNOWLEDGE AND APPLICATION ($N = 215$)

<table>
<thead>
<tr>
<th>Health Knowledge and Application of Males ($N = 101$)</th>
<th>Health Knowledge and Application of Females ($N = 114$)</th>
<th>Fisher's $t$ Value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>62.4851</td>
<td>8.2072</td>
<td>66.2631</td>
<td>7.2958</td>
</tr>
</tbody>
</table>

*Highly significant at greater than the .001 level.

An analysis of Table XII indicates that there was a highly significant relationship between the mean scores of male and female college freshmen on the Health Education Test: Knowledge and Application in favor of the female students. Therefore, the research hypothesis was accepted without reservation.

Data Related to Hypothesis 11

It was stated in Hypothesis 11 that there will be a significant difference between mean scores of male and
female college freshmen at North Texas State University on the Health Practice Inventory.

The means, standard deviations, Fisher's t value, and level of significance between the mean scores of male and female college freshman students on the Health Practice Inventory are presented in Table XIII.

**TABLE XIII**

MEANS, STANDARD DEVIATIONS, FISHER'S t VALUE, AND LEVEL OF SIGNIFICANCE BETWEEN MEAN SCORES OF MALE AND FEMALE COLLEGE FRESHMEN ON THE HEALTH PRACTICE INVENTORY 
(N = 215)

<table>
<thead>
<tr>
<th>Health Practices of Males (N = 101)</th>
<th>Health Practices of Females (N = 114)</th>
<th>Fisher's t Value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>356.1485</td>
<td>28.4766</td>
<td>366.9736</td>
<td>25.5344</td>
</tr>
</tbody>
</table>

*Highly significant at greater than the .01 level.

Hypothesis 11 was tested utilizing 100 degrees of freedom. The two-tailed test was used, and the value of t (the critical ratio), must have reached 1.96 for acceptance of.
the research hypothesis. Two-hundred fifteen students were included in the computation of the resultant mean scores of male and female college freshmen on the Health Practice Inventory related to Hypothesis II.

An analysis of Table XIII indicates that there was a highly significant relationship between the mean scores of male and female college freshmen on the Health Practice Inventory in favor of the female students. Therefore, the research hypothesis was accepted without reservation.

\(^{12}\text{Ibid.}\)
CHAPTER V

SUMMARY, CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

Summary

The present study was an investigation of the relationship of health knowledges to health practices of college freshmen at North Texas State University. In seeking a solution to the problem, the study was designed to test the following hypotheses:

1. There will be a significant relationship between health knowledge and application and reported health practices of college freshmen at North Texas State University, as measured by the total scores on the Health Education Test: Knowledge and Application and the Health Practice Inventory.

2. There will be a significant relationship between health knowledge and application and reported health practices of college freshmen at North Texas State University who score in the upper one-quarter on the Health Education Test: Knowledge and Application, as measured by the total scores on the Health Education Test: Knowledge and Application and the Health Practice Inventory.
3. There will be a significant relationship between health knowledge and application and reported health practices of college freshmen at North Texas State University who score in the lower one-quarter on the Health Education Test: Knowledge and Application, as measured by the total scores on the Health Education Test: Knowledge and Application and the Health Practice Inventory.

4. There will be a significant relationship between health knowledge and application and reported health practices of male college freshmen at North Texas State University, as measured by the total scores on the Health Education Test: Knowledge and Application and the Health Practice Inventory.

5. There will be a significant relationship between health knowledge and application and reported health practices of male college freshmen at North Texas State University who score in the upper one-quarter on the Health Education Test: Knowledge and Application, as measured by the total scores on the Health Education Test: Knowledge and Application and the Health Practice Inventory.

6. There will be a significant relationship between health knowledge and application and reported health
practices of male college freshmen at North Texas State University who score in the lower one-quarter on the Health Education Test: Knowledge and Application, as measured by the total scores on the Health Education Test: Knowledge and Application and the Health Practice Inventory.

7. There will be a significant relationship between health knowledge and application and reported health practices of female college freshmen at North Texas State University, as measured by the total scores on the Health Education Test: Knowledge and Application and the Health Practice Inventory.

8. There will be a significant relationship between health knowledge and application and reported health practices of female college freshmen at North Texas State University who score in the upper one-quarter on the Health Education Test: Knowledge and Application, as measured by the total scores on the Health Education Test: Knowledge and Application and the Health Practice Inventory.

9. There will be a significant relationship between health knowledge and application and reported health practices of female college freshmen at North Texas State University who score in the lower one-quarter on the Health
Education Test: Knowledge and Application, as measured by the total scores on the Health Education Test: Knowledge and Application and the Health Practice Inventory.

10. There will be a significant difference between mean scores of male and female college freshmen at North Texas State University on the Health Education Test: Knowledge and Application.

11. There will be a significant difference between mean scores of male and female college freshmen at North Texas State University on the Health Practice Inventory.

To test the hypotheses, subjects for the investigation consisted of 101 male college freshmen and 114 female college freshmen enrolled in the required activity physical education program in the Fall Semester, 1968, at North Texas State University. There were forty-six male class sections and seventy-nine female class sections in the required activity physical education program during the Fall Semester. The method used for choosing the number of students to be tested was the utilization of a table of random numbers for selecting class sections, until a sufficient number of sections was obtained in order to assure a minimum of 200 freshman students
(100 males and 100 females). This resulted in the selection of five male classes and six female classes.

The instruments used to measure the criteria of health knowledge and application and reported health practices were the Health Education Test: Knowledge and Application, developed by Shaw, Troyer, and Brownell, and the Health Practice Inventory, developed by Johns and Juhnke. The Health Education Test: Knowledge and Application consists of sixty multiple-choice items that deal with important health facts and concepts and forty true-false items that are designed to require the students to apply health knowledge to problematical situations. The test samples fifteen various topics concerned with health education. A perfect score is 100.

The Health Practice Inventory consists of 100 practice statements representing a comprehensive scope of thirteen health education topics. On each health practice statement the student selects one of the five answers that is available which best evaluates the extent of the individual's health practice. A perfect total score is 500.

Male and female classes were tested separately during the Fall Semester, 1968. The Health Practice Inventory was
administered during one class period, and the Health Education Test was administered to the same group at their next class meeting. In order to maintain uniformity in the administration of the instruments, the investigator administered all the tests and was cognizant of the importance of proceeding with the standardized directions. The answer sheets as well as the instruments used were standardized.

After the data were collected, the tenability of the hypotheses of the study were tested by the following statistical treatment:

1. The research hypotheses were restated in the null form.

2. The first nine hypotheses were tested by the utilization of the Pearson Product Moment Coefficient of Correlation. An appropriate table was consulted to determine the significance of the difference of r from .00.

3. Hypotheses ten and eleven were tested by the utilization of the significance of the difference between two means. Fisher's t test was used to ascertain the degree of confidence which could be put in the difference between the means.
4. The findings were arbitrarily accepted or rejected at the .05 level of significance.

In formulating and analyzing the data collected in this study, the findings showed no significant relationship between health knowledge and application and reported health practices of college freshmen at North Texas State University, as measured by the total scores on the Health Education Test: Knowledge and Application and the Health Practice Inventory. However, the hypothesis that the relationship between health knowledge and application and reported health practices of college freshmen who scored in the upper one-quarter on the Health Education Test: Knowledge and Application, as measured by the total scores on the Health Education Test: Knowledge and Application and the Health Practice Inventory, was found to be highly significant. The level of significance approached the .01 level. Hypothesis 10, stating that there will be a significant difference between mean scores of male and female college freshmen at North Texas State University on the Health Education Test: Knowledge and Application was supported in favor of the females. The level of confidence was highly significant at greater than the .001 level. Likewise, Hypothesis 11, stating that there will be a significant
difference between mean scores of male and female college freshmen at North Texas State University on the Health Practice Inventory was found to be tenable in favor of the females. The level of significance was greater than the .01 level.

Conclusions

The following conclusions were formulated from an analysis of the data obtained in this study:

1. The acquisition of health knowledge, as measured in this study, has little relationship to a student's health practices.

2. No significant relationship exists between health knowledge and application and reported health practices of male college students.

3. No significant relationship exists between health knowledge and application and reported health practices of female college students.

4. Female college freshmen possess health knowledge which is more favorable than that of male college freshmen.

5. Female college freshmen have more favorable health practices than do their male counterparts.
6. The presentation and acquisition of factual health knowledge does not assure favorable health practices.

Implications

The following implications were inferred from an analysis of the findings and conclusions in this study:

1. The public schools are not providing meaningful experiences for influencing favorable behavioral changes which are commensurate to desirable health practices.

2. Since females have more favorable health knowledges and more favorable health practices than their male counterparts, it may be inferred that they had more favorable learning experiences.

3. The public schools should be cognizant of the need for their educators to be desirable ego-models for their students to identify with, for the purpose of influencing the students' desirable self-concept through the enhancement of favorable attitudes.

Recommendations

As a result of this study, the following recommendations are made:
1. It is recommended that sufficient emphasis be placed on the need for improvement of health knowledge and the importance of desirable health practices for all students in the public schools and higher institutions of learning.

2. It is recommended that instruments similar to those used in this study be used as a basis for pretesting entering college freshmen to determine their present level of health knowledge and application, and as a posttest for evaluating individual progress.

3. It is recommended that the health education curriculum be re-evaluated on both the public school and collegiate levels.

4. It is recommended that high school educators could profitably utilize the results of this study in the formulation, redevelopment, and revamping of the high school health education curriculum.

5. It is recommended that renewed emphasis be placed on effective ego-involvement and favorable attitudinal change and formation in the health education curriculum and pedagogic domain.

6. It is recommended that research be continued which would help the instructor select appropriate objectives or
desired outcomes as they relate to the practical application and health needs of the students. Moreover, sound methodology and ways to accomplish these objectives should be studied.

7. It is recommended that a comparative study concerned with the relationship of health knowledges and health practices of high school students be made.

8. It is recommended that a study be made regarding attitudes and perceptions of male and female students regarding their perception of teachers who are appropriate ego-models or "significant others."

9. It is recommended that a study be made to determine the effect of socio-economic factors in relation to health knowledges and health practices of students.

10. It is recommended that a longitudinal study be made regarding the relationship of health knowledges to health practices of students, which encompasses several different levels of education.

11. It is recommended that studies be conducted to determine the effects of various teacher attitudes and personalities on achievement in health classes.
APPENDIX A

American Association for Health
Physical Education and Recreation
1201 Sixteenth Street, N. W.
Washington, D. C. 20036

Gentlemen:

I would greatly appreciate it if you would grant to me permission to reproduce two tables for the purpose of being placed in my dissertation.

These two tables are found in the Research Quarterly, Volume 33, No. 1, in the article entitled "An Analysis of the Health and Health Education Research in the Research Quarterly, 1951-1960," by Robert D. Russell.

Thanking you kindly in advance for your cooperation in this matter and looking forward to hearing from you, I am

Sincerely yours,

Millard Fisher

Dear Mr. Fisher:

You have our permission to reproduce the above mentioned tables for use in your dissertation. Please give appropriate credit to both the RESEARCH QUARTERLY and the Association.

Sincerely,

Nancy Rosenberg
Director of Publications,
AAHPER
APPENDIX B

Mr. Millard Fisher
Department of Health, Physical Education and Recreation
North Texas State University
Denton, Texas 76203

Dear Mr. Fisher:

In answer to your letter of November 2, 1968, you certainly have my permission to reproduce one copy of the Health Practice Inventory to place in the appendix of your dissertation.

I hope things are going well for you.

Cordially,

Edward B. Johns, Professor
Health Education
APPENDIX C

Psychometric Affiliates
Chicago Plaza
Brookport, Illinois 62910

Gentlemen:

I would greatly appreciate it if you would grant permission to me to reproduce one copy of Shaw, Troyer, and Brownell's Health Education Test: Knowledge and Application to be placed in the appendix of my dissertation.

Thanking you kindly and looking forward to hearing from you concerning the granting of this permission, I am

Sincerely yours,

Millard Fisher

Mr. Fisher: You may reproduce one copy of above test.

Gordon Kerr

104
**HEALTH PRACTICE INVENTORY**

**JOHNS - JUHNKE**

**Answer Sheet**

Name __________________ (Last) __________________ (First) 

Instructor __________________ Class ___________ Sec. ____

**Section Scores:**

**A. PERSONAL HEALTH**

(1) 1 2 3 4 5  
(2) 1 2 3 4 5  
(3) 5 4 3 2 1  
(4) 1 2 3 4 5  
(5) 1 2 3 4 5  
(6) 1 2 3 4 5  
(7) 1 2 3 4 5  
(8) 1 2 3 4 5  
(9) 1 2 3 4 5

**B. NUTRITION**

(10) 1 2 3 4 5  
(11) 1 2 3 4 5  
(12) 1 2 3 4 5  
(13) 1 2 3 4 5  
(14) 1 2 3 4 5  
(15) 1 2 3 4 5  
(16) 5 4 3 2 1  
(17) 1 2 3 4 5

**C. DENTAL HEALTH**

(18) 5 4 3 2 1  
(19) 1 2 3 4 5  
(20) 1 2 3 4 5  
(21) 1 2 3 4 5  
(22) 1 2 3 4 5  
(23) 5 4 3 2 1  
(24) 1 2 3 4 5  
(25) 1 2 3 4 5  
(26) 1 2 3 4 5  
(27) 1 2 3 4 5

**D. PHYSICAL ACTIVITY AND RECREATION**

(28) 1 2 3 4 5  
(29) 1 2 3 4 5  
(30) 1 2 3 4 5  
(31) 1 2 3 4 5  
(32) 5 4 3 2 1  
(33) 1 2 3 4 5

**E. REST, SLEEP, RELAXATION**

Directions: Encircle the number corresponding to the best answer for your current health practices. Example: 1 2 (3) 4 5

Total ___

*Prepared by Wilfred C. Sutton, University of California, Los Angeles, 1955.*
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<td>64</td>
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<td></td>
</tr>
<tr>
<td>65</td>
<td>1  2  3  4  5</td>
<td></td>
</tr>
</tbody>
</table>
Carefully fill out the information requested on this sheet before answering the questions. Then indicate on this sheet that letter which represents your choice of answer for each question. All of the answers may be true but there is one best answer. Answer all questions. Do not write on the test itself.

PART 1

1.  13.  25.  37.  49.  Name________________________
3.  15.  27.  39.  51.  
4.  16.  28.  40.  52.  Father's Occupation__________
5.  17.  29.  41.  53.  
6.  18.  30.  42.  54.  
7.  19.  31.  43.  55.  Male_____ Female__________
8.  20.  32.  44.  56.  
9.  21.  33.  45.  57.  
10.  22.  34.  46.  58.  Size of community in which you live:
11.  23.  35.  47.  59.  2,500 - 5,000
12.  24.  36.  48.  60.  5,000 - 50,000
   above 50,000
PART 2

61. ___ 71. ___ 81. ___ 91. ___
62. ___ 72. ___ 82. ___ 92. ___
63. ___ 73. ___ 83. ___ 93. ___
64. ___ 74. ___ 84. ___ 94. ___
65. ___ 75. ___ 85. ___ 95. ___
66. ___ 76. ___ 86. ___ 96. ___
67. ___ 77. ___ 87. ___ 97. ___
68. ___ 78. ___ 88. ___ 98. ___
69. ___ 79. ___ 89. ___ 99. ___
70. ___ 80. ___ 90. ___ 100. ___

Courses studied in High School:

- Biology
- General Science
- Physiology
- Home Economics
- Child Care
- Chemistry
- Physics
- Personal Hygiene
- Community Hygiene
- Social Hygiene
- Mental Hygiene
- First Aid

How much time do you spend each day

Looking at television ___
Listening to radio ___
Reading newspaper ___
APPENDIX F
HEALTH PRACTICE INVENTORY

EDWARD B. JOHNS, Ed.D
Associate Professor and Chairman, Health Education Unit
University of California, Los Angeles

and

WARREN L. JUHNKE, M.S.
Westchester High School
Los Angeles

Make no marks on this Inventory
if you are using Answer Sheets

<table>
<thead>
<tr>
<th>Name</th>
<th>Last</th>
<th>First</th>
<th>Middle</th>
</tr>
</thead>
<tbody>
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<table>
<thead>
<tr>
<th>Date</th>
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<th>Sex</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tbody>
</table>

School, College, or University

Class (Fr., Soph., etc.)

Below is a list of background courses. Underline those which you have completed, and indicate the number of credits received for each course.

<table>
<thead>
<tr>
<th>HIGH SCHOOL</th>
<th>Number of credits</th>
<th>COLLEGE</th>
<th>Number of credits</th>
</tr>
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<tbody>
<tr>
<td>Health education</td>
<td></td>
<td>Health education</td>
<td></td>
</tr>
<tr>
<td>Biology</td>
<td></td>
<td>Biology</td>
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</tbody>
</table>
The purpose of the Inventory is to appraise your health practices. Answer truthfully your present practice relating to each item in the list of health habits. This inventory is not to be used for grading purposes. Your answers will remain confidential.

The first table, "Health Education Area Scores," shows your score within each area of health education that is included in the Inventory. It also shows you your percentile (%ile) rank. For example, if your percentile rank is 40, you scored as well as, or better than 40% of all persons of your grade level who have taken the test; likewise, 60% of those persons did better than you within this area.

The "Profile" shows you how your percentile ranks appear when all are plotted together. If you were exactly average in every area, your graph would appear as the perpendicular line at Percentile 50. If your graph lies mainly above the 50 %ile, your health practices are better than most persons at your level; if your graph lies chiefly below the 50 %ile, your health practices are poorer than most.
## HEALTH EDUCATION AREA SCORES

<table>
<thead>
<tr>
<th>Area</th>
<th>Possible score</th>
<th>Student's score</th>
<th>%ile rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Personal Health</td>
<td>45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. Nutrition</td>
<td>40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C. Dental Health</td>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D. Physical Activity and Recreation</td>
<td>35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E. Rest, Sleep, and Relaxation</td>
<td>30</td>
<td></td>
<td></td>
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<tr>
<td>F. Prevention and Control of Communicable Disease</td>
<td>55</td>
<td></td>
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<tr>
<td>G. Prevention and Control of Chronic Disease</td>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H. Stimulants and Depressants</td>
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<td></td>
<td></td>
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<tr>
<td>I. Mental Health</td>
<td>75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>J. Family Health</td>
<td>50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K. Consumer Health</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>L. Community Health</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>M. Safety Education</td>
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<tr>
<td>Total Score</td>
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PROFILE OF HEALTH PRACTICES

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<th>Area</th>
<th>Percentile</th>
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<tbody>
<tr>
<td></td>
<td>0  10 20 30 40 50 60 70 80 90 99</td>
</tr>
<tr>
<td>A.</td>
<td>. . . . . . . . . . . . . . . .</td>
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<tr>
<td>B.</td>
<td>. . . . . . . . . . . . . . . .</td>
</tr>
<tr>
<td>C.</td>
<td>. . . . . . . . . . . . . . . .</td>
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<tr>
<td>D.</td>
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<tr>
<td>E.</td>
<td>. . . . . . . . . . . . . . . .</td>
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<tr>
<td>F.</td>
<td>. . . . . . . . . . . . . . . .</td>
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<tr>
<td>G.</td>
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<tr>
<td>H.</td>
<td>. . . . . . . . . . . . . . . .</td>
</tr>
<tr>
<td>I.</td>
<td>. . . . . . . . . . . . . . . .</td>
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<tr>
<td>J.</td>
<td>. . . . . . . . . . . . . . . .</td>
</tr>
<tr>
<td>K.</td>
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</tr>
<tr>
<td>L.</td>
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</tr>
<tr>
<td>M.</td>
<td>. . . . . . . . . . . . . . . .</td>
</tr>
</tbody>
</table>

Directions: "DO YOU" refers to each item listed. Keep this thought in mind as you read each statement. Select the answer that most nearly indicates your present practice.

If you are using the Inventory without answer sheets, write your responses directly on the pages provided, then circle the number (1, 2, 3, 4, 5) preceding the word that most nearly indicates your present practice for that item. For example, in item "A.1.," if you "Rarely" plan your day to include time for work, physical activity, relaxation, and sleep, circle "2" on this item. Continue this procedure throughout the Inventory.

If you are using answer sheets, blacken the space below the number (1, 2, 3, 4, 5) corresponding to your answer on the answer sheet. For example, if your answer to item A.1., "DO YOU plan your day to include time for work, physical
activity, relaxation, and sleep," is "Usually," then blacken the space below number 4 in the "Usually" column on the answer sheet. Proceed in a similar manner for each question of the Inventory.

State your answers in accordance with what you DO, not what you think you should do.

A. DO YOU

1. Plan your day to include time for work, physical activity, relaxation, and sleep?
   1 Never  2 Rarely  3 Sometimes  4 Usually  5 Always

2. Spend two to three minutes each day caring for your hair and scalp?
   1 Never  2 Rarely  3 Sometimes  4 Usually  5 Always

3. Expose your body to the sun's rays for long periods of time?
   5 Never  4 Rarely  3 Sometimes  2 Usually  1 Always

4. Bathe daily or regularly as prescribed by physician?
   1 Never  2 Rarely  3 Sometimes  4 Usually  5 Always

5. Walk with erect carriage—head up, feet pointed directly forward?
   1 Never  2 Rarely  3 Sometimes  4 Usually  5 Always

6. Sit erect when studying, reading, or writing?
   1 Never  2 Rarely  3 Sometimes  4 Usually  5 Always

7. Buy shoes that fit and give good support to your feet?
   1 Never  2 Rarely  3 Sometimes  4 Usually  5 Always
8. Read and study by a steady, glareless light over your left shoulder, if right handed; over your right shoulder, if left handed?

1 Never  2 Rarely  3 Sometimes  4 Usually  5 Always

9. Look up occasionally to rest your eyes when studying or doing close work?

1 Never  2 Rarely  3 Sometimes  4 Usually  5 Always

---

B. DO YOU

10. Eat one or more servings of leafy, green, or yellow vegetables daily?

1 Never  2 Rarely  3 Sometimes  4 Usually  5 Always

11. Eat one egg (in some form) three or four times a week?

1 Never  2 Rarely  3 Sometimes  4 Usually  5 Always

12. Eat one serving of meat, poultry, or fish daily?

1 Never  2 Rarely  3 Sometimes  4 Usually  5 Always

13. Eat a complete breakfast such as fruit or juice, protein (i.e., egg), cereal, toast and butter, beverage (i.e., milk)?

1 Never  2 Rarely  3 Sometimes  4 Usually  5 Always

14. Eat two to three slices of whole wheat or enriched bread daily?

1 Never  2 Rarely  3 Sometimes  4 Usually  5 Always
15. Eat a serving of fruit or tomatoes twice a day?
   1 Never  2 Rarely  3 Sometimes  4 Usually  5 Always

16. Eat when you are tired, upset, or in a hurry?
   5 Never  4 Rarely  3 Sometimes  2 Usually  1 Always

17. Drink two or more glasses of milk daily?
   1 Never  2 Rarely  3 Sometimes  4 Usually  5 Always

18. Eat between-meal and before-bed snacks of foods con-
    refined sugars or starches?
   5 Never  4 Rarely  3 Sometimes  2 Usually  1 Always

19. Brush your teeth for two or three minutes immediately
    after eating, whenever possible?
   1 Never  2 Rarely  3 Sometimes  4 Usually  5 Always

20. Rinse your mouth with water immediately after eating
    when brushing the teeth is not possible?
   1 Never  2 Rarely  3 Sometimes  4 Usually  5 Always
D. DO YOU

21. Participate in corecreational sports (sports for both boys and girls) when provided an opportunity?
   1 Never 2 Rarely 3 Sometimes 4 Usually 5 Always

22. Try to attain a high degree of skill or more sports?
   1 Never 2 Rarely 3 Sometimes 4 Usually 5 Always

23. Exercise immediately after a meal?
   5 Never 4 Rarely 3 Sometimes 2 Usually 1 Always

24. Participate regularly in activities which will develop and keep you physically fit?
   1 Never 2 Rarely 3 Sometimes 4 Usually 5 Always

25. Participate in walking or hiking as part of your daily activity program?
   1 Never 2 Rarely 3 Sometimes 4 Usually 5 Always

26. Balance your recreation to include a variety of activities?
   1 Never 2 Rarely 3 Sometimes 4 Usually 5 Always

27. Spend some time each day outdoors in the sunlight or fresh air?
   1 Never 2 Rarely 3 Sometimes 4 Usually 5 Always
E. DO YOU

28. Change your activity when you feel fatigued?
   1 Never 2 Rarely 3 Sometimes 4 Usually 5 Always

29. Go to bed at approximately the same hour each night?
   1 Never 2 Rarely 3 Sometimes 4 Usually 5 Always

30. Get the amount of sleep each night which enables you to function most efficiently?
   1 Never 2 Rarely 3 Sometimes 4 Usually 5 Always

31. Awake in the morning feeling refreshed and alert after your usual night's sleep?
   1 Never 2 Rarely 3 Sometimes 4 Usually 5 Always

32. Worry because you are unable to sleep?
   5 Never 4 Rarely 3 Sometimes 2 Usually 1 Always

33. Sleep in a well-ventilated room with a moving current of air?
   1 Never 2 Rarely 3 Sometimes 4 Usually 5 Always

F. DO YOU

34. Keep your feet clean and dry, particularly between the toes?
   1 Never 2 Rarely 3 Sometimes 4 Usually 5 Always
35. Go to school, the movies, or other public places when you have a cold?

5 Never 4 Rarely 3 Sometimes 2 Usually 1 Always

36. Keep hands, pencils, and other objects away from eyes, nose, and mouth?

1 Never 2 Rarely 3 Sometimes 4 Usually 5 Always

37. Drink from cups or glasses which may not have been washed after they were used by other persons?

5 Never 4 Rarely 3 Sometimes 2 Usually 1 Always

38. Use combs or lipsticks belonging to others?

5 Never 4 Rarely 3 Sometimes 2 Usually 1 Always

39. Go to bed at once when you have a cold?

1 Never 2 Rarely 3 Sometimes 4 Usually 5 Always

40. Drink pasteurized milk?

1 Never 2 Rarely 3 Sometimes 4 Usually 5 Always

41. Take advantage of immunizing measures, such as vaccination for smallpox, at regular intervals?

1 Never 2 Rarely 3 Sometimes 4 Usually 5 Always

42. Immediately care for or have treated a beginning or potential infection such as a boil or blister?

1 Never 2 Rarely 3 Sometimes 4 Usually 5 Always

43. Cover your nose and mouth when you sneeze or cough?

1 Never 2 Rarely 3 Sometimes 4 Usually 5 Always
44. Blow your nose vigorously when it is congested (stuffed up)?

5 Never 4 Rarely 3 Sometimes 2 Usually 1 Always

---

G. DO YOU

45. Or would you consult a physician concerning any sore that fails to heal, wart or mole that grows, or persistent lump or pain?

1 Never 2 Rarely 3 Sometimes 4 Usually 5 Always

46. Take time to recuperate after an illness or injury before returning to school or work?

1 Never 2 Rarely 3 Sometimes 4 Usually 5 Always

47. Take a laxative (or enema) if you have abdominal pain?

5 Never 4 Rarely 3 Sometimes 2 Usually 1 Always

---

H. DO YOU

48. Use drugs such as headache or sleep-preventive patent medicines?

5 Never 4 Rarely 3 Sometimes 2 Usually 1 Always
49. Drink alcoholic beverages?

5 Never  4 Rarely  3 Sometimes  2 Usually (i.e., on social occasions)  1 Always (i.e., as a regular habit with a craving for alcohol)

50. Smoke tobacco?

5 Never  4 Rarely  3 Sometimes  2 Usually (i.e., a package of cigarettes a day or more)  1 (i.e., as a chain smoker)

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I. DO YOU

51. Depend on others to make decisions for you?

5 Never  4 Rarely  3 Sometimes  2 Usually  1 Always

52. Blame others for your failures and mistakes?

5 Never  4 Rarely  3 Sometimes  2 Usually  1 Always

53. Worry about your own health?

5 Never  4 Rarely  3 Sometimes  2 Usually  1 Always

54. Worry over what other people think of you or your work?

5 Never  4 Rarely  3 Sometimes  2 Usually  1 Always

55. Think and plan for your future vocation?

1 Never  2 Rarely  3 Sometimes  4 Usually  5 Always
56. Have one close friend in whom you can confide?
   1 Never  2 Rarely  3 Sometimes  4 Usually  5 Always

57. Take an active part in social groups of your own interest and age?
   1 Never  2 Rarely  3 Sometimes  4 Usually  5 Always

58. Have several major goals in keeping with your abilities toward which you work?
   1 Never  2 Rarely  3 Sometimes  4 Usually  5 Always

59. Control your emotions, such as fear, anger, hate, and love?
   1 Never  2 Rarely  3 Sometimes  4 Usually  5 Always

60. Maintain an even disposition?
   1 Never  2 Rarely  3 Sometimes  4 Usually  5 Always

61. Make the best of the situation when you cannot have something you want?
   1 Never  2 Rarely  3 Sometimes  4 Usually  5 Always

62. Worry over present, past, or future?
   5 Never  4 Rarely  3 Sometimes  2 Usually  1 Always

63. Attempt to develop and maintain a sense of humor?
   1 Never  2 Rarely  3 Sometimes  4 Usually  5 Always

64. Take suggestions or criticism without offense?
   1 Never  2 Rarely  3 Sometimes  4 Usually  5 Always

65. Get along well with other people?
   1 Never  2 Rarely  3 Sometimes  4 Usually  5 Always
J. DO YOU

66. Choose your friends from both sexes?

1 Never 2 Rarely 3 Sometimes 4 Usually 5 Always

67. Attend parties to which you are invited?

1 Never 2 Rarely 3 Sometimes 4 Usually 5 Always

68. Have conflicts with your parents concerning your relationships with the opposite sex, such as staying out late and whom you date?

5 Never 4 Rarely 3 Sometimes 2 Usually 1 Always

69. Choose friends of the opposite sex, taking into consideration other factors besides physical attractiveness?

1 Never 2 Rarely 3 Sometimes 4 Usually 5 Always

70. Feel self-conscious or guilty when the topic of sex enters the conversation?

5 Never 4 Rarely 3 Sometimes 2 Usually 1 Always

71. Receive guidance or advice from your family in matters pertaining to relationships with the opposite sex?

1 Never 2 Rarely 3 Sometimes 4 Usually 5 Always

72. Receive your sex information from sources (other than your family) that are accurate and scientific?

1 Never 2 Rarely 3 Sometimes 4 Usually 5 Always
73. Engage in such activities as sports, dancing, and games, when on a date?

1 Never 2 Rarely 3 Sometimes 4 Usually 5 Always

74. Associate with a number of friends of the opposite sex?

1 Never 2 Rarely 3 Sometimes 4 Usually 5 Always

75. Have a home life that adds to your peace of mind and sense of well being?

1 Never 2 Rarely 3 Sometimes 4 Usually 5 Always

76. Buy health products—drugs, toothpastes, etc., only on the basis of advertising?

5 Never 4 Rarely 3 Sometimes 2 Usually 1 Always

77. Use publicly advertised medicines without the advice of your physician?

5 Never 4 Rarely 3 Sometimes 2 Usually 1 Always

78. Read the label on any container from which you are about to take medicine?

1 Never 2 Rarely 3 Sometimes 4 Usually 5 Always

79. Apply scientific information and advice when faced with health problems and situations?

1 Never 2 Rarely 3 Sometimes 4 Usually 5 Always
80. Choose your health information with regard to the experience of the author, scientific accuracy of the content, and the motivation or purpose behind publication?

1 Never  2 Rarely  3 Sometimes  4 Usually  5 Always

81. Or your family consider the training and experience, as well as the personality, of a physician before consulting him?

1 Never  2 Rarely  3 Sometimes  4 Usually  5 Always

82. Have one medical examination every year?

1 Never  2 Rarely  3 Sometimes  4 Usually  5 Always

83. See your dentist once a year for examination, cleaning, and necessary repair work?

1 Never  2 Rarely  3 Sometimes  4 Usually  5 Always

84. Have a tuberculin test and/or chest X-ray as a part of your regular physical examination?

1 Never  2 Rarely  3 Sometimes  4 Usually  5 Always

85. Request a urine examination as part of your regular physical examination?

1 Never  2 Rarely  3 Sometimes  4 Usually  5 Always

86. Seek the advice of a physician for treatment of illness?

1 Never  2 Rarely  3 Sometimes  4 Usually  5 Always
L. DO YOU

87. Swim in any area or pool that may be contaminated (quarantined by public health authorities)?

5 Never 4 Rarely 3 Sometimes 2 Usually 1 Always

88. Throw waste material (rubbish such as cleansing tissues, banana peelings, etc.) in the street?

5 Never 4 Rarely 3 Sometimes 2 Usually 1 Always

89. Have an interest in the health of other individuals within the community, such as an interest in the activities of your community health agencies (i.e., health department, tuberculosis association, county medical and dental associations, etc.)?

1 Never 2 Rarely 3 Sometimes 4 Usually 5 Always

90. See your teacher, school nurse, or physician when you feel ill while at school?

1 Never 2 Rarely 3 Sometimes 4 Usually 5 Always

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DIRECTIONS: If you drive a car, answer items 91-100, keeping in mind "DO YOU." If you do not drive a car, answer items 91-95, indicating what you "WOULD DO." Use "DO YOU" with items 96-100.

M. DO YOU or WOULD YOU

91. Check, or have checked, mechanical performance of equipment such as steering wheel, brakes, lights, etc., on your car or your parent's car?
92. Drive a car after you have been drinking alcoholic beverages?
   5 Never 4 Rarely 3 Sometimes 2 Usually 1 Always

93. Drive with courtesy?
   1 Never 2 Rarely 3 Sometimes 4 Usually 5 Always

94. Obey the existing speed limits of your community when driving?
   1 Never 2 Rarely 3 Sometimes 4 Usually 5 Always

95. Drive a car when you are very tired or sleepy?
   5 Never 4 Rarely 3 Sometimes 2 Usually 1 Always

DO YOU

96. Cross city streets only at the pedestrian crossings?
   1 Never 2 Rarely 3 Sometimes 4 Usually 5 Always

97. Ride with a driver whom you know has been drinking alcoholic beverages?
   5 Never 4 Rarely 3 Sometimes 2 Usually 1 Always

98. Walk facing traffic when walking in the street?
   1 Never 2 Rarely 3 Sometimes 4 Usually 5 Always

99. Follow the traffic rules of the city and state in which you live?
   1 Never 2 Rarely 3 Sometimes 4 Usually 5 Always

100. Look carefully in both directions before crossing a city street?
    1 Never 2 Rarely 3 Sometimes 4 Usually 5 Always
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ACORN NATIONAL ACHIEVEMENT TESTS
For Secondary Schools and Colleges

REVISED EDITION

HEALTH EDUCATION TEST: KNOWLEDGE AND APPLICATION.

(For Grades 7 - 12 and College)

JOHN H. SHAW, Ed. D.,
Chairman, Teacher Training, Department of Athletics
and Physical Education, Syracuse University

MAURICE E. TROYER, Ph. D.,
Vice-President, International Christian University

Edited by CLIFFORD L. BROWNELL, Ph. D.,
Chairman, Health and Physical Education, Teachers College,
Columbia University

1. NAME __________ SCHOOL or COLLEGE ___________ Male - Female
   (Cross out one)
2. AGE: Years ___ Months ___ Grade ___ INSTRUCTOR __________
3. CITY ____________ STATE __________ DATE _____________

GENERAL DIRECTIONS: There are two parts to this test--Part I
Basic Knowledge and Part II Application of Knowledge. Read
carefully the Directions at the beginning of each part so that
you will know how to mark your answers.

You are allowed 45 minutes for the entire test. There is
no time limit for Part I or Part II, but you should be ready to
begin Part II, item 60, after working on Part I for 25 minutes.

Fill in the blank spaces on this page now. DO NOT turn
this page until you are told to do so.
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<td>KNOWLEDGE</td>
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<td>APPLICATION</td>
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PART I - BASIC KNOWLEDGE

DIRECTIONS: There are four possible answers for each of the following test items. All of the answers may be true, but there is a BEST answer. Choose the one answer you believe to be BEST and CIRCLE the capital letter of the correct answer for that item. Be sure to CIRCLE the capital letter at the left of your answer. If you are not sure of the correct answer, guess. Answer all questions.

EXAMPLE: One who has physical defects and cannot afford to get them corrected should:

A. wait until he can afford to get medical attention.

C. refuse any help offered through the school because it is charity.

B. get them fixed and ignore the bill.

G. follow the advice of the health counselor or school nurse.

In this example the best answer is G, therefore a circle is drawn around G.
1. When your medical examination reveals remediable defects you should

B. See that your parents find out about them.

R. Learn all you can about the defects.

X. Leave correction of the defects up to the school authorities.

L. Seek professional advice and follow directions.

2. The effect of mental and emotional habits on health is

C. Far reaching.

G. More important than physical factors.

D. Negligible.

V. Only temporary.

3. Most baldness

E. Is the result of dry hair and scalp due to too much washing.

F. Is the result of carelessness.

U. Can be prevented if treated early.

A. Has no established prevention or cure.

4. The greatest part of the digestive process takes place in the

T. Mouth.

X. Stomach.

S. Small intestine.

F. Large intestine.
5. The food element most likely to be lacking in the average diet is
   E. protein.
   F. fat.
   Y. mineral.
   X. carbohydrate.

6. Pasteurization of milk tends to destroy
   R. vitamin A.
   G. vitamin B.
   I. vitamin C.
   K. vitamin D.

7. Cooking of foods usually destroys most of the
   U. vitamin A.
   Z. calcium.
   B. iodine.
   H. vitamin C.

8. Regular use of cathartics and laxatives is not recommended because they
   T. keep one from gaining weight.
   P. fail to correct the cause of constipation.
   O. interfere seriously with digestion of food.
   F. are habit forming
9. A substitute for meat in the diet is
   K. macaroni.
   E. corn.
   M. whole wheat bread.
   A. cheese.

10. A common practice which greatly reduces the value of food is
    U. under-cooking.
    T. over seasoning.
    S. throwing away the juices.
    X. cooking too rapidly.

11. Liver is desirable in the diet because it contains large amounts of
    D. calcium.
    E. vitamin C.
    R. phosphorous.
    L. iron.

12. The proper attitude toward raw foods is that
    J. they should be avoided because of the germs on them.
    F. if they taste good raw, don't cook them.
    H. a certain amount of raw fruits and vegetables are desirable.
    K. it is not known whether raw foods in the diet are desirable or not.
13. Uncorrected physical or dental defects
   A. may detract from general physical fitness.
   K. are not known to affect physical fitness.
   N. have little effect on physical fitness.
   O. are unimportant unless they affect general physical fitness.

14. Height-age-weight charts
   B. provide standards which everyone should strive to approximate.
   Q. have no value.
   X. represent averages, and as such are of little value for individuals.
   P. have value for individuals when considered with other factors.

15. Regular wearing of high heeled shoes is
   V. harmless, as the body easily adjusts to them.
   E. of doubtful worth.
   I. undesirable from a health standpoint.
   T. all right except at work.

16. One of the best ways to assure continued participation in a sport is to
   E. buy the best equipment available.
   K. participate in the sport every day, whether you feel like it or not.
16. Continued

R. always play with those more highly skilled than yourself.

Y. develop skill so that you get satisfaction from participation.

17. Adults should participate in some kind of physical activity

C. daily.

U. especially on vacation.

V. on week-ends when it can be done with leisure.

W. whenever the weather is favorable.

18. Girls' participation in strenuous physical activity

F. should be similar to boys'.

G. should be discouraged because it is unladylike.

O. is detrimental to health.

L. is desirable if carefully planned and supervised.

19. Posture

N. is important for its own sake.

R. is unrelated to personality.

D. in healthy people can be ignored.

S. often reflects mental and emotional states.
20. For an entire family of five (mother and father, John 16, Mary 13, and Jim 10) the group of activities most appropriate is

I. badminton, swimming, hiking, bowling.
J. ping pong, archery, mountain climbing, broad jumping.
O. tennis, boat racing, volley ball, hockey.
E. paddle tennis, basketball skiing, bicycling.

21. The amount of energy expended when the body is at complete rest is known as

U. caloric need.
T. respiratory rate.
V. peristalsis.
S. basal metabolism.

22. The effect of recreation on mental health is

A. beneficial.
E. negligible.
B. not known.
N. not agreed upon by authorities.

23. A daily nap or rest period is

Q. unnecessary for a high school student.
M. unnecessary if one gets enough sleep at night.
C. desirable
F. of questionable benefit.
24. Sleep

G. for more than a few hours each night is unnecessary as indicated by the experience of Napoleon, Edison, and others.

H. is needed in greater amount by growing children than by adults.

O. missed one night can be made up by sleeping longer the next.

J. is needed by everyone to about the same extent.

25. The leading cause of selective service rejection prior to Pearl Harbor was defective

P. teeth.

U. hearing.

X. eyes.

Z. heart.

26. The number of permanent teeth is

W. twenty.

T. twenty-eight.

L. thirty-two.

N. thirty-six.

27. One should visit his dentist

I. every six months.

F. every two years.

J. when his teeth ache.

V. when recommended by physician or school nurse.
28. Improper formation of the teeth
   Y. may cause speech defect.
   D. will cause defective speech.
   K. does not affect speech.
   G. causes stuttering.

29. The condition of the eye
   A. may indicate the presence of bodily disorders.
   D. is unrelated to body health.
   N. is closely related to the amount of reading done.
   T. is not readily affected by the adequacy of light.

30. The use of alcohol by pedestrians or automobile drivers
   P. increases the possibility of accidents.
   O. increases reaction time.
   Q. reduces the probability of severe injury.
   R. is of no consequence, if used in moderation.

31. The effect of tobacco on the body may be summarized best as
   E. of little consequence for persons over 21 years of age.
   B. having dangerous consequences for everyone.
   F. harmful to a few people and beneficial to many.
   Y. dangerous for some and questionable for others.
32. Whiskey should be regarded as
   J. an important medicine.
   R. a stimulant to be used in first aid.
   C. a depressant.
   D. a food.

33. When children have the same fears as their parents it is probably due to
   Z. inheritance of the tendency.
   K. eating the same foods.
   X. the mother being frightened during pregnancy.
   L. learning fears from parents.

34. Emotional outbursts
   H. may produce symptoms of circulatory, digestive and nervous disorders.
   J. are disturbances limited to the nervous system.
   M. are a healthy release for pent-up feelings.
   N. are usually inherited.

35. The mentally ill person should be
   G. placed in an institution.
   S. cared for the same as the physically ill.
   V. considered incurable.
   Q. avoided so as not to complicate his illness.
36. Exercise for improving visual acuity
B. will cure conditions such as nearsightedness.
I. are of questionable value.
M. are recommended by most doctors.
E. have produced astounding results.

37. Lighting in the average home is
U. above recommended standards.
A. below recommended standards.
T. about right.
X. easy on the eyes, but inadequate.

38. An important heating problem in the average home during winter is
W. keeping it warm enough.
E. getting enough fresh air in the house.
F. keeping harmful dust out of the air.
H. maintaining proper humidity.

39. The oxygen content of inhaled air is roughly
B. 90%
G. 50%
C. 20%
D. 5%
40. Sitting or sleeping in a draft
   N. is a direct cause of colds.
   S. reduces resistance to colds.
   R. causes a cold regardless of other factors.
   T. is a healthy way to get fresh air.

41. The red blood cells
   P. carry oxygen to body tissues.
   X. surround and isolate germs that get into the body tissues.
   Z. cause coagulation of the blood in wounds.
   Q. eventually grow into tissue cells.

42. Figures showing the frequency of a disease in a given population at a given time are known as
   E. occurrence statistics.
   G. mortality statistics.
   N. vital statistics.
   I. morbidity statistics.

43. The production and distribution of milk should be carefully supervised because
   M. there are flies around cow barns.
   U. farmers are likely to be careless in handling milk.
   D. it is commonly used by children.
   L. milk is an ideal medium for bacterial growth.
44. The responsibility of industry for the health of employees

B. is concerned mainly with preventing accidents.

Y. includes controlling health hazards associated with the nature of the industry.

D. removes individual responsibility for personal welfare.

R. is unnecessary because the employee accepts the hazards of his work.

45. The best type of public drinking fountain is the

O. bubbler type, without guard.

N. tap with common drinking cup.

F. bubbler type, with guard to prevent putting mouth on fountain outlet.

P. recessed bubbler type, where water comes from the side, in an arc.

46. Federal meat inspection laws apply to

D. all meat sold in markets.

S. meat transported between states.

R. farmers who sell directly to consumers.

U. butchers who purchase from local farmers.

47. The leading cause of death in the United States is

Z. tuberculosis.

K. cancer.

J. diabetes.

I. heart disease.
48. The body's protection against a second attack of the same disease is known as

D. primary vaccination.
B. infantile immunity.
C. acquired immunity.
V. sterility.

49. Tetanus antitoxin is used to prevent the development of

M. tuberculosis.
L. lock jaw.
G. rabies.
K. rheumatic faver.

50. Control of communicable diseases is the legal responsibility of the

A. board of health.
E. board of education.
N. family physician.
O. child welfare department.

51. Positive reaction to the tuberculin test indicates that

T. tuberculosis germs are present in the body but inactive.
U. one is immune to tuberculosis.
V. one is suffering from tuberculosis.
Y. one needs a chest x-ray.
52. Vaccination against small-pox
   Q. produces permanent immunity.
   R. is necessary for adults.
   H. could practically eradicate the disease.
   W. is an infringement on democratic freedom if made compulsory.

53. The chief cause of accidental death in children under four years of age is
   D. motor vehicles.
   B. falls.
   C. burns.
   E. firearms.

54. For every person killed in an accident in the United States, the number reported injured is approximately
   Z. 25.
   L. 100.
   T. 500.
   K. 1000.

55. The approved Red Cross method of giving artificial respiration is by
   H. back pressure--arm lift.
   O. manual application of pressure.
   J. use of a teeter board.
   K. use of an inhalator.
56. In cases of internal poisoning, the most important factor in first aid is to

Q. transport the patient to a doctor quickly.
S. wash out the patient's stomach immediately.
N. keep the patient quiet until the doctor arrives.
O. treat for shock.

57. Ordinarily a splint should not be applied to a broken bone unless

K. there is a compound fracture.
Y. the patient has to be moved before the doctor arrives.
G. a regulation splint is available.
F. there is arterial bleeding.

58. The most important step in the prevention and treatment of shock is the application of

B. a stimulant.
P. covering to conserve body heat.
N. artificial respiration.
T. ammonia to the nose.

59. A tourniquet should be

F. applied whenever blood is spurting from a wound.
E. applied when a vein is severed.
I. used only when other means of stopping the flow of blood are not effective.
G. regarded as of little importance in first aid.
60. A seriously injured person should
A. not be moved unless it is absolutely necessary.
D. be transported quickly to a doctor.
M. be given something warm to drink.
R. be moved only if a good stretcher is available.

NUMBER RIGHT IN PART I

PART II - APPLICATION OF KNOWLEDGE

DIRECTIONS: Following are four problems--A, B, C, and D. Read each problem carefully. After each problem there are several conclusions. If you believe a conclusion to be essentially true, good, or sound, CIRCLE the letter T before each statement. If you believe a conclusion to be essentially false, undesirable, or unsound, CIRCLE the letter F before each statement. Be sure to CIRCLE the letter of your answer with a HEAVY BLACK LINE. Be sure to answer each statement in the light of the problem which precedes it. Answer all statements. If you are not sure, GUESS.

EXAMPLE:

John, 15 years old, eats and sleeps irregularly. Many mornings he has no breakfast. Some nights he sleeps only four hours; then he tries to catch up by sleeping twelve hours the following night.

T  F  1. John gets adequate sleep if he averages eight hours per night.

T  F  2. John should eat his breakfast.
PROBLEM A:

John is 17 years old and a senior in high school. He lives in a northern state on a certified dairy farm. On this farm there is much energy consuming work between 5 a.m. and 7 p.m. John works one hour before school and two hours after school each day. For breakfast he usually eats bread, butter and jam, fried ham and eggs, fried potatoes or mush, pie, and coffee or raw milk. A typical evening meal consists of meat, potatoes (mashed or baked), bread, butter and jam, two canned vegetables, canned fruit and cake, coffee or milk. The noon meal for the family is similar to the evening meal, but during the winter months John eats lunch at the school cafeteria where he usually chooses: meat, potatoes, bread and butter, pie, and chocolate milk.

John usually gains 15 to 25 pounds during the winter, but loses most of this weight during the summer when he is working full-time. Other members of John's family are not more than 10 per cent overweight. Bill, John's brother, says he keeps his weight down by smoking a package of cigarettes each day.

T F 61. John probably gets too much to eat for breakfast.
T F 62. John probably gets more calories than he needs for lunch at school.
T F 63. It would be well for John to eat some fresh fruit when he returns from school.
T F 64. John is safe in drinking raw milk.
T F 65. John's diet should include cod liver oil during the winter months.
T F 66. Pie is not an appropriate food for breakfast.
T F 67. The diet of John's family would not be appropriate for a family of business or professional people.
T F 68. The eating of potatoes three times a day provides too much carbohydrates in the diet of this family.
T F 69. Bill has a desirable method of controlling his weight.

PROBLEM B:

Shirley is 17 years of age and a junior in high school. Until recently she was a good student, but she has lost
interest in her work and dislikes school. When she was 10 years old a serious illness left her underweight and pale. Apparently Shirley has fully recovered from the illness, but she never regained her attractiveness nor does she put forth energy in physical activities.

Shirley is outspoken in her criticism of clothing fads, and the "coke" and "movie" parties of her classmates. She says, "The girls who date are boy crazy, and the boys are wolves!" Shirley spends most of her spare time reading books and playing classical music on the piano. Her wide range of information, and tendency to know all the answers in class, make other students regard her as teacher's pet. Socially they think she is a "drip"; and they are not backward in telling her so. Shirley's mother decides what clothes the girl should wear, and insists that she be home by 11 o'clock from school parties scheduled from 8 to 12 p.m.

T  F  70. It would be good for Shirley to become skillful in playing popular music.
T  F  71. Shirley does not want to be liked by her classmates.
T  F  72. Shirley's parents are unfair in insisting that she leave school parties before closing time.
T  F  73. Shirley will be better off in later years because she has read so much and has ignored social activities.
T  F  74. Her classmates are responsible for some of Shirley's difficulties.
T  F  75. Shirley has no one to blame but herself for the fact that she is not accepted by her classmates.
T  F  76. If Shirley continues to live up to adult standards and ignores the standards of her classmates, eventually she will be very happy.
T  F  77. All Shirley needs to achieve happiness is to control her harsh tongue.
T  F  78. Shirley is more likely to have digestive disturbances than the classmates she criticizes.
PROBLEM C:

Sarah, whose husband is in hazardous work that keeps him away from home most of the time, has two small children--Judy, age five months, and Jimmy, age three years. Sarah and the two children live with her parents, Mr. and Mrs. Jones. The Jones' have two other children, Ellen in junior high school, and Sam, in senior high school.

Members of the Jones family are devoted to each other. Normally, they have a rollicking good time, kidding, playing and working together. Present conditions demand readjustments that are not easy. Mrs. Jones' goiter bothers her causing "heart palpitation," apprehensiveness, and irritability. She must leave some of the heavy housework to others. Sarah worries and spends sleepless nights over the welfare of her husband. A family that has had no small children in it for a decade feels the conflict in ideas of two generations on child care. Sarah tries to keep Judy on a planned schedule and diet. Grandmother likes to rock Judy to sleep, and to give her nibbles of food from the family table. Ellen and Sam enjoy playing with Judy and teasing Jimmy.

T  F  79. There should be some time during the day when the grandmother can play with Judy and Jimmy.
T  F  80. While a schedule is desirable, moments of play, affection, and attention to needs should not be rigidly scheduled.
T  F  81. A child's schedule should be set up first, and all other household activities scheduled accordingly.
T  F  82. Grandmother should not feed Judy snacks from the family table.
T  F  83. Mrs. Jones should follow the advice of a neighbor, and season her food heavily with iodized salt.
T  F  84. So long as Sarah and her family live with the Jones family, differences in opinion regarding the correct way to bring up children may be expected.
T  F  85. Jimmy should be kept in a nursery room well equipped with toys, and not be allowed in other parts of the house.
Sarah should take some commonly used sedative such as aspirin or phenobarbital for her sleeplessness.

In this kind of home, where children get plenty of attention, a nursery school for Jimmy should not be recommended.

It would probably be better if Sarah could move into a nearby apartment.

John owned an old car with defective brakes. As he drove along a main country highway one day, he came upon another car that had crashed into a telephone pole. One passenger had been thrown through the car window into the middle of the road; blood gushed in spurts from a cut on his neck. The unconscious driver of the wrecked car was slumped over the steering gear, his right arm broken at the elbow. A third person in the back seat showed no visible signs of injury, but he could not open and close his hands.

John immediately removed the two men from the wrecked car and laid them beside the third person in the road, covering them with blankets. Later John discovered that the accident occurred because the driver had fallen asleep.

John was right in quickly removing the men from the wreck and covering them with blankets.

John should have gone for a doctor immediately.

First, John should have stopped the bleeding by applying pressure at the proper point on the neck of the man in the road.

It was safe for John to help the third person from the car.

John should not have removed the driver from the car until he had ruled out the possibility of other injuries.

John should have placed all three men in his car and rushed them to a hospital.
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T F 95. John should have gone to the nearest house for help before giving first aid.

T F 96. The man lying in the road should have been helped off the highway before first aid was applied.

T F 97. John should have attempted to reduce the dislocated elbow.

T F 98. It was all right for John to drive his car with defective brakes so long as he drove slowly and carefully.

T F 100. More accidents result from mechanical failures of the car than from mistakes of the driver.

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