

CROSS-CULTURAL COMPARISON OF HEALTH KNOWLEDGE OF SELECTED
AMERICAN AND NIGERIAN UNIVERSITY STUDENTS

A DISSERTATION
SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF DOCTOR OF PHILOSOPHY
IN THE GRADUATE SCHOOL OF THE
TEXAS WOMAN'S UNIVERSITY

COLLEGE OF HEALTH, PHYSICAL EDUCATION,
AND RECREATION

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DENTON, TEXAS

AUGUST 1982

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The Graduate School
Texas Woman's University
Denton, Texas

August 1982

We hereby recommend that the dissertation prepared under
our supervision by F. OBIORA ABIAKAM
entitled CROSS-CULTURAL COMPARISON OF HEALTH KNOWLEDGE
OF SELECTED AMERICAN AND NIGERIAN UNIVERSITY
STUDENTS

be accepted as fulfilling this part of the requirements for the Degree of _____
Doctor of Philosophy

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DEDICATION

This dissertation is dedicated to the memory of my father, Felix Okwanaku Abiakam (1910-1972), retired Superintendent of Nigerian Prisons, who saw the need and supported my going to the United States of America in pursuit of this advanced degree.

ACKNOWLEDGEMENTS

I would like to take this opportunity to thank the members of my committee: Dr. Ruth Tandy (Chairman), Dr. Melba Baldwin, Dr. Barbara Gench, Dr. Marilyn Hinson, and Dr. Dwight Thompson. Their direction, encouragement, cooperation, and patience with me deserves my continuous gratitude. A special note of thanks goes to Dr. Ruth Tandy for being extra helpful and committed to my success. I must also express a special thanks to Dr. Marilyn Hinson who initiated me into the real world of statistics and the computer and who worked with me so that I could complete this study.

I would also like to thank my brother, Dr. Ifeanyi Abiakam, who gave me the financial support needed to complete this study. And my most gracious thanks goes to Mary Richter who arranged and typed this dissertation.

To all of you who have contributed to my educational success in the United States of America I say "Dalu."*

*Dalu is thank you in Ibo language. The author of this dissertation comes from the Ibo tribe of Nigeria.

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CHAPTER I

ORIENTATION TO THE STUDY

Rationale for the Study

In September 1978, the International Conference on Primary Health Care, held in Alma-Ata, USSR, issued a declaration stating health policies and goals to guide health-related activities until the end of this century. This declaration, known as the Alma-Ata Declaration, called for the "attainment of all people of the world, by the year 2000, of a level of health care that will permit them to lead a socially and economically productive life" (Alma-Ata Conference, 1978, p. 429).

To accomplish this goal of "health for all by the year 2000", (World Health, 1981, p. 5) the director-general of the World Health Organization called on the developed countries to increase technological assistance to the developing countries (32nd World Health Assembly, 1979). Recently, a North-South summit, "the first ever held between industrialized and developing countries" (Battaile & Downer, 1981, p. 1) was held in Cancun, Mexico, in an effort to increase aid from the developed countries to the under-developed ones.

Will mere increase in technological help from the developed countries increase the health standard in the developing countries? Some writers (Goldstein & Donaldson, 1979; Heidenheimer, Heclo, & Adams, 1975) have indicated that technology and knowledge are easily exported to developing countries without consideration for their different health systems and traditions. For example, an evaluative study carried out in Thailand indicated that although modern medical care had been exported to Thailand for 55 years, their major health problems remained the same (Goldstein & Donaldson, 1979). Scholars, working in a health training program for developing countries, expressed concern that "sophisticated western educational technology was not readily transferable" (Vanderschmidt, Massey, Arias, Duon, Haddad, & Tepes, 1979, p. 588) to developing countries. Newman indicated that one of the reasons why the developed countries have less to contribute to the solution of health problems in the developing countries is that in the developing countries "health practices are deeply rooted in the cultures of the people" (Newman, 1977, p. 95). One of the key obstacles to effective international health work and exchange of technology is not recognizing the health related cultural attitudes. Cognizance of these factors will help to provide a sound planning foundation.

In view of the preceding information, it would appear essential in the area of international health activities to compare and differentiate knowledge and cultural patterns. This would help insure effective planning, acceptance, and success while also providing a valid basis for program implementation. In an apparent agreement, Wegman (1980) indicated that:

comparative studies of health conditions and medical problems involving various nations and cultures may cast light on a frequent complex and difficult scientific problem and, at the same time, have highly practical significance for the populations involved. (p. 9)

Hamburg (1977) further indicated that successful international and even local health efforts depend upon understanding cultural differences. It was felt that a cross-cultural study of health knowledge level would help to provide such scientifically based comparative information.

Acquiring national and international health knowledge data at the college level is a part of accumulating scientifically based information. Dr. Edward Johns, Professor Emeritus at the University of California at Los Angeles, in enumerating his 13 guidelines for effective teaching,

stressed the importance of understanding and acquiring adequate knowledge of the health needs and problems of today's college students (Johns, 1964). Oberteuffer (1968), in apparent agreement, stated that we should never presume to know what students ought to know. The need to identify the health knowledge, problems, and needs of students is a positive step in developing a meaningful health curriculum and health services for the university.

Many studies have been carried out to assess health knowledge (Campbell & Early, 1969; Campbell & Foster, 1972; Coleman, Burkhardt, & Highfill, 1972; Dearborn, 1958, Engs & Kirk, 1976; Kilander, 1937). Most of these studies compared health knowledge among students and groups within the United States of America. There is a dearth of information on the comparison of the health knowledge of students in the United States with students in a developing country.

Purpose of the Study

The purpose of this study was to provide information regarding the health knowledge of university students in selected American and Nigerian universities. In addition, health knowledge in the specific areas of personal health, nutrition, mental health, family life, first aid and

safety, community health, chronic and communicable diseases, drug education, and consumer health was obtained from both groups. The relationship between the level of health knowledge and socio-economic status was investigated as well. A paper which contained the outcome of the study and discovered needs was presented to the government authorities in Nigeria.

Statement of the Problem

The general problem of this study was to compare the level of health knowledge held by selected American university students with the level of health knowledge held by their Nigerian counterparts. Subjects were 110 American students from the East Texas State University and 110 students from the University of Nigeria.

The investigator identified the general and specific responses of the students according to the nine subject categories identified by the Kilander-Leach Health Knowledge Test (Kilander & Leach, 1972); thereafter, it will be referred to as the KLHKT. A copy of the KLHKT is included in Appendix A. The subject categories are: (a) personal health, (b) community health, (c) nutrition, (d) family living, (e) first aid and safety, (f) consumer health, (g) chronic and communicable disease,

(h) mental health, and (i) stimulants and depressants. Information on the socio-economic status of the students was obtained with an Information Sheet. A copy of this instrument is included in Appendix A.

Hypotheses of the Study

The following hypotheses were examined:

1. There is no significant difference in the level of health knowledge between American and Nigerian university students.
2. There is no significant difference in the level of health knowledge between female and male students in American and Nigerian universities.
3. There is no significant difference in the level of personal health knowledge between American and Nigerian university students.
4. There is no significant difference in the level of community health knowledge between American and Nigerian university students.
5. There is no significant difference in the level of nutritional knowledge between American and Nigerian university students.
6. There is no significant difference in the level of family life knowledge between American and Nigerian university students.

7. There is no significant difference in the level of first aid and safety knowledge between American and Nigerian university students.

8. There is no significant difference in the level of consumer health knowledge between American and Nigerian university students.

9. There is no significant difference in the level of chronic and communicable disease knowledge between American and Nigerian university students.

10. There is no significant difference in the level of mental health knowledge between American and Nigerian university students.

11. There is no significant difference in the level of drug education knowledge between American and Nigerian university students.

12. There is no significant relationship in the socio-economic status and the level of health knowledge of the American and Nigerian university students.

Definitions and Explanations of Terms

For the purpose of clarification, the following definitions and explanations of terms were established for use in the study:

1. Health knowledge. Correct responses to questions on health issues deemed important by various recognized authorities in health education (Maughan, 1970).

2. Health knowledge test. A list of questions covering general health areas, for the purpose of estimating the health knowledge of a person (Bjerke, 1966).

3. Personal health. The area of health dealing with personal hygiene such as individual cleanliness, clothing, dental hygiene, and other aspects of personal hygiene.

4. Nutrition. The aspect that is "concerned with nutritional requirements, food composition, food consumption, food habits, the nutritional value of foods and diets, and the relationship between diet and health" (Hogarth, 1975, p. 258).

5. Family life. Knowledge of the physiological and psychological processes within males and females which prompt behavior related to procreation and/or erotic pleasure.

6. Community health. "All the personal health and environmental services in any human community, irrespective of whether such services are public or private ones." (Texas Department of Health, 1978, p. 62)

7. Consumer health education. "A process that informs, motivates, and helps people to adopt and maintain healthful practices and lifestyles and advocates social and environmental changes as needed to facilitate healthful living conditions and behavior." (Texas Department of Health, 1978, p. 28)

Delimitations and Limitations of the Study

The study was subject to the following delimitations:

1. Male and female students enrolled at the East Texas State University and the University of Nigeria.
2. A random selection of 110 students from each of the two universities.

The study was subject to the following limitations:

1. The degree to which the students responded truthfully to the study instrument.
2. The degree to which the students were representative of the population from which they were drawn.
3. The reliability, validity, and objectivity of the KLHK Test.
4. The reliability, validity, and objectivity of the Information Sheet.

CHAPTER II

SURVEY OF SELECTED RELATED LITERATURE

The question of "why people use health services while others do not is one which has continually perplexed health professionals" (Cummings, Jette, Brock & Haefner, 1979, p. 639). In searching for an answer to this question, varied research efforts have been undertaken in the various areas of health care. Some authors attempt to measure the level of health knowledge (Campbell & Foster, 1972); some attempt to examine the effect of socio-economic status (Anderson, 1973; Bice, Rabin, Starfield, & White, 1973); some attempt to delineate the predisposing and enabling factors (Anderson & Newman, 1973); and some attempt to answer the question by looking at the belief system (Becker, Drachman, & Kirscht, 1974). This study examined the health knowledge level of university students in two countries with different cultural, industrial, and developmental levels.

A comprehensive review of the available literature relating to health knowledge tests disclosed that the present investigation does not duplicate any previous study.

The review of literature for this study is divided into two sections; (a) health knowledge studies that utilized the Kilander-Leach Health Knowledge Test and (b) health knowledge studies that utilized other available health knowledge instruments.

Related Studies that Used the Kilander-Leach
Health Knowledge Test

Engs and Kirk (1976) conducted a study to measure the health knowledge of volunteer crisis intervention workers in the state of Tennessee. During the autumn of 1972 and winter of 1973, the investigators administered the KLHK Test to 74 crisis intervention volunteers at 5 crisis intervention agencies in Tennessee. Analysis of variance, t-test, and Duncan Multiple Range Correlation statistics were used to determine where the differences in health knowledge occurred between age groups, months spent as a volunteer, and sponsoring agency. The .05 level was selected as the level of significance on which interpretations were based. The mean score for all volunteers on total health knowledge was 73.6, whereas the national norm for college students is 70.

Results of the study, like many previous similar studies, showed that females have significantly higher

health knowledge scores than males. The investigators concluded that there were no significant differences in health knowledge scores because of increase in age. There was a significant difference in total health knowledge scores according to the length of time a volunteer worked in a crisis intervention service. The investigators also indicated that volunteers in agencies sponsored by a church or school had significantly higher total health knowledge scores than volunteers at community-sponsored agencies.

Campbell and Early (1969) used the Kilander-Leach Health Knowledge Test as an instrument to compare the health knowledge of selected college students with the health knowledge of their parents. The test consisted of 100 multiple-choice questions that sampled 9 areas of health knowledge. The investigators administered the test at the beginning of the spring semester of the 1967-1968 academic year to 49 students in a freshman health science course at the University of Texas at Austin. The same test was re-administered at the end of the semester in order to obtain a post-instruction evaluation. The test was also administered in a similar procedure to the parent of the same sex as each student.

The data were analyzed with Analysis of Variance and the hypotheses were tested at the .01 level of significance.

The investigators reported that the difference between the mean health knowledge scores for the male parents and the male students were statistically significant. The difference between the mean health knowledge scores for the female parents and female students was not statistically significant. The parents, in general, had higher scores than the students.

The investigators concluded from the study that parents have more knowledge of health than do their children. The parents maintained this superiority over their children in spite of the fact that the students made significant gains in health knowledge following a semester course in health science. The investigators also concluded that females have higher health knowledge than males (Campbell & Early, 1969).

In 1972, Campbell and Foster carried out a study to compare the health knowledge level of adult high school students from two different socio-economic levels. The Kilander-Leach Health Knowledge Test was used to collect the data. In the fall of 1971, the instrument was administered to all ninth and twelfth grade students in two high schools in the Portland School District with different socio-economic levels. Socio-economic level was determined by estimated average income, occupation of parents, and cost of residence.

The study was designed principally to answer this question: do students who attend a high school from a district designated as a high socio-economic area respond the same to a standardized health knowledge test as students from a district designated as a low socio-economic area? A 2 x 2 x 3 ANOVA design was used to test the study hypotheses at the .05 level of significance. The investigators concluded that students from high socio-economic levels have more knowledge and understanding of matters pertaining to health than similar students from low socio-economic levels. Female respondents had higher health knowledge scores than male respondents at both grade levels and socio-economic levels (Campbell & Foster, 1972).

In 1972, Coleman, Burkhardt, and Highfill carried out a study to compare the health knowledge level of young adult under-achievers and their parents. The investigators administered the Kilander Health Knowledge Test to 42 high school students in a government supported educational program for under-achievers at Texas Tech University in Lubbock, Texas. Each student was later given a copy of the test and instructed to have his parent of the same sex complete the test and return it to the investigators. Twenty-seven parents, 10 male and 17 female, completed the test; this allowed for comparisons of 27 pairs of subjects.

Additional socio-economic information was obtained which indicated that the subjects studied represented low socio-economic levels of the community.

Using the t-test statistic, the hypotheses of the study were tested at the .05 level of significance. From their findings, the investigators concluded that the parents had higher health knowledge scores than their children. The parents scored higher than their children in the areas of nutrition, community health, consumer health, and family life. Both parents and children had identical mean scores in the area of first aid (Coleman, Burkhardt, & Highfill, 1972).

Related Studies that Utilized Other Types of Health Knowledge Tests

Using the Phillips Health Knowledge Test (Phillips, 1975), Tuthil (1977) carried out a study to measure the health knowledge level of senior students majoring in health education in four selected universities in North Carolina that offer health education at the undergraduate level. The four institutions were: Appalachian State University, East Carolina University, North Carolina Central University, and the University of North Carolina at Greensboro; for the purpose of anonymity, the

universities were identified as A, B, C, and D. Seventy students in the four institutions completed the questionnaire.

The Phillips Health Knowledge Test is a standardized health knowledge instrument with a reliability of .852 (Kuder-Richardson formula 20). It is designed specifically for college students and has 80 questions encompassing 10 health topic areas.

Participants' correct responses were computed to the total number of items, each of the 10 topic areas, and for each individual item. A four-way ANOVA was used to determine significant differences among the universities. The investigator concluded that significant differences existed among the students in the four universities. Significant differences also existed among the respondents in the following topic areas: environmental health, diseases, physical fitness, family life education, consumer health, drug education, and safety education. No significant difference in health knowledge existed between the respondents in the areas of nutrition, community health, and mental health (Tuthill, 1977).

In 1970, Maughan carried out a comparative survey of health knowledge at Utah State University and the University of Utah. He developed and administered the Health Knowledge Inventory, which covered 10 health areas and consisted of 40

questions, to 250 sophomores in the two universities. Two hundred and eighteen students responded yielding a response rate of 87.2%. The mean scores were divided according to subject area for both universities as follows:

Health Area	Number of Questions	Mean Scores	
		USU	U of U
Alcohol and Tobacco	2	44.83	50.00
Community Health and Communicable Diseases	5	62.92	59.41
Consumer Health	5	52.76	50.79
Drug and Narcotics	5	60.78	65.55
Food Fads and Medical Quackery	5	48.54	60.40
Mental Health	5	53.10	51.00
Personal Health	6	40.09	43.14
Sex Education	7	50.10	52.40

Computation of student scores indicated that students at the University of Utah displayed superior health knowledge at the .05 level of significance. Maughan concluded that since the University of Utah required a basic health education course for freshmen and the Utah State University did not offer such a course, this might have contributed to the difference in the health knowledge level

between students in the two institutions. He strongly recommended the inclusion of a required basic health education course in the curriculum of the Utah State University.

During a 6 year period (1951-1957), Dearborn conducted a study to determine the general level of the personal health knowledge among college students before instruction in health classes. The Dearborn College Health Knowledge Test (Dearborn, 1959) was used to collect the data. This standardized test has a mean reliability coefficient of .89 (split-halves method with Spearman-Brown correction). The instrument was administered to 12,000 students in 15 universities, colleges, and junior colleges selected from various parts of the United State within the 6 year period. Of this number, only 3,000 randomly selected cases were used in the data analysis.

From this study, the investigator concluded that there was a consistent and significant difference in health knowledge achievement between the junior colleges and combined university and 4 year colleges. The mean achievement scores of only 44% and 54% demonstrated the need to include health courses in colleges and improve such courses in high schools (Dearborn, 1958).

Ogunsakin (1981) developed a health knowledge test to study the health knowledge level of the graduating elementary teachers at the Lagos State of Nigeria. The health knowledge test was approved by a panel of judges. The test had a reliability of .81 using the internal consistency item analysis. The test instrument had 6 subject areas and contained 88 items. A total of 329 students from 5 randomly selected elementary teacher training institutions participated in the study. The results indicated that the general health knowledge of the students was grossly inadequate.

CHAPTER III

METHODOLOGY

Introduction

The purpose of the study was to compare the level of health knowledge of selected American university students with the level of selected Nigerian university students. Health knowledge was measured by the Kilander-Leach Health Knowledge Test (KLHK) and an Information Sheet was used to determine the socio-economic status of the students. The study comprised 110 students from East Texas State University in the United States of America and 110 students from the University of Nigeria in Nigeria. The study was conducted during the month of September 1981, at the two universities.

The procedures followed in the development of the study are described under the following subheadings: (a) Preliminary Procedures, (b) Selection and Description of the Instruments, (c) Selection of the Subjects, (d) Collection of Data, (e) Organization and Treatment of Data, and (f) Preparation of the Final Report.

Preliminary Procedures

Preliminary procedures included surveying, studying, and assimilating available materials pertaining to descriptive research in order to become familiar with techniques used in such research. Also studies in evaluating health knowledge were surveyed. Following the review of materials and the literature, appropriate criteria were established for: (a) the selection of the instrument to be used in the study, (b) the selection of subjects to be tested, and (c) the administration of the test.

After establishing the criteria in each of these areas, the KLHK Test was selected as the instrument to be used in the study. In selecting the universities to be used in the study, the investigator reviewed college catalogues of universities in the USA and Nigeria. It was then determined that East Texas State University and the University of Nigeria were appropriate because of their similarity in student population, administrative structure, programs, and accessibility. The investigator met with the faculty and administrations of both institutions to enlist their cooperation and obtain permission to carry out the study.

A tentative outline of the proposed study was prepared and presented to the members of the dissertation committee

for approval and recommendations. The recommendations of the committee were accepted and revisions were made accordingly. The approved tentative outline in the form of a prospectus was filed in the Office of the Provost of the Graduate School. Permission was granted by the Human Subjects Review Committee of the Texas Woman's University to proceed with the research.

Selection and Description of the Instruments

The KLHKT was selected as the instrument to be used in the study to measure the level of health knowledge of the subjects in general and specific areas. In order to determine the socio-economic status of the subjects, an Information Sheet was constructed by the investigator and used in the study.

The criteria established for the selection of the instrument to measure health knowledge were:

1. The instrument must measure general and specific areas of health knowledge.
2. The instrument must be considered adequate with respect to reliability and validity.
3. The instrument must be available and must demonstrate administrative feasibility.
4. The instrument must be short enough so that the students can complete it within one class period.

A survey of the literature revealed that the KLHKT satisfied the above criteria.

The KLHKT was first developed by H. Frederick Kilander in 1936, and was revised by Glenn C. Leach in 1972 (Kilander & Leach, 1972). The instrument consists of 100 multiple choice items covering nine areas of health: personal health, community health, nutrition, family living, first aid and safety, consumer health, chronic and communicable disease, mental health, and drug education. The test was designed to measure the health knowledge of high school and college students. A reliability coefficient of .80 was determined for college freshmen. Reliability was determined by the split-halves method and the Spearman-Brown formula. This instrument was deemed to be appropriate for the study because it has been widely used by similar studies involving university students (Campbell & Early, 1969; Campbell & Foster, 1972). The suitability of the instrument was also established by Tuthil in 1976 (Tuthil, 1977). In her quest to identify an appropriate standardized health knowledge test for college students, Tuthil sent a questionnaire to 98 selected colleges and universities in the USA that offer degrees in health education. The chairman of the health education department in each of the universities was asked, among other questions, to identify a suitable standardized health knowledge test for colleges.

From the questionnaires returned, the KLHKT was among the three tests that were recommended. Five questions in the test that were not applicable to the Nigerian cultural setting were deleted for the subjects in the present study.

Selection of Subjects

Criteria established for the selection of subjects for the study were:

1. Subjects must be fulltime freshmen, sophomore, junior or senior students at the East Texas State University, Commerce Campus or the University of Nigeria, Nsukka Campus.

2. Subjects must be willing to participate in the study.

Prior to the actual collection of data, the investigator traveled to Nigeria and obtained permission from the registrar and director of student health services at the University of Nigeria to conduct the investigation. Permission was granted as indicated in Appendix B. The investigator then went to East Texas State University and spoke with Dr. Frank Barchard and was also granted permission to carry out the study.

The investigator wrote to Dr. Glenn C. Leach at Wagner College, New York, seeking permission to use the KLHK Test with the necessary minor revisions. Permission was granted (see Appendix B).

At the beginning of the 1981 fall semester, the test and information sheet were administered to each of the 220 randomly selected students within the departments of political science, health education, and physical education at the East Texas State University and the University of Nigeria.

Collection of Data

The administrative procedures and directions for completing the test were identical for the subjects in both institutions. The following procedures were followed:

1. The subjects were in their regular classrooms and were administered the test by the investigator after appropriate permission was obtained and arrangements were made with class instructors.
2. Instructions for completing the test were read and explained by the investigator.
3. Instructions were re-read to any subject requesting further explanation.
4. Subjects were encouraged to complete the test within the 50-minute period allotted for completion of the test.
5. Subjects were instructed to take the KLHK Test before completing the Information Sheet.

6. Subjects returned all completed materials to the investigator at the expiration of the allotted time.

7. Subjects were instructed not to put their names on the test.

The investigator administered the instruments at the University of Nigeria with the assistance of Dr. Emeka Enejere of the Department of Political Science. At the East Texas State University, the investigator was assisted by Dr. Dorothy Ingram, Professor of Physical Education and Dr. Frank Barchard, the Assistant Dean of the College of Liberal and Fine Arts.

Organization and Treatment of the Data

The total raw scores and scores for each of the nine areas on the KLHK Test were tabulated for the subjects in each university (see Appendix C). The socio-economic status, age, and sex of each subject were tabulated; they appear in Appendix C.

The statistical procedures involved in this survey centered around the following purposes: (a) to determine and compare the health knowledge level of selected American university students and selected Nigerian students, (b) to compare the health knowledge of both groups with respect to each of the nine health areas as determined by the KLHK

Test, (c) to compare the health knowledge level among the males and females in the two institutions, and (d) to determine the relationship between socio-economic class and health knowledge level.

To determine the significance of difference between the two groups with respect to total health knowledge level and each health area, a one-way analysis of variance was utilized. A one-way analysis of variance was used to determine the significance of difference between males and females in the two groups. To determine the relationship between health knowledge level and socio-economic status, a chi-square test was utilized.

Preparation of the Final Written Report

The preparation of the written report of the study entailed the writing of each chapter in accordance with its topical outline and submitting it to the members of the dissertation committee for review and correction. The corrections of the committee were accepted and revisions were made accordingly. A summary of the research was prepared and the findings were interpreted, discussed, and presented. The final procedures included making recommendations for further studies and compiling the appendix and reference materials.

CHAPTER IV

PRESENTATION OF THE FINDINGS

Chapter four contains the results of the statistical analyses of the data. The purpose of the study was to compare the level of health knowledge of selected American university students with the health knowledge of selected Nigerian university students. Health knowledge was measured by the Kilander-Leach Health Knowledge Test (KLHKT). An Information Sheet was used to determine the socio-economic status and demographic data of the students.

Results

Subjects consisted of 110 students from East Texas State University and 110 students from the University of Nigeria. Demographic data was obtained from the KLHKT and the Information Sheet.

Table 1 presents the descriptive data on sex and age of the subjects. The subject population from East Texas State University consisted of 63 males and 47 females. There were 70 males and 40 females from the University of Nigeria. The age of the East Texas students ranged from 17 to 57 years with a mean age of 21; the majority of the

students were in the 19 to 23 age group. The age of the students from the University of Nigeria ranged from 17 to 35 years with a mean age of 23; the majority of the students were in the 20 to 25 age group.

Table 1
Demographic Information Relative to
Sex and Age of Subject

Institution	Sex	<u>N</u>	Age (min-max)	Mean Age
East Texas State University	Male	63	18-42	21
	Female	47	18-57	22
Univeristy of Nigeria	Male	70	19-37	24
	Female	40	17-25	20

Statistical Analysis of the Data

The first hypothesis of the study stated that there is no significant difference in the level of health knowledge between American and Nigerian university students. Table 2 shows the descriptive statistics relative to the total health knowledge test scores.

Table 2
Descriptive Statistics Relative to the Total
Health Knowledge Test Scores

Group	<u>N</u>	Range (min-max)	<u>M</u>	<u>SD</u>	<u>SEM</u>
East Texas State University	110	55 (26-81)	57.23	11.78	1.13
University of Nigeria	110	37 (34-71)	54.49	8.01	.76

The scores on the total health knowledge test ranged between 26-81 for the American students and between 34-71 for the Nigerian students. The mean score of the American students is slightly higher than that of the Nigerian students. The small standard errors of the mean indicate that the sample means are reliable estimates of the population means.

A one-way analysis of variance was conducted to test the hypothesis that there is no significant difference in the level of health knowledge between the two groups. Table 3 presents the results of this analysis.

Table 3
Analysis of Variance on Total Health Knowledge Test
Scores for Students at the Two Universities

<u>SV</u>	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>P</u>
Groups	1	411.83	411.83	4.01*	<.05
Error	218	22360.81	102.57		
Total	219	22772.64			

$$F_{.95} (1,218) \geq 3.84$$

The F ratio of 4.01 was statistically significant. Therefore, health knowledge did differ among the selected students from the two universities; the investigator rejected the first hypothesis.

The second hypothesis of the study stated that there is no significant difference in the level of health knowledge between male and female students in American and Nigerian universities. Table 4 shows the range, mean, standard deviation, and standard error of the mean of the health scores for male and female students in the two universities.

Table 4

Range, Mean, Standard Deviation, and Standard Error
of the Mean of Total Health Knowledge Scores for
Males and Females at the Two Universities

Group	<u>N</u>	Range (min - max)	<u>M</u>	<u>SD</u>	<u>SEM</u>
Male	133	⁴⁵ (26 - 71)	55.29	9.81	1.20
Female	87	⁵⁵ (26 - 81)	56.75	10.16	1.53

The scores on total health knowledge ranged between 26-81 for female students and between 26-71 for male students at the two universities combined. Female students had a slightly higher mean score than the male students.

A one-way analysis of variance was performed to test the hypothesis on the health knowledge scores between males and females in the two universities. Table 5 presents the results of this analysis.

Table 5
Analysis of Variance on Total Health Knowledge Scores
of Males and Females at the Two Universities

<u>SV</u>	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>P</u>
Groups (sex)	1	113.49	113.49	1.09	$> .05$
Error	218	22659.15	103.94		
Total	219	22772.64			
<u>F</u> .95 (1,218) $\geq$ 3.84					

The F ratio (1,218) = 1.09 P $> .05$ was not statistically significant. Therefore, health knowledge did not differ between males and females in the two universities. The investigator accepted the hypothesis.

The third hypothesis of the study stated that there is no significant difference in the level of personal health knowledge between the American and Nigerian university students. Table 6 shows the range, mean, standard deviation, and standard error of the mean of personal health test scores for the two groups.

Table 6
Range, Mean, Standard Deviation, and Standard Error of
the Mean of Personal Health Knowledge Scores
for the Two Groups

Group	<u>N</u>	Range (min-max)	<u>M</u>	<u>SD</u>	<u>SEM</u>
East Texas State University	110	¹³ (3 - 16)	9.65	2.79	.26
University of Nigeria	110	¹¹ (3 - 14)	9.62	2.28	.20

The scores on personal health knowledge for the American students ranged from 3-16 and that of Nigerian students ranged from 3-14. The mean scores and standard deviations for the two groups on personal health knowledge were similar. To test the hypothesis on personal health a one-way analysis of variance was conducted. Table 7 shows the results of this analysis.

The F ratio was not statistically significant. The investigator accepted the hypothesis that personal health knowledge did not differ between the American and Nigerian students.

The community health mean score of Nigerian students was higher than that of the American students. The standard deviation was 1.15 for the Nigerian students and 0.88 for the American students. To test the hypothesis on community health knowledge a one-way analysis of variance was performed. Table 9 shows the results of this analysis.

Table 9
Analysis of Variance on Community
Health Knowledge Scores

<u>SV</u>	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>P</u>
Groups	1	11.82	11.82	11.31*	< .05
Error	218	227.86	1.05		
Total	219	239.68			
F.95 (1,218) $\geq$ 3.84					

The F ratio was statistically significant. The level of community health knowledge differs between the selected American and Nigerian university students. The investigator rejected the hypothesis.

The fifth hypothesis of the study stated that there is no significant difference in the level of nutrition knowledge between selected American and Nigerian university students.

Table 10 shows the range, mean, standard deviation, and standard error of the mean of nutritional knowledge scores for the two groups.

Table 10
Range, Mean, Standard Deviation, and Standard Error
of the Mean of Nutrition Knowledge Scores
for the Two Groups

Group	<u>N</u>	Range (min-max)	<u>M</u>	<u>SD</u>	<u>SEM</u>
East Texas State University	110	⁸ (1 - 9)	5.35	1.78	.17
University of Nigeria	110	⁷ (1 - 8)	5.51	1.51	.14

The scores on nutrition health knowledge ranged between 1-9 for the American students and 1-8 for the Nigerian students. The mean scores and the standard deviations for the two groups on nutrition knowledge were similar.

A one-way analysis of variance was conducted to test the hypothesis on nutrition knowledge score. The results of this analysis are presented in Table 11.

Table 11
Analysis of Variance on Nutrition Knowledge Scores

<u>SV</u>	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>P</u>
Groups	1	1.57	1.47	.54	> .05
Error	218	594.36	2.47		
Total	219	595.93			

F.95 (1,218) $\geq$ 3.84

The F ratio was not statistically significant. The investigator accepted the hypothesis that the level of nutrition knowledge did not differ between the two groups.

The sixth hypothesis of the study stated that there is no significant difference in the level of family life knowledge between selected American and Nigerian university students. The range, mean, standard deviation, and standard error of the mean of family life knowledge scores for the two groups are shown in Table 12.

The mean scores and standard deviations of the two groups differed, with the Nigerian students having a higher mean score than the American students.

Table 12
Range, Mean, Standard Deviation, and Standard
Error of the Mean of Family Life Knowledge
Scores for the Two Groups

Group	<u>N</u>	Range (min-max)	<u>M</u>	<u>SD</u>	<u>SEM</u>
East Texas State University	110	⁷ (0 - 7)	3.81	1.72	.16
University of Nigeria	110	⁶ (1 - 7)	4.28	1.48	.14

To test the hypothesis on family life knowledge a one-way analysis of variance was performed. Table 13 shows the results of this analysis.

Table 13
Analysis of Variance on Family Life Knowledge Scores

<u>SV</u>	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>P</u>
Groups	1	12.29	12.29	4.77*	< .05
Error	218	561.25	5.57		
Total	219	573.54			

F.95 (1,218) $\geq$ 3.84

The F ratio of 4.77 P < .05 was statistically significant. The level of family life knowledge differed between the selected American and Nigerian university students. The investigator rejected the hypothesis.

The seventh hypothesis of the study stated that there is no significant difference in the level of first aid and safety knowledge between selected American and Nigerian university students. Table 14 presents the range, mean, standard deviation, and standard error of the mean of first aid and safety knowledge scores for the two groups.

Table 14
Range, Mean, Standard Deviation, and Standard Error
of the Mean of First Aid and Safety Knowledge
Scores for the Two Groups

Group	<u>N</u>	Range (min-max)	<u>M</u>	<u>SD</u>	<u>SEM</u>
East Texas State University	110	⁸ (2 - 10)	5.93	1.86	.17
University of Nigeria	110	⁷ (2 - 9)	5.13	1.79	.17

The mean score of the American students is higher than the mean score of the Nigerian students. The standard deviations and range of scores are relatively similar.

To test the hypothesis on first aid and safety knowledge a one-way analysis of variance was performed. The result of this analysis is presented in Table 15.

Table 15
Analysis of Variance of First Aid and Safety
Knowledge Scores

<u>SV</u>	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>P</u>
Groups	1	35.20	35.20	10.60*	<.05
Error	218	723.64	3.32		
Total	219	758.84			

$$F_{.95} (1,218) \geq 3.84$$

The F ratio of 10.60 P < .05 was statistically significant. The investigator rejected the hypothesis that the level of first aid and safety knowledge did not differ between the two groups.

The eighth hypothesis stated that there is no significant difference in the level of consumer health knowledge between selected American and Nigerian university students. Table 16 shows the range, mean, standard deviation, and standard error of the mean of consumer health knowledge scores for the two groups.

Table 16
Range, Mean, Standard Deviation, and Standard Error
of the Mean of Consumer Health Knowledge Scores
for the Two Groups

Group	<u>N</u>	Range (min-max)	<u>M</u>	<u>SD</u>	<u>SEM</u>
East Texas State University	110	⁷ (0 - 7)	3.81	1.72	.16
University of Nigeria	110	⁶ (1 - 7)	4.28	1.48	.14

The mean score of the Nigerian students is higher than that of the American students. A one-way analysis of variance was performed to test the hypothesis on consumer health knowledge. Table 17 shows the results of this analysis.

Table 17
Analysis of Variance on Consumer Health Knowledge Scores

<u>SV</u>	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>P</u>
Groups	1	25.57	25.57	10.63*	< .05
Error	218	524.48	2.41		
Total	219	550.05			
F.95 (1,218) $\geq$ 3.84					

The F ratio $(1,218) = 10.63$ $P < .05$ was statistically significant. Therefore, the level of consumer health knowledge differed between the two groups. The investigator rejected the hypothesis.

The ninth hypothesis of the study stated that there is no significant difference in the level of chronic and communicable disease knowledge between selected American and Nigerian university students. Table 18 shows the range, mean, standard deviation, and standard error of the mean of chronic and communicable disease knowledge scores for the two groups.

Table 18

Range, Mean, Standard Deviation, and Standard Error of the Mean of Chronic and Communicable Disease Knowledge Scores for the Two Groups

Group	<u>N</u>	Range (min-max)	<u>M</u>	<u>SD</u>	<u>SEM</u>
East Texas State University	110	¹⁵ (5 - 20)	13.76	3.06	.29
University of Nigeria	110	¹² (7 - 19)	13.34	2.31	.22

The mean scores and the range of chronic and communicable disease knowledge scores for the two groups was relatively similar. The standard deviation of the American students scores was slightly higher than that of Nigerian students.

A one-way analysis of variance was performed to test the hypothesis on chronic and communicable disease scores. The results of this analysis are presented in Table 19.

Table 19
Analysis of Variance on Chronic and Communicable
Disease Knowledge Scores

<u>SV</u>	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>P</u>
Groups	1	10.04	10.04	1.36	$> .05$
Error	218	1604.41	7.36		
Total	219	1614.45			

$F_{.95} (1,218) \geq 3.84$

The F ratio of 1.36 $P_{>.05}$ was not statistically significant. The investigator accepted the hypothesis that the level of chronic and communicable disease knowledge did not differ between the selected American and Nigerian university students.

The tenth hypothesis of the study stated that there is no significant difference in the level of mental health knowledge between the selected American and Nigerian university students. Table 20 shows the range, mean, standard deviation, and standard error of the mean of mental health knowledge scores for the two groups.

Table 20
Range, Mean, Standard Deviation, and Standard Error
of the Mean of Mental Health Knowledge
Scores for the Two Groups

Group	<u>N</u>	Range (min-max)	<u>M</u>	<u>SD</u>	SEM
East Texas State University	110	⁷ (0 - 7)	3.69	1.37	.13
University of Nigeria	110	⁶ (0 - 6)	3.02	1.36	.13

The mean score of the American students was higher than that of the Nigerian students. The standard deviations were similar for both groups. A one-way analysis of variance was performed to test the hypothesis on mental health knowledge scores. The result of this analysis is presented in Table 21.

Table 21

Analysis of Variance on Mental Health Knowledge Scores

<u>SV</u>	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>P</u>
Groups	1	24.89	24.89	13.25*	<.05
Error	218	409.45	1.88		
Total	219	434.34			

$F_{.95} (1,218) > 3.84$

The F ratio $(1,218) = 13.25$ $P < .05$ was statistically significant. The level of mental health knowledge differed between the two groups and the investigator rejected the hypothesis.

The eleventh hypothesis of the study stated that there is no significant difference in the level of drug education knowledge between selected American and Nigerian university students. The range, mean, standard deviation, and standard error of the mean of drug education knowledge scores for the two groups are presented in Table 22.

Table 22
Range, Mean, Standard Deviation, and Standard Error
of the Mean of Drug Education Scores for
the Two Groups

Group	<u>N</u>	Range (min-max)	<u>M</u>	<u>SD</u>	SEM
East Texas State University	110	8 (2 - 10)	5.25	1.63	.15
University of Nigeria	110	6 (2 - 8)	4.53	1.32	.13

The mean score and standard deviation of the American students were higher than that of the Nigerian students. To test the hypothesis on drug education knowledge a one-way analysis of variance was performed. The result of this analysis is presented in Table 23.

Table 23
Analysis of Variance on Drug Education Knowledge Scores

<u>SV</u>	<u>df</u>	<u>SS</u>	<u>MS</u>	<u>F</u>	<u>P</u>
Groups	1	29.09	29.09	13.15*	< .05
Error	218	482.29	2.21		
Total	219	511.38			
F .95 (1,218) $\geq$ 3.84					

The F ratio of 13.15 (1,218) $P < .05$ was statistically significant and the investigator rejected the hypothesis.

The level of drug education knowledge differed between the selected American and Nigerian university students.

The twelfth hypothesis of the study stated that there is no significant relationship between socio-economic status and the level of health knowledge of the American and Nigerian university students.

Because of the low frequencies in some socio-economic levels, the five socio-economic classes were collapsed into three levels of upper class, middle class, and lower class. Table 24 shows the number of students in the three socio-economic levels for both universities.

Table 24

Students' Status in the Three Socio-Economic Levels

Group	Upper Class	Middle Class	Lower Class
East Texas State University	64	43	3
University of Nigeria	39	49	22

At East Texas State University, 64 students classified themselves as coming from upper class families, 43 from middle class and 3 from lower class. At the University of Nigeria, 39 students came from upper class families, 49 from middle class, and 22 from lower class. The lowest and highest total health knowledge scores from the two groups were 26 and 81 with a range of 55. To determine the low, medium, and high health knowledge level for the groups the investigator arbitrarily divided the range of 55 into three and added the results to the lowest score. This gave the following levels of health knowledge:

Low health knowledge score level: 26 - 45

Medium health knowledge score level: 46 - 63

High health knowledge score level: 64 - 81

Table 25 shows the number of students in each of the three socio-economic classes and health knowledge level.

Table 25
Socio-Economic Status and Total Health Knowledge Score
Level of Students in the Two Universities

Group	Health Knowledge Level	Upper Class	Middle Class	Lower Class
East Texas State University	High	22	14	1
	Medium	32	25	1
	Low	10	4	1
University of Nigeria	High	6	5	2
	Medium	30	35	16
	Low	3	9	4

Table 26 shows the χ^2 performed to test the hypothesis on the relationship between socio-economic class and health knowledge.

Table 26

Observed and Expected Frequencies of University Students in Each of the Three Socio-Economic Strata According to Total Health Knowledge Scores

Group	Level of Health Knowledge		Upper Class	Middle Class	Lower Class	Chi Square
East Texas State University	High	Observed	22	14	1	2.20
		Expected	21.53	14.46	1.01	
	Medium	Observed	32	25	1	
		Expected	33.75	22.67	1.58	
	Low	Observed	10	4	1	
		Expected	8.73	5.86	0.41	
University of Nigeria	High	Observed	6	5	2	2.71
		Expected	4.61	5.79	2.60	
	Medium	Observed	30	35	16	
		Expected	28.72	36.08	16.20	
	Low	Observed	3	9	4	
		Expected	5.67	7.13	3.20	

$$\chi^2_{.95} (4) \geq 9.49$$

The $\chi^2 = 2.20$ and 2.71 (4) $p > .05$ were not statistically significant. The investigator accepted the hypothesis that there is no relationship between socio-economic status and level of health knowledge.

CHAPTER V

SUMMARY, DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The purpose of the study was to compare the level of health knowledge of selected American university students with the level of selected Nigerian university students. In addition, health knowledge in the specific areas of personal health, nutrition, mental health, family life, first aid and safety, community health, chronic and communicable diseases, drug education, and consumer health were compared. The study also examined the relationship between the level of health knowledge and socio-economic status in the two groups.

The subjects were 110 students from East Texas State University in the United States of America and 110 students from the University of Nigeria in Nigeria. Health knowledge was measured by the Kilander-Leach Health Knowledge Test. Socio-economic status was obtained from an Information Sheet.

The total health knowledge of American and Nigerian university students was found to be statistically different.

Differences were also found between the groups in some specific areas of health. Five hypotheses were accepted and seven were rejected as follows:

Hypothesis One: There is no significant difference in the level of health knowledge between American and Nigerian university students. Rejected

Hypothesis Two: There is no significant difference in the level of health knowledge between male and female students in American and Nigerian universities. Accepted

Hypothesis Three: There is no significant difference in the level of personal health knowledge between American and Nigerian university students. Accepted

Hypothesis Four: There is no significant difference in the level of community health knowledge between American and Nigerian university students. Rejected

Hypothesis Five: There is no significant difference in the level of nutrition knowledge between American and Nigerian university students. Accepted

Hypothesis Six: There is no significant difference in the level of family life knowledge between American and Nigerian university students. Rejected

Hypothesis Seven: There is no significant difference in the level of first aid and safety knowledge between American and Nigerian university students. Rejected

Hypothesis Eight: There is no significant difference in the level of consumer health knowledge between American and Nigerian university students. Rejected

Hypothesis Nine: There is no significant difference in the level of chronic and communicable disease knowledge between American and Nigerian university students.

Accepted

Hypothesis Ten: There is no significant difference in the level of mental health knowledge between American and Nigerian university students. Rejected

Hypothesis Eleven: There is no significant difference in the level of drug education knowledge between American and Nigerian university students. Rejected

Hypothesis Twelve: There is no significant relationship in the socio-economic status and the level of health knowledge of the American and Nigerian university students.

Accepted

Discussion

The first hypothesis was rejected on the basis of the statistical analysis of the total health knowledge scores of the two groups. The results of other hypotheses of the study showed that there were no significant differences in the areas of personal health, nutrition, chronic and communicable diseases. Significant differences did exist in

the areas of community health, family life, first aid and safety, consumer health, mental health, and drug education. The significant differences found between groups in some specific health areas did not appear relevant since the differences were in two directions. The American students had more health knowledge in some areas whereas the Nigerians had more knowledge in other areas. There was a significant difference in the overall health knowledge of both groups. The American university students had a higher total health knowledge in general, as well as in the areas of first aid and safety, mental health, and drug education. The Nigerian students had a higher health knowledge in the areas of community health, family life, and consumer health.

There was no statistical difference in the level of health knowledge between male and female students in both universities. However, female students at both institutions had a slightly higher health knowledge mean score than male students as shown in Table 4. Campbell and Early (1969) and Engs and Kirk (1976) reported similar findings in their studies.

The total health knowledge mean scores for the American and Nigerian students were 57.23 and 54.49, respectively. The significant differences found in specific health areas were in both directions which seemed to offset their impact. This finding could be attributed to several factors. First,

it is possible that the instrument selected was not suitable for the two opposing cultural groups. Normative standards for the Kilander-Leach Knowledge Test were established using groups in the United States with homogeneous educational and cultural backgrounds. The deletion of some questions from the test might have effected the outcome of the study.

Second, the East Texas State University (ETSU) students might have been atypical of American university students based on their scores on the test. With a mean health knowledge score of 57.23, the ETSU students were below the national average of 70 established for American university students. The Nigerian students, despite their cultural and normative differences, were able to score abreast with the American students but were below the national average.

Time spent in completing the test might have also played a part in the outcome of the scores. The American students completed the test during a regular 1-hour class. The Nigerian students used 1 hour and 15 minutes of their regular one and half hour class. The extra time spent by the Nigerian students may have allowed them to give more attention to answering the questions than their American counterparts.

Another factor to be given careful consideration is the motivation with which Nigerian university students approach any kind of test. They are sensitive early in their academic life to the importance of successful performance in any test. Nigeria, a country of over 80 million people, has only "13 Nigerian universities," (Nigeria, 1982 p. 78). Admission of a high school graduate to any university in Nigeria is possible only through a highly competitive, centrally administered test supervised by the Joint Admissions and Matriculation Board (West Africa, 1981). Within the University of Nigeria, apart from regular tests and completion of course work, a student has to take a final degree examination before graduation. For this final test, the university stipulates that an "external examiner shall participate in the determination of the results" (The University of Nigeria 1978-81 Calender, p. 148). The subjects at the University of Nigeria, apart from being very conscientious in their approach to tests, might have been motivated by the appearance of the investigator who is external to the university. In contrast, at East Texas State University admission of a high school graduate is accomplished by fulfilling the standards established by the University rather than through an

externally-administered examination. There is no requirement for a final degree examination supervised by an external examiner. The approach to an examination by the Nigerian students may have accounted for their scores being similar to their American counterparts in some health areas despite the cultural differences in the two groups.

Conclusion

The level of total health knowledge of the American university students as measured by the KLHK Test was found to be significantly higher than the knowledge level of the Nigerian university students. In the specific areas of health knowledge, significant differences did not exist between the two groups in the areas of personal health, nutrition, and chronic and communicable diseases. The American students scored significantly higher in the areas of first aid and safety, mental health, and drug education; and the Nigerian students scored significantly higher in the areas of community health, consumer health, and family life. There was no significant relationship between socio-economic status and health knowledge level among the groups.

Recommendations

As a result of this study, the investigator recommends the following for further research:

1. Further use of the Kilander-Leach Health Knowledge Test in cross-cultural studies with students from other countries in order to strengthen the validity of the instrument for international studies.

2. Comparison of students from other American universities who approximate the norm of the KLHK Test with their Nigerian counterpart.

3. Further studies of this nature should exert tighter controls in the administration of the test. This will insure that subjects utilize equal time in completing the test and increase the reliability of the study outcome.

4. Health knowledge tests that are international in outlook and devoid of any particular country's norms should be devised for cross-cultural studies.

5. A continuation of a study of this nature using other health knowledge tests in order to provide broader comparative literature in the area of student health knowledge.

A P P E N D I X

APPENDIX A

Kilander-Leach Health Knowledge Test Information Sheet

No. _____

Score _____

Date _____

KILANDER-LEACH HEALTH KNOWLEDGE TEST

Percentile _____

Group _____

Developed by
H. Frederick Kilander, Ph. D.
Dean of Graduate School
Wagner College

Revised by
Glenn C. Leach, Ed. D.
Coordinator of Health Education
Wagner College

Name _____ Date _____

Last name First Middle

School now attending _____ City _____ State _____

Date of Birth _____ Sex _____ Father's Occupation _____

Classification (Underline): High School College Freshman Sophomore Junior Senior

Indicate in the blanks below the number of semesters in high school that you have studied each of the following science and health subjects:

General Science _____	Health Education _____	Safety Education _____
Biology _____	Home Nursing _____	Chemistry _____
Home Economics _____	First Aid _____	Physics _____

If you are in college, indicate the number of credits that you have earned in college science courses:

Biology _____	First Aid _____	Psychology _____
Health, Hygiene _____	Chemistry _____	Sociology _____
Physiology _____	Physics _____	_____

Directions: Carefully fill out the above information before turning to the questions. This test requires fifty minutes of working time. Each question gives a choice of several answers. In the blank following each statement place the number of that answer which you think is correct. Do not spend too much time on any one question.

Your cooperation is requested in making this a valid test. If you do not understand the question or know the answer, place a zero for your answer. Please do not guess.

IF YOU HAVE ANY GENERAL QUESTIONS, ASK THEM NOW
DO NOT OPEN THIS TEST UNTIL THE EXAMINER TELLS YOU TO DO SO

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Dr. Glenn C. Leach, Publisher
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Ridgewood, New Jersey 07450

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Printed in U.S.A.
The Rocco Press, New Jersey

HEALTH KNOWLEDGE TEST

1. Many people lack emotional stability in adult life. This characteristic most probably is traceable to: 1. Early home life 2. Early school life 3. Bad companions 4. Heredity 1 _____
2. All except which one food can be used instead of meat as a source of protein? 1. Fish 2. Dried beans and peas 3. Macaroni 4. Poultry 2 _____
3. Which one is a voluntary health agency, as the term is commonly used? 1. Metropolitan Life Insurance Company 2. U. S. Public Health Service 3. National Tuberculosis Association 4. American Medical Association 3 _____
4. The blood test required in many states before a marriage license is issued is for the purpose of determining whether or not either party has: 1. Syphilis 2. Gonorrhea 3. Tuberculosis 4. Hemophilia 4 _____
5. What is missing in an otherwise well-balanced breakfast made up of a glass of strained orange juice, a cooked egg, 2 slices of enriched white bread, and a glass of whole milk? 1. Vitamins 2. Roughage 3. Protein 4. Minerals 5 _____
6. The best rule to follow to prevent constipation is to: 1. Take a laxative regularly once a week. 2. Avoid cheese since it is considered to be binding. 3. Eat plenty of food high in water content such as soups and beverages. 4. Eat regularly foods containing roughage such as vegetables, fruits and whole grain bread. 6 _____
7. The World Health Organization, known as WHO, is: 1. An agency of the old League of Nations. 2. An independent international agency working closely with the UN. 3. An agency of the United Nations. 4. A loose international federation which includes most countries but not Russia and its satellites. 7 _____
8. Which temperature of the bath water is most conducive to relaxation when one is nervous? 1. Hot 2. Warm 3. Cold 4. Hot followed by cold 8 _____
9. A physician who specializes in the health of children is called a: 1. Pediatrician 2. Orthopedist 3. Obstetrician 4. Otolgist 9 _____
10. Fatigue due to sedentary or mental work is best relieved at the end of one's working hours by: 1. Coffee 2. Sleep 3. A shower 4. Recreational activity of a physical type 10 _____
11. Which statement about the inheritance of allergies is the most accurate? 1. Allergies are inherited. 2. Allergies are not inherited. 3. The tendency to develop allergies is inherited. 4. It is not known definitely whether there is an inherited factor. 11 _____
12. Comment on the statement: A fever can be "killed" by drinking whiskey. 1. This is true. 2. There is neither harm nor value in this method. 3. It frequently helps. 4. It is more dangerous than helpful. 12 _____
13. Which of the following statements is correct? 1. Excessive masturbation leads to insanity. 2. Excessive masturbation leads to sterility. 3. Masturbation is not physically harmful, and is usually outgrown. 4. Masturbation is participated in by the male species only. 13 _____

14. The process whereby a sperm and egg unite is known as fertilization. By which other name is it also called?
 1. Reproduction 2. Conception
 3. Implantation 4. Sterilization 14 _____
15. Which is the best way to arrange a chair and writing desk in a room with windows only on one side and for a right-handed person?
 1. Facing windows 2. With right side toward windows
 3. With back to windows 4. With left side toward windows 15 _____
16. The ultra-violet rays either from sunlight or artificial sun lamps are of value in preventing: 1. Rickets 2. Gout 3. Cancer 4. Kidney trouble 16 _____
17. Of the various forms of insurance, the one that offers hospitalization benefits is known as: 1. American Hospital Plan 2. Blue Shield 3. Blue Cross 4. Major Medical 17 _____
18. A college degree is required in order to take up specialized study in three of these fields. For which one is a high school diploma sufficient?
 1. Medical social worker 2. Dentist
 3. Hospital administrator 4. Dental hygienist 18 _____
19. Can a prospective mother make her child more musical if she listens to good music?
 1. Yes, several prominent musicians can ascribe their musical ability to such a procedure. 2. It is doubtful that it would have such an effect. 3. Probably, if the mother does so during the entire prenatal period. 4. It is contrary to the facts of heredity to expect this. 19 _____
20. A person has cut an artery in the forearm. A tourniquet should be applied:
 1. On the side of the cut toward the wrist 2. Either at wrist or elbow
 3. On the side of the cut toward the elbow 4. Both at wrist and elbow 20 _____
21. The most serious type of fatigue is induced by:
 1. Physical work 2. Mental work 3. Emotional strain 4. Not known 21 _____
22. Having which one of these diseases is most likely to be fatal?
 1. Tetanus (lockjaw) 2. Mumps 3. Scurvy 4. Hookworm 22 _____
23. Which one statement concerning the heart and exercise is incorrect?
 1. If heart trouble is already present, excessive muscular activity may lead to trouble.
 2. Some heart patients benefit from medically prescribed exercise.
 3. Exercise causes "athlete's heart."
 4. The death rate from heart disease is lower for people who do heavy physical work as compared with those who do sedentary work. 23 _____
24. That field of medicine which deals with the aged is known as:
 1. Pediatrics 2. Geriatrics 3. Obstetrics 4. Orthopedics 24 _____
25. For people at sedentary work, 68 degrees is the ideal room temperature because:
 1. It keeps the humidity sufficiently low.
 2. We are accustomed to that temperature.
 3. It is the temperature at which our body makes heat at the same rate that it loses it without shivering or perspiring.
 4. It is the nearest temperature to that of summer. 25 _____
26. The best method today of lowering the death rate from cancer is by:
 1. Early diagnosis. 2. Repeated use of radium and X-ray.
 3. Improvement in one's general health. 4. Early operation. 26 _____
27. In fighting biological warfare, you as a citizen should:
 1. Identify germs, toxins or poisons before reporting them.
 2. Avoid washing or dry cleaning any contaminated clothing.
 3. Wear air-tight face mask and suit covering entire body.
 4. Report all unusual symptoms and illnesses to your local or civil defense authorities. 27 _____

28. The cooking of foods decreases particularly the value of:
1. Proteins 2. Fats 3. Vitamins 4. Calories 28 _____
29. Is the "taste" for alcohol inherited?
1. Yes 2. Yes, in some cases 3. Yes, in most cases 4. No 29 _____
30. When a strong acid has accidentally come in contact with the skin, one should immediately:
1. Wash it off with plenty of water, preferably alkaline.
2. Cover it with oil. 3. Apply an ointment dressing.
4. Wash it off with rubbing alcohol. 30 _____
31. Astigmatism is defined as: 1. An infection of the eye 2. Weak eyes
3. A type of nearsightedness 4. Imperfect curvature of the eye 31 _____
32. Gonorrhea may cause:
1. Stomach ulcers 2. Insanity 3. Baldness 4. Sterility 32 _____
33. The number of cases of organic diseases such as heart trouble and cancer compared with communicable diseases such as typhoid, tuberculosis, and diphtheria is:
1. Increasing 2. The same 3. Decreasing 4. Not known 33 _____
34. In which way is sugar used in the body? 1. To yield energy 2. To build tissue
3. To regulate the body processes 4. To yield energy and build tissue 34 _____
35. The souring of milk is hastened most quickly by: 1. Thunderstorms
2. Pasteurization 3. Leaving the bottle uncovered in the refrigerator
4. Poor refrigeration 35 _____
36. What is the relative professional competency of medical doctors in comparison with chiropractors in treating disease? 1. Equal to chiropractors
2. Inferior to chiropractors 3. Better than chiropractors 4. Debatable 36 _____
37. Which of the following statements about syphilis is the only correct one?
1. It is a hereditary disease. 2. Once a person has contracted it, he develops an immunity toward it. 3. The latent stage may cause heart defects or insanity. 4. It is often acquired from dirty toilet seats or towels. 37 _____
38. In attempting to reduce the rate of tuberculosis, this disease should be considered primarily: 1. An hereditary sickness 2. An infection 3. An emotional ailment
4. As caused by faulty nutrition 38 _____
39. What is meant by "tolerance" as used in speaking of drug addiction?
1. A sense of well-being and relaxation caused by the drug.
2. The need for larger doses of the drug with continued use.
3. Physical dependence on the drug.
4. Emotional dependence on the drug. 39 _____
40. Three of these countries have relatively low death rates; for which one is the death rate the highest? 1. United States 2. Australia 3. Mexico 4. Sweden 40 _____
41. Which disease is transmitted most readily and quickly by personal contact?
1. Cancer 2. Pellagra 3. Diphtheria 4. Anemia 41 _____
42. Milk, which is high in protein and vitamins, completely lacks which one of the following food essentials? 1. Roughage 2. Fats 3. Carbohydrates 4. Minerals 42 _____
43. Which one of these factors contributes most to mental health?
1. Daydreaming 2. Facing the realities of life 3. Seldom facing unpleasant situations 4. A great deal of introspection 43 _____

44. What is it in tobacco smoking which causes lung cancer? 1. Nicotine 2. Tobacco tars 3. Carbon monoxide in tobacco smoke 4. The heat of the smoke 44 _____
45. Which factor most frequently makes the air less healthful in heated homes or offices during the winter? 1. Room temperature kept too high 2. Dampness 3. Lack of sufficient oxygen 4. Too much carbon dioxide 45 _____
46. Soft drinks of the cola type contain sugar and a drug, caffeine, which acts as a: 1. Depressant 2. Stimulant 3. Narcotic 4. Vitamin 46 _____
47. For which communicable disease must you present a certificate of successful vaccination when you return to the U. S. from abroad? 1. Yellow fever 2. Chickenpox 3. Smallpox 4. Cholera 47 _____
48. Which one of these symptoms is NOT a symptom of shock? 1. Cold perspiration on forehead 2. Strong pulse 3. Shallow, irregular breathing 4. Dilated pupils of eyes 48 _____
49. Arthritis is a form of rheumatism in which there is inflammation of: 1. Muscles 2. Joints 3. Nerves 4. Bursae 49 _____
50. The type of illness that occurs when emotional tension creates functional bodily disorders, such as headaches and high blood pressure, is known as: 1. Psychosomatic condition 2. Neurosis 3. Psychosis 4. Insanity 50 _____
51. Having which disease does not make the person immune to a second attack of the disease? 1. Colds 2. Mumps 3. Scarlet fever 4. Typhoid fever 51 _____
52. The oxygen taken in by the lungs is carried to the body tissues by which one of the following substances? 1. White blood cells 2. Blood platelets 3. Red blood cells 4. Autocoids 52 _____
53. Where does heart disease rank as a cause of death in the United States today? 1. First 2. Second 3. Fifth 4. Among the second five causes 53 _____
54. The Federal Food, Drug and Cosmetic Act prohibits: 1. False advertising in newspapers 2. The sale of products in the same state in which they are made 3. False advertising on the package 4. Both sale and advertising of product 54 _____
55. A glass of drinking water contains approximately how many calories? 1. None 2. 10 3. 100 4. 200 55 _____
56. Which one of the following is favorable to the maintenance of a healthy mind? 1. Introspection 2. Monotonous living 3. Cultivation of hobbies 4. Emotionalizing over one's handicaps 56 _____
57. Three of the following four personality traits indicate emotional maturity in a person. Which one does not? 1. Self-discipline 2. Self-satisfaction 3. Determination 4. Independence 57 _____
58. Which one of these chemical salts, when found in drinking water, or applied to the teeth, helps to reduce tooth decay? 1. Chlorides 2. Fluorides 3. Sulphates 4. Carbonates 58 _____
59. When it is time for the baby to be born: 1. The navel gradually opens to let the baby out. 2. The muscles of the uterus contract to force out the baby. 3. The Fallopian tube expands to permit the baby to pass through. 4. None of these three statements applies. 59 _____
60. The main function in perspiring (sweating) is: 1. To eliminate body poisons 2. To regulate the temperature of the body 3. To get rid of excess water 4. To cleanse the surface of the body 60 _____

61. Various marks of disfigurement on a newborn child are due to the fright of the mother during pregnancy. 1. This has frequently happened. 2. It may happen when the fright occurs early in pregnancy. 3. It may happen when the fright occurs during last 3 or 4 months of pregnancy. 4. There is no biological basis for this statement. 61 _____
62. The "Pap" test is used in determining the presence of cancer in what part of the body? 1. Skin 2. Stomach 3. Breast 4. Uterus 62 _____
63. Human whole blood or some of its derivatives can be used in the treatment of all except which one? 1. Shock 2. Goiter 3. Anemia 4. Burns 63 _____
64. Which is the correct view in regard to "cousin marriage"?
 1. Such a marriage almost always results in some inferior children.
 2. It frequently results in mentally deficient children.
 3. It is not likely to result in deficient children any more than any other marriage.
 4. It is biologically undesirable if undesirable inheritable traits are known to be present in the family. 64 _____
65. Cigarette smoking produces all of the following effects except which one?
 1. It causes shortness of breath. 2. It causes an increase in mental alertness.
 3. It causes a measurable rise in blood pressure. 4. It makes the extremities (feet and hands) cold. 65 _____
66. The dangerous gas contained in manufactured illuminating and cooking gas is:
 1. Methane 2. Hydrogen 3. Carbon monoxide 4. Carbon dioxide 66 _____
67. Three of the following services are considered to be functions of the city and county health departments. Which function is NOT the health department's responsibility?
 1. Compiling vital statistics
 2. Providing for sanitation in the community
 3. Providing for communicable disease control
 4. Caring for the needy 67 _____
68. In order to recover from tuberculosis, which procedure is most important?
 1. To rest a great deal 2. To move to a dry climate
 3. To exercise by taking long walks 4. To take injections of tuberculin 68 _____
69. During which age period will the lack of proper food result in most harm?
 1. From birth to 6 years 2. Childhood—6-12 years
 3. Adolescence—12-18 years 4. Early maturity—18-24 years 69 _____
70. Is fish a brain food?
 1. It is, because fish is rich in protein similar to that found in the brain.
 2. It is of value because it contains quantities of the salts found in the brain.
 3. It is doubtful whether enough fish can be eaten to make much difference.
 4. No one type of food is used specifically for one organ or region such as the brain. 70 _____
71. Can communicable diseases be inherited? (Consider only biological inheritance.)
 1. Many but not all communicable diseases can be inherited.
 2. It is only occasionally that such diseases are inherited.
 3. Tuberculosis is one of the two or three communicable diseases that may be inherited.
 4. Communicable diseases cannot be inherited. 71 _____
72. Which one is the best reason why patent medicines should NOT be used?
 1. They are too expensive for what a person gets from them.
 2. They stimulate one too much by means of harmful drugs.
 3. They may cause a person to become a drug addict.
 4. They may contain substances that give temporary relief while the condition causing the trouble grows worse. 72 _____

73. Can rheumatism be cured by the application of rattlesnake (or other snake) oil?
 1. This is an old, reliable remedy used in the west.
 2. It is known to have helped in many instances.
 3. There is no value in this remedy.
 4. Snake oil will cure only when rubbed in thoroughly. 73 _____
74. Venereal diseases (syphilis and gonorrhea) are most frequently contracted in which age group? 1. 13-18 years 2. 19-24 years 3. 25-30 years 4. 31-36 years 74 _____
75. Most people who are overweight are so primarily because:
 1. They exercise too little. 2. They have inherited the tendency. 3. They have an underactive thyroid gland. 4. They eat too much fattening food. 75 _____
76. "Handling toads or frogs is a cause of warts forming on the hands."
 1. This statement is true. 2. It is true only for toads, not for frogs.
 3. It is doubtful whether frogs or toads can cause warts.
 4. Both animals can be handled without fear of getting warts from them. 76 _____
77. Anemia is a disease in which the individual may not have sufficient:
 1. Gastric juices 2. Red corpuscles 3. Bile 4. Calcium 77 _____
78. Active acquired immunity develops when a person has a disease and then recovers from it. For which pair of diseases is this common?
 1. Tuberculosis and malaria 2. Colds and pneumonia
 3. Measles and mumps 4. Diabetes and anemia 78 _____
79. According to present scientific knowledge, which one is entirely attributed to heredity?
 1. Cancer 2. Excessive weight 3. Color-blindness 4. Anemia 79 _____
80. The human embryo gets its food through: 1. The Fallopian tube
 2. The placenta 3. Cell division 4. The abdominal cavity 80 _____
81. The main value in the use of a dentifrice (toothpaste or powder) is to:
 1. Help scour and clean the teeth 2. Kill bacteria in the mouth
 3. Neutralize bad mouth odors 4. It has no value 81 _____
82. It is through the Eustachian tube that infections in the nose frequently spread to:
 1. Lungs 2. Ear 3. Tonsils 4. Adenoids 82 _____
83. Which statement is most often true about alcoholics?
 1. They eventually become insane. 2. They show personality changes.
 3. They suffer from infectious diseases. 4. They suffer from malnutrition 83 _____
84. Which is the incorrect statement?
 1. Marijuana is a synthetic drug.
 2. Marijuana may produce hallucinations.
 3. Marijuana does not produce a physical dependency.
 4. Marijuana may lead to the use of heroin. 84 _____
85. Can a swelling or a "black eye" due to a bruise be reduced by applying raw meat?
 1. It works in many instances because raw meat is able to absorb the liquid which otherwise would cause the swelling to develop.
 2. Statement (1) holds true only for certain kinds of meat such as beefsteak.
 3. It works at times because of a special enzyme in meat. 85 _____
 4. There is no special value in the use of raw meat in the treatment of bruises.
86. Tuberculosis in childhood is acquired most frequently by getting the germs:
 1. Through inheritance 2. From street dust 3. From contact with adults who have the disease. 4. By drinking milk from infected cows 86 _____

87. Which statement is correct concerning lighting and television watching?
1. TV gives off certain harmful rays that may injure the eyes.
 2. It is best to sit slightly to the side of the TV screen when viewing it.
 3. Moderate indirect lighting for the room as a whole is recommended for minimum eye strain.
 4. There should be sufficient contrast between the lighting in the room and that from the TV screen.
- 87 _____
88. Which vitamin should be included in children's diets in order to prevent rickets?
1. A
 2. B
 3. C
 4. D
- 88 _____
89. In the event of a heart attack, which procedure is wrong?
1. Keep patient quiet.
 2. If patient so desires, have him slowly walk around to stimulate his circulation.
 3. Assist patient to a comfortable position.
 4. Provide moderate warmth.
- 89 _____
90. Antibiotics refer to:
1. Drugs used in combating certain diseases
 2. A special food for infants
 3. A disinfectant for sterilizing utensils
 4. A hormone for preventing certain diseases
- 90 _____
91. Four of the following represent types of neurosis; which one is a type of psychosis?
1. Hypochondriasis
 2. Hysteria
 3. Neurasthenia
 4. Paresis
- 91 _____
92. Botulism refers to:
1. A type of food poisoning
 2. One of the newer drugs
 3. An enzyme
 4. A tropical disease
- 92 _____
93. The periodic health examination is valuable in the detection and prevention of all except which one of these diseases?
1. Typhoid fever
 2. Heart disease
 3. Diabetes
 4. Cancer
- 93 _____
94. Which department of the Federal Government is responsible for the control of narcotics and drug abuse?
1. Department of Justice.
 2. Department of the Treasury.
 3. Department of Health, Education and Welfare.
 4. Department of Commerce.
- 94 _____
95. The physiological effect of alcohol upon the nervous system is:
1. As a stimulant
 2. As a depressant
 3. As both a stimulant and a depressant
 4. Either, depending upon the person
- 95 _____
96. The average life span (expectation of life at birth) during the past century has been increased from about 30 years to about 70 years. This change has been accomplished mainly by:
1. Preventing infant deaths
 2. Reducing diseases of old age
 3. Equally by both (1) and (2)
 4. It is not definitely known
- 96 _____
97. The best thing to do when fatigued from a strenuous day of muscular work is to:
1. Take a cold shower to "pep one up."
 2. Massage the tired muscles.
 3. Take further exercise to "work off" the fatigue toxins.
 4. Sleep it off.
- 97 _____
98. What is the best thing for a person to do who feels that he is about to faint?
1. Move to fresh air.
 2. Drink some cold water.
 3. Lower the head between the knees.
 4. Have someone rub his forehead with a rotary motion.
- 98 _____
99. Which one of these factors contributes most to automobile accidents?
1. Car design
 2. Weather
 3. Human element
 4. Defects of car
- 99 _____
100. Which one of the following statements on teeth and their care is true?
1. Since wisdom teeth (third molars) are useless and decay early, the sooner they are extracted, the better.
 2. "Pink toothbrush" can be cured by the right kind of toothpaste.
 3. Eating soft, sugary foods and candies contributes to tooth decay.
 4. One's physical condition has little effect on the health of the teeth.
- 100 _____

INFORMATION SHEET

Age _____ Sex _____

University now attending _____

City State Country

Father's Occupation _____

Mother's Occupation _____

Father's Education Background _____ Elementary;

_____ High School; _____ University _____ Other;

_____ No Education

Mother's Educational Background _____ Elementary;

_____ High School; _____ University _____ Other:

_____ No Education

JUDGING FROM INCOME, RESIDENCE, OCCUPATION AND OTHER
SOCIO-ECONOMIC STANDARDS OF YOUR COUNTRY, AT WHAT LEVEL
DO YOU CLASSIFY YOUR FAMILY? (Circle One)

Upper Class

Upper Middle Class

Lower Middle Class

Upper Lower Class

Lower Lower Class

APPENDIX B

Permissions

TEXAS WOMAN'S UNIVERSITY
Box 10717 TWU Station
Denton, Texas 76209

HUMAN SUBJECTS REVIEW COMMITTEE

Name of Investigator: Fobem Obiora Abiakam Center: Denton
Address: P.O. Box 17543 Date: March 31, 1981
Dallas, TX 75217

Dear Fobem Abiakam,

Your study entitled Cross-Cultural Comparison of Health Knowledge
of Selected American and Nigerian University Students

has been reviewed by a committee of the Human Subjects Review
Committee and it appears to meet our requirements in regard
to protection of the individual's rights.

Please be reminded that both the University and the Depart-
ment of Health, Education, and Welfare regulations typically
require that signatures indicating informed consent be obtained
from all human subjects in your studies. These are to be filed
with the Human Subjects Review Committee. Any exception to this
requirement is noted below. Furthermore, according to DHEW re-
gulations, another review by the Committee is required if your
project changes.

Any special provisions pertaining to your study are noted
below:

 Add to informed consent form: No medical service or com-
pensation is provided to subjects by the University as a
result of injury from participation in research.

 Add to informed consent form: I UNDERSTAND THAT THE RETURN
OF MY QUESTIONNAIRE CONSTITUTES MY INFORMED CONSENT TO ACT
AS A SUBJECT IN THIS RESEARCH.

 The filing of signatures of subjects with the Human Subjects
Review Committee is not required.

 Other:

 x No special provisions apply.

cc: Graduate School
Project Director
Director of School or
Chairman of Department

Sincerely,

Marilyn Hinson

Chairman, Human Subjects
Review Committee

at Denton

F. Obiora Abiakam
P.O. Box 17543
Dallas, Texas 75217

12-29-80

Dr. Glenn C. Leach
116 No. Pleasant Avenue
Ridgewood, NJ 07450

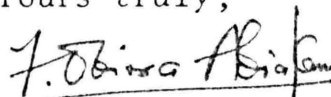
Dear Dr. Leach,

I am a doctoral candidate at Texas Woman's University. My proposed dissertation involves the use of the Kilander-Leach Health Knowledge Test in comparing the health knowledge level of selected American and Nigerian college students. To accomplish this, I need the following from you:

1. Permission to use the test.
2. 200 test sheets (\$40.00 fee is enclosed in cashier's check).
3. Permission to delete some of the questions that are not applicable to Nigerian cultural setting.
4. Explanation on how the test is scored.
5. Explanation on how the questions are divided into the various fields of health.

Thanking you for your cooperation, I look forward to your reply.

Yours truly,

A handwritten signature in dark ink, appearing to read 'F. Obiora Abiakam', written over a horizontal line.

F. Obiora Abiakam

Inter Office Memo

FROM Dr. Glenn C. Leach

TO F. Obiora Abiakam

Thank you for your test order. I am sorry for the delay, but I had to have more printed and since the printer was tied up, they were done elsewhere. They are now ready, and will be shipped to you tomorrow.

You have my permission to use the test, and to adapt some of the questions as needed.

I am enclosing the other information you requested.

2/3/81

F. Obiora Abiakam
P.O. Box 17543
Dallas, Texas 75217
August 5, 1980

The Registrar
University of Nigeria
Nsukka - Anambra State
Nigeria

Dear Sir,

I was a student at your university but currently a doctoral candidate at Texas Woman's University, Denton - Texas, U.S.A. For my doctoral dissertation, I am interested in comparing the health knowledge level of American university students with that of students at the University of Nigeria.

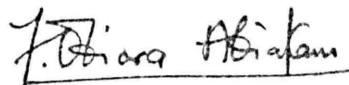
I am therefore seeking for permission to carry out the study in your university. If the permission is granted, the following steps will be taken in conducting the study:

1. Random selection of the participants from the population of students.
2. Inform the participants of the study.
3. Administer the questionnaire to the participants.
4. Collect the completed questionnaire from the participants (no names will be demanded in the questionnaire).

This study will not involve your university any financial responsibility. The Human Subjects Review Committee at Texas Woman's University must approve of the study before it is carried out.

I will be grateful for your cooperation.

Sincerely yours,



F. Obiora Abiakam

UNIVERSITY OF NIGERIA

Telegrams: NIGERSITY
Telephone: NSUKKA 48, 49

Ext.



NSUKKA
ANAMBRA STATE

OFFICE OF THE REGISTRAR

OUR REF: UN/REG. 121

DATE: 20 August 1980

Mr F Obiora Abinkam
P O Box 17542
Dallas, Texas 75017
U S A

Dear Mr Abinkam

This refers to your letter of 3 August 1980. You have the liberty to visit the University of Nigeria in December 1980 to conduct research in your areas of interest. The University would also be willing to supply you with the following information needed for your research:

1. Number, names and capacity of student resident halls.
2. Student population (Male and Female) during the 1979/80 academic year and the anticipated student population for the 1980/81 session for Nsukka Campus only.
3. A break-down of the 1979/80 student population into off-campus and residential students.

Best wishes.

Yours faithfully,


A. C. Okoroafo

cc Dean of Student Affairs
cc D.A. (Careers & Student Services)



APPENDIX c

Raw Scores

School: East Texas State University
Raw Scores

Student Number	Total Score	Personal Health	Nutrition	Mental Health	Family Life	First Aid and Safety	Community Health	Chronic and Communicable Disease	Drug Education	Consumer Health	Socio-Economic Status	Age	Sex
001	48	4	4	4	2	6	2	8	6	5	LMC	21	F
002	65	12	8	4	5	5	3	13	7	8	UMC	20	F
003	63	9	5	3	5	6	1	18	5	11	UMC	35	F
004	54	10	5	3	6	3	2	14	6	5	LMC	20	M
005	52	7	5	2	5	8	3	12	4	6	UMC	19	M
006	75	13	6	5	7	9	3	18	6	8	LMC	21	M
007	55	10	3	4	4	6	2	12	5	9	LMC	21	M
008	74	15	7	4	5	9	3	15	6	10	LMC	42	M
009	26	7	2	1	1	3	0	6	3	3	UMC	20	F
010	70	14	5	7	4	9	2	15	6	8	LMC	25	M
011	63	13	6	4	6	6	2	12	5	9	LMC	20	F
012	29	3	5	0	2	3	1	8	2	5	LMC	18	M
013	49	10	6	4	0	4	2	12	3	8	UMC	18	F
014	65	10	7	5	3	7	2	17	7	7	UMC	22	F
015	66	10	5	4	5	8	3	15	6	10	LMC	18	M
016	67	9	9	5	5	6	3	16	7	7	UMC	20	M
017	46	5	4	2	3	4	2	17	3	6	LMC	19	M
018	62	11	6	3	3	5	2	17	7	8	UMC	21	M
019	68	11	6	3	6	8	3	14	8	9	UMC	23	M
020	55	11	3	3	2	8	1	16	4	7	UMC	21	F
021	50	8	5	5	4	6	3	9	4	8	UMC	21	F
022	39	8	4	1	2	3	1	11	5	4	UMC	21	F

School: East Texas State University

Raw Scores

Student Number	Total Score	Personal Health	Nutrition	Mental Health	Family Life	First Aid and Safety	Community Health	Chronic and Communicable Disease	Drug Education	Consumer Health	Socio-Economic Status	Age	Sex
023	57	10	6	3	4	6	1	16	3	8	UMC	22	M
024	62	12	5	5	2	7	3	16	6	6	LMC	18	F
025	26	3	2	1	0	2	1	9	3	5	UC	22	F
026	53	7	6	4	4	7	2	12	4	7	LMC	19	M
027	68	11	8	4	6	7	1	18	6	7	LMC	19	M
028	40	5	3	2	2	4	2	11	3	8	UMC	20	F
029	40	7	5	3	2	4	2	10	2	5	LMC	21	M
030	74	14	7	6	4	8	4	15	7	9	UMC	23	F
031	48	9	7	4	2	6	1	10	4	5	UMC	23	M
032	50	7	7	5	3	5	1	12	4	6	LMC	28	M
033	65	11	5	4	7	5	2	19	6	6	UMC	21	F
034	76	14	7	4	3	10	2	19	6	9	LMC	30	F
035	80	13	9	4	5	9	2	20	9	9	LMC	21	F
036	81	16	5	5	7	8	4	18	8	10	UMC	36	F
037	53	7	5	2	4	4	3	13	6	9	UMC	20	M
038	26	6	3	2	0	2	0	6	3	4	UMC	18	M
039	56	7	6	5	3	6	3	13	6	7	LMC	20	F
040	62	13	4	3	3	9	3	15	4	8	UMC	20	M
041	63	13	6	3	4	8	2	13	6	9	UMC	20	M
042	42	8	1	4	2	6	2	10	3	6	UMC	20	M
043	43	8	2	2	3	7	2	11	3	5	UMC	18	M
044	51	9	5	2	3	6	2	14	6	4	UMC	20	F

School: East Texas State University

Raw Scores

Student Number	Total Score	Personal Health	Nutrition	Mental Health	Family Life	First Aid and Safety	Community Health	Chronic and Communicable Disease	Drug Education	Consumer Health	Socio-Economic Status	Age	Sex
045	51	7	4	5	0	5	2	16	4	8	UMC	18	F
046	63	8	6	4	3	9	1	16	7	9	UMC	32	M
047	64	9	5	4	6	8	2	16	6	8	LMC	22	F
048	67	11	5	4	6	8	2	16	6	9	UMC	18	M
049	69	13	8	5	5	8	1	15	6	8	UMC	23	F
050	35	4	2	1	0	5	3	11	5	4	LMC	18	F
051	60	9	7	3	4	8	2	13	5	9	UMC	20	F
052	72	11	6	5	5	7	3	17	8	10	UMC	17	M
053	46	5	6	2	5	3	3	9	6	7	UMC	19	M
054	69	15	9	3	6	7	3	15	6	5	LMC	21	M
055	70	13	6	2	4	10	3	16	7	4	UMC	20	M
056	53	7	6	3	3	5	2	16	5	5	UMC	19	F
057	42	8	1	3	4	5	1	10	3	7	LMC	20	M
058	55	8	7	4	5	5	2	11	6	7	UMC	19	M
059	70	12	6	4	6	10	1	14	7	10	LMC	26	F
060	66	10	8	6	6	6	2	14	6	8	UMC	20	F
061	66	9	7	4	4	7	3	17	8	7	LMC	19	M
062	30	9	1	2	4	3	1	5	2	3	LLC	20	M
063	69	13	7	3	6	9	3	16	6	6	UMC	20	M
064	72	14	7	6	5	7	3	19	4	7	LMC	19	F
065	61	10	6	5	3	6	3	12	6	10	UMC	19	M
066	45	6	4	4	2	6	2	9	4	8	UMC	20	F

School: East Texas State University

Raw Scores

Student Number	Total Score	Personal Health	Nutrition	Mental Health	Family Life	First Aid and Safety	Community Health	Chronic and Communicable Disease	Drug Education	Consumer Health	Socio-Economic Status	Age	Sex
067	64	8	7	5	6	6	2	15	7	8	UMC	21	M
068	56	12	6	4	3	6	3	11	5	6	LMC	19	F
069	51	8	3	3	1	7	2	13	7	7	UMC	19	M
070	53	8	6	4	5	4	2	13	3	8	LMC	19	M
071	67	14	6	4	6	7	1	17	4	8	LMC	23	F
072	58	11	4	4	5	4	2	15	5	8	LMC	19	M
073	62	10	8	4	4	7	3	14	6	6	LMC	20	F
074	61	13	5	4	6	7	1	13	4	8	LMC	21	F
075	63	8	6	5	5	6	2	17	5	9	UMC	19	M
076	61	11	7	3	3	5	2	17	3	10	LMC	19	F
077	54	9	4	2	3	4	3	16	7	6	LMC	19	M
078	45	8	4	4	2	4	3	11	4	5	UMC	20	F
079	63	10	5	4	6	6	2	16	6	8	UMC	19	M
080	71	12	6	7	6	6	3	15	6	10	UMC	18	F
081	47	7	8	3	2	4	2	10	5	6	UC	23	M
082	50	8	3	2	3	6	3	12	7	6	LMC	19	M
083	46	6	5	4	3	4	2	11	4	7	UMC	19	F
084	53	10	7	2	3	6	0	17	5	3	UMC	20	M
085	57	7	5	4	4	5	2	15	7	8	UMC	19	F
086	54	9	6	3	4	6	2	10	7	7	UMC	19	F
087	51	7	5	5	3	4	2	13	4	8	ULC	19	F
088	47	8	4	5	2	5	1	11	5	6	LMC	20	M

School: East Texas State University

Raw Scores

Student Number	Total Score	Personal Health	Nutrition	Mental Health	Family Life	First Aid and Safety	Community Health	Chronic and Communicable Disease	Drug Education	Consumer Health	Socio-Economic Status	Age	Sex
089	59	10	6	2	5	5	3	13	6	9	UMC	20	F
090	68	14	5	2	4	7	3	17	7	9	UMC	19	M
091	71	11	7	7	5	8	1	17	8	7	UMC	21	M
092	45	5	4	5	1	4	1	11	6	8	UMC	20	M
093	47	10	4	4	3	4	3	9	4	6	LMC	21	M
094	71	16	7	4	5	7	3	15	6	8	UMC	21	M
095	52	7	6	3	2	7	3	13	6	5	UMC	21	M
096	65	12	4	7	3	7	3	15	7	7	UMC	28	F
097	62	12	8	3	4	6	2	15	5	7	LMC	25	M
098	66	14	3	5	5	5	3	17	6	8	UMC	23	M
099	72	11	7	5	6	5	3	16	10	9	LMC	24	M
100	47	7	6	3	2	5	3	11	4	6	LMC	21	M
101	46	7	6	3	2	5	3	11	4	6	LMC	21	M
102	53	9	4	3	2	5	2	15	7	6	LMC	20	M
103	53	10	6	5	3	5	2	11	4	7	UMC	21	M
104	53	8	5	3	4	7	2	12	6	6	UMC	20	M
105	69	9	6	5	6	7	2	17	7	10	UMC	23	F
106	68	14	8	5	6	6	3	11	6	9	UMC	57	F
107	71	12	9	4	5	5	5	16	7	8	ULC	21	M
108	57	8	5	6	4	5	4	14	5	6	UMC	22	F
109	43	7	4	1	3	5	1	12	5	5	LMC	25	M
110	61	11	5	3	5	7	3	16	4	7	LMC	19	F

School: University of Nigeria

Raw Scores

Code Number	Total Score	Personal Health	Nutrition	Mental Health	Family Life	First Aid and Safety	Community Health	Chronic and Communicable Disease	Drug Education	Consumer Health	Socio-Economic Status	Age	Sex
001	54	9	5	4	4	5	2	16	3	6	LMC	22	M
002	63	11	8	2	2	8	0	18	5	9	UMC	18	F
003	52	9	6	3	2	4	4	14	5	5	UC	21	M
004	51	12	1	4	2	5	2	14	3	8	LMC	23	M
005	46	7	4	3	2	4	3	13	4	6	UC	24	M
006	61	10	4	4	4	7	1	16	6	9	LMC	17	F
007	61	10	6	6	4	5	3	15	6	6	ULC	31	M
008	48	8	4	2	5	3	2	13	4	7	LMC	17	F
009	47	7	5	3	7	2	2	14	3	4	UMC	19	F
110	49	8	4	5	5	5	2	12	2	6	LMC	24	F
011	41	6	2	2	4	4	2	11	4	6	UMC	22	M
012	40	4	4	1	3	3	2	10	5	8	LLC	19	M
013	51	10	3	3	6	2	2	13	5	7	UMC	18	F
014	64	14	6	3	5	5	4	15	5	7	UMC	22	M
015	51	8	6	3	2	4	4	14	5	5	LMC	21	F
016	50	10	6	2	4	3	3	11	3	8	ULC	23	M
017	46	11	3	5	4	2	2	9	4	6	UC	20	M
018	60	14	3	4	6	5	2	16	4	7	LMC	23	F
019	47	9	4	3	4	4	2	10	4	7	LLC	25	M
020	51	9	6	1	5	5	3	14	3	6	UMC	17	F
021	60	11	7	1	5	8	2	14	5	7	ULC	19	M
022	58	11	7	1	5	7	2	14	5	6	LMC	20	M

School: University of Nigeria
Raw Scores

Code Number	Total Score	Personal Health	Nutrition	Mental Health	Family Life	First Aid and Safety	Community Health	Chronic and Communicable Disease	Drug Education	Consumer Health	Socio-Economic Status	Age	Sex
023	60	10	7	0	6	8	2	15	6	6	LMC	21	M
024	56	11	6	1	5	8	2	12	4	7	UMC	20	F
025	63	11	7	2	7	8	1	15	6	6	LMC	20	M
026	71	12	7	4	6	7	3	17	7	8	LMC	23	M
027	66	10	7	5	5	8	1	15	8	7	LMC	20	F
028	54	10	7	2	2	7	4	11	5	6	ULC	37	M
029	56	11	7	1	2	7	4	13	5	6	ULC	29	M
030	61	11	7	4	5	7	4	13	4	6	UMC	19	M
031	47	12	3	4	1	3	2	12	3	6	ULC	22	M
032	56	11	5	5	5	3	4	15	4	4	LLC	21	M
033	62	12	6	4	5	5	4	16	4	6	LMC	29	M
034	56	9	6	2	4	6	4	15	5	5	LMC	21	M
035	51	8	6	3	2	4	5	13	5	5	LMC	21	F
036	66	12	7	2	6	5	2	19	4	9	UMC	22	F
037	40	8	4	1	2	5	2	11	4	3	LMC	30	M
038	34	3	5	2	4	2	1	9	2	6	LMC	32	M
039	47	8	7	1	4	3	3	11	3	7	LMC	30	M
040	62	10	7	4	5	8	1	14	8	5	LMC	19	M
041	71	13	8	5	6	7	4	16	5	7	UC	21	F
042	47	6	5	4	5	4	0	11	6	6	LMC	20	F
043	50	9	6	2	1	3	2	16	5	6	UMC	18	F
044	57	9	5	6	5	4	2	14	4	8	UMC	23	F

School: University of Nigeria

Raw Scores

Code Number	Total Score	Personal Health	Nutrition	Mental Health	Family Life	First Aid and Safety	Community Health	Chronic and Communicable Disease	Drug Education	Consumer Health	Socio-Economic Status	Age	Sex
045	57	9	5	5	2	5	5	14	5	7	UMC	22	F
046	60	10	7	0	6	8	2	15	6	6	LMC	21	M
047	55	9	5	3	3	6	4	12	5	8	LMC	22	M
048	47	10	4	3	5	2	3	12	3	5	UMC	23	M
049	44	8	4	1	4	4	3	12	3	5	LMC	24	M
050	57	9	5	4	3	5	5	14	5	7	UMC	22	F
051	44	8	4	2	4	4	1	12	4	5	UMC	19	F
052	53	10	5	4	5	4	3	12	5	5	LMC	24	M
053	63	10	8	5	7	5	2	16	4	6	LMC	18	F
054	61	13	5	5	7	5	2	13	5	6	LMC	26	M
055	44	8	5	3	7	3	1	9	2	6	LMC	19	M
056	43	6	5	3	3	4	3	11	3	5	LLC	25	M
057	62	8	6	4	7	4	4	16	5	8	UMC	23	F
058	51	11	5	2	5	5	0	12	3	8	ULC	26	M
059	42	10	3	3	2	3	1	10	4	6	ULC	22	M
060	58	11	4	3	5	4	5	13	5	8	LMC	30	M
061	67	12	7	2	4	7	3	15	7	10	UMC	24	M
062	58	13	4	4	5	4	3	14	4	7	ULC	23	M
063	60	13	6	4	6	3	3	14	4	7	LLC	29	M
064	53	11	5	2	4	4	2	15	5	5	LMC	23	M
065	58	12	6	3	5	5	4	14	3	6	LMC	25	M
066	45	8	3	3	4	4	4	10	4	5	LMC	30	M

School: University of Nigeria

Raw Scores

Code Number	Total Score	Personal Health	Nutrition	Mental Health	Family Life	First Aid and Safety	Community Health	Chronic and Communicable Disease	Drug Education	Consumer Health	Socio-Economic Status	Age	Sex
067	42	8	2	4	3	4	3	10	3	5	LMC	20	M
068	56	9	6	4	5	4	4	15	4	5	LLC	33	M
069	65	11	6	4	6	8	3	16	4	7	LMC	33	M
070	61	13	7	1	5	7	1	14	5	8	LMC	25	M
071	41	6	5	1	4	3	1	13	2	6	LLC	18	F
072	50	7	7	5	3	5	1	12	4	6	LMC	25	M
073	65	11	5	4	7	5	2	19	6	6	UMC	22	F
074	53	7	5	2	4	4	3	13	6	9	UMC	20	F
075	36	8	3	2	3	2	2	9	3	4	LMC	19	M
076	56	7	6	5	3	6	3	13	6	7	LMC	20	F
077	62	13	4	3	3	9	3	15	4	8	UMC	21	M
078	47	11	4	4	2	6	2	7	6	5	LMC	21	M
079	58	12	7	2	4	6	3	16	2	6	LMC	23	M
080	63	9	7	4	4	8	3	14	5	7	UMC	22	M
081	60	14	6	3	4	5	4	15	3	6	LLC	35	M
082	54	11	7	0	4	7	1	13	4	6	UC	19	F
083	60	10	8	4	5	5	3	12	5	8	UMC	21	F
084	53	7	5	2	4	4	3	13	6	9	LMC	20	F
085	54	8	4	3	4	4	2	14	6	9	UMC	22	F
086	40	7	5	3	2	4	2	11	3	8	LMC	22	M
087	53	7	6	4	4	7	2	12	4	7	UMC	25	F
088	65	12	8	4	5	5	3	13	7	8	UMC	22	F

School: University of Nigeria

Raw Scores

Code Number	Total Score	Personal Health	Nutrition	Mental Health	Family Life	First Aid and Safety	Community Health	Chronic and Communicable Disease	Drug Education	Consumer Health	Socio-Economic Status	Age	Sex
089	48	9	7	4	2	6	1	10	4	5	LMC	23	M
090	62	12	5	3	2	9	3	15	5	8	UMC	20	M
091	52	7	5	2	5	8	3	12	4	6	UMC	19	F
092	59	9	7	4	5	4	3	12	7	8	UMC	20	F
093	50	8	5	3	6	3	2	12	6	5	LMC	23	M
094	61	10	6	3	3	5	2	17	7	8	UMC	24	M
095	52	9	4	3	3	8	3	11	4	7	UMC	20	M
096	42	10	3	3	2	3	1	11	4	5	LMC	23	F
097	51	10	5	2	5	5	1	12	3	8	ULC	19	F
098	62	9	6	4	6	5	3	16	5	8	UMC	22	F
099	43	6	5	3	3	4	3	11	3	5	UMC	21	F
100	65	9	8	2	5	7	3	18	6	7	LMC	23	M
101	50	6	7	2	5	4	3	14	4	5	LMC	17	F
102	65	10	8	3	6	7	4	17	4	6	ULC	24	M
103	55	10	6	4	5	4	4	13	3	6	ULC	31	M
104	67	11	7	5	5	8	2	14	8	7	ULC	22	F
105	56	11	5	1	6	5	3	14	5	6	LMC	28	M
106	50	9	7	1	4	7	2	10	4	6	ULC	31	M
107	61	9	6	4	6	6	5	12	5	8	LMC	23	M
108	61	9	7	5	5	7	5	12	4	7	UMC	25	M
109	65	13	7	4	3	5	3	18	6	6	LMC	30	M
110	57	11	7	1	5	6	2	13	5	7	UMC	24	M

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