To the Graduate Council:

I am submitting herewith a dissertation written by Edna Lee Aghaie entitled "Comparison of Knowledge, Attitudes, and Sources of Information Related to Hansen's Disease (Leprosy) Among Selected International Students and United States Students at the University of Tennessee." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Health Education.

Bill C. Wallace
Bill Wallace, Major Professor

We have read this dissertation
and recommend its acceptance:

Robert N. Kirk

Velma W. Pressley

Michael H. Logan

Accepted for the Council:

C. W. Minkel
Vice Provost
and Dean of The Graduate School

COMPARISON OF KNOWLEDGE, ATTITUDES, AND SOURCES OF INFORMATION RELATED TO HANSEN'S DISEASE (LEPROSY) AMONG SELECTED INTERNATIONAL STUDENTS AND UNITED STATES STUDENTS AT THE UNIVERSITY OF TENNESSEE

A Dissertation

Presented for a

Doctor of Philosophy

Degree

The University of Tennessee, Knoxville

Edna Lee Aghaie

August 1988

ACKNOWLEDGEMENTS

The investigator wishes to express appreciation to her doctoral committee.

Thanks are also extended to the International students at the University of Tennessee, Knoxville, who graciously and generously gave of their time so that this research could become a reality.

Certain individuals deserve special recognition. Dr. David Larsen, Director, and Diane Cudahy, Coordinator, Center for International Education assisted the researcher in contacting International students. Austin Hayes, Health Educator, and Beth McManus, Medical Librarian, Gillis W. Long Hansen's Disease Center, gave invaluable assistance throughout the investigation.

I am especially grateful to my family: my children for their assistance, patience, and understanding and my mother who provided me with support and encouragement.

ABSTRACT

The major purpose of this investigation was to assess knowledge, attitudes, and sources of information about Hansen's Disease (HD), and to elicit opinions about HD and general disease prevalence held by selected International students and United States students at the University of Tennessee, Knoxville. A secondary purpose was to assess differences among knowledge, attitudes, and sources of information concerning HD and certain health related opinions when the respondents were placed in groups: International students in general; United States students; International students from countries designated to have high, moderate, or rare HD prevalence; and International students from countries designated to be industrialized or non-industrialized.

A survey instrument (including true-false statements, a semantic differential, checklist of sources of information, and questions concerning opinions) was administered and analyses were run on data collected from 156 subjects. Frequencies and percentages were obtained on all the subjects' responses, and certain data were used to compute chi-square statistics. Theta and gamma were used as measures of association in determining relationships among knowledge, attitudes, and sources of information concerning HD.

The primary findings involved the desire of the majority in all groups to have HD information included in health education programs. Also a majority of respondents selected "full discussion" of HD as appropriate in health education programs.

Based on some of the findings of this study, there are no associations among HD knowledge, HD attitudes, and sources of HD information.

TABLE OF CONTENTS

Chapter		Page
I.	INTRODUCTION	1
	Purpose	4
	Statement of the Problem	4
	Need for the Study	6
	Basic Assumptions	9
	Delimitations	10
	Limitations	10
	Definitions	11
	Summary	12
II.	REVIEW OF LITERATURE	13
	Studies in Content Area Related to HD Knowledge, Attitudes, and Sources of Information	14
	Information in Related Fields	22
	Semantic Differential	26
	Summary	27
III.	METHODOLOGY	29
	Introduction	29
	Study Population	30
	Instrumentation	31
	Pilot Study	33
	Administration of the Instrument	34
	Analysis of Data	35
	Summary	36
IV.	RESULTS	37
	Introduction	37
	Description of the Respondents	39
	Responses According to Educational Level of Parents, Religion, Gender, Age, and Academic Status	42
	Research Questions	61
	Selected Group Comparisons	88

Chapter		Page
	Summary	92
V.	SUMMARY, FINDINGS, CONCLUSIONS, RECOMMENDATIONS, AND DISCUSSION	93
	Summary	93
	Findings	96
	Conclusions	102
	Recommendations	103
	Discussion	104
VI.	EPILOGUE	108
	Dissemination of Information	111
	Summary	112
REFERENCES		113
	References Cited	114
	Supplementary References	120
APPENDICES		127
	Appendix A - Instrument	128
	Appendix B - Number of Respondents from Countries of High, Moderate, or Rare HD Prevalence	137
	Appendix C - Number of Respondents from Industrialized and Non-industrialized Countries	141
	Appendix D - Knowledge Scores from True-False Statements of all Participants	145
	Appendix E - Attitude Scores from Semantic Differential of all Participants	147
VITA		149

LIST OF TABLES

TABLE		PAGE
3 - 1	Semantic Differential Means	32
4 - 1	Educational Level of Parents	39
4 - 2	Religion, Gender, Age, and Academic Status of Subjects	41
4 - 3	Subjects' HD Knowledge Related to Educational Level of Parents	44
4 - 4	Opinions of HD Prevalence in the World Related to Educational Level of Parents	45
4 - 5	Suggested Areas of Emphasis in HD Programs in Subjects' Countries According to Educational Level of Parents	47
4 - 6	Sources of HD Information According to Moslems and Christians	49
4 - 7	Religious Teaching as Source of HD Information According to Moslems and Christians	49
4 - 8	Suggested Areas of Emphasis in HD Programs According to Moslems and Christians	51
4 - 9	Opinions of Most Prevalent Disease in the World According to Moslems and Christians	52
4 - 10	Levels of HD Knowledge According to Gender	53
4 - 11	Opinions of Inclusion of HD in Health Education Programs in Subjects' Countries According to Gender	54
4 - 12	Mother as Source of HD Information According to Gender	55
4 - 13	Levels of HD Knowledge According to Age	56

TABLE		PAGE
4 - 14	Sister as Source of HD Information According to Academic Status	57
4 - 15	Brother and Medical as Source of HD Information According to Academic Status	58
4 - 16	School as Source of HD Information According to Academic Status	59
4 - 17	Religious Teaching as Source of HD Information According to Academic Status	60
4 - 18	Levels of HD Knowledge of Participants	63
4 - 19	HD Attitudes of Participants	66
4 - 20	Sources of HD Information of Participants	68
4 - 21	Inclusion of HD in Health Education Programs According to Participants	71
4 - 22	Suggested Teaching Method in HD Program According to Participants	73
4 - 23	HD Prevalence According to Participants	75
4 - 24	Suggested Areas of Emphasis in HD Programs in Subjects' Countries According to Participants	77
4 - 25	Suggested Areas of Emphasis in HD Programs in the World According to Participants	79
4 - 26	Most Prevalent Disease in Subjects' Countries According to Participants	80
4 - 27	Most Prevalent Disease in the World According to Participants	82

TABLE		PAGE
4 - 28	International Subjects' Levels of HD Knowledge and HD Attitudes	84
4 - 29	International Subjects' Levels of HD Knowledge and Sources of HD Information	85
4 - 30	International Subjects' HD Attitudes and Sources of HD Information	87
4 - 31	Levels of HD Knowledge and Selected Groups	89
4 - 32	HD Knowledge and HD Attitudes of International Students and United States Students	89
4 - 33	Religious Teaching as Source of HD Information According to Selected Groups	91
4 - 34	Rank Frequency Selection of Sources of HD Information by Selected Groups	91

CHAPTER I

INTRODUCTION

Hansen's Disease (HD), commonly known as leprosy, has been determined by the World Health Organization (WHO) to be a major health problem (21), with over 12 million victims world-wide. Considered to be among the six main diseases in the world (62), it infects all races and is particularly prevalent in tropical and semi-tropical regions. The United States has fewer than 5000 cases, mostly among new immigrants (64). HD is a chronic, infectious condition that negatively effects the physical, social, and economic situations of millions (4, 55). According to Gill, "the stigma associated with the disease is higher than that with any other disease" (18:25).

Due to this stigma associated with leprosy, leaders in public health in the United States and throughout the world are attempting to replace that name with Hansen's Disease (14), named for the medical investigator--Dr. G. Armauer Hansen--who, in 1874, identified the cause of HD as the organism Mycobacterium leprae.

Historically, it is almost impossible to trace the origin of HD. Most authorities cite the oldest possible reference to HD as that of the Vedas, written about 1400 B.C. in or near India. Other writings with reference to HD appeared in China around 600 B.C. Various routes are suggested for its promulgation throughout the world. The men of Alexander the Great may have brought the disease from India to Egypt. The armies of the Persian conquerors, Darius and Xerxes, may have brought the disease into Greece (60).

The bacterium is highly contagious but few people actually develop the disease. A significant proportion of the population in many countries develop antigens to the bacteria but do not have HD. Thus despite human exposure, the organism has not been successful in acquiring a permanent foothold (11). HD affects the skin, peripheral nerves, eyes, and mucous membranes. It is not fatal and is only as serious as the physical impairments (deformities, blindness . . .) it frequently causes when there is no treatment or when treatment is inadequate (56).

The physical problems can usually be handled through medicines, physical therapy, vocational training, or surgery; but the stigma associated with HD may be more debilitating than the disease. Although the present treatment normally renders the patient non-infectious in a

relatively short time, the former practice of isolating the victim from the rest of the population has resulted in many negative feelings toward HD (4).

In the 1940's, the drug, dapsone, was first successfully used in treatment of HD, and it was thought that the disease would be eradicated. However, the organism causing HD occasionally developed a resistance to dapsone, making it ineffective in some cases (4). This problem was enhanced by the frequent habit of patients taking the medication just long enough for the symptoms to disappear, thus allowing the stronger organisms to survive. Today, WHO recommends the use of a multi-drug program, with rifampicin, clofazimine, and dapsone as a cure (64). The odds against the organism becoming resistant to all three drugs are very low.

In a 1947 book concerning HD, Cochrane (11) dealt with the problem of isolating victims (then recommended) and stated that information and education must be increased, but he did not advance specific suggestions. Cochrane emphasized work in countries where HD was a problem, but he did not clarify whether all countries needed increased concern or what educational methods should be used concerning HD.

A. PURPOSE

The primary purpose of this study was to assess knowledge, attitudes, and sources of information about HD, and to elicit opinions about HD and general disease prevalence held by selected International students and United States students at The University of Tennessee, Knoxville. A secondary purpose was to assess differences in knowledge, attitudes, and sources of information about HD, as well as certain health related opinions that exist among International students in general, United States students, International students from countries separated according to prevalence of HD, and International students from countries separated according to industrialization.

B. STATEMENT OF THE PROBLEM

The problem of this investigation was to assess HD knowledge, HD attitudes, and certain health related opinions among respondents. Respondents were separated into groups of International subjects in general, United States subjects, International subjects grouped according

to high, moderate, or rare prevalence of HD, and level of industrialization in their country. Also, the sources of HD information were to be identified.

This investigation addressed the following questions:

1. What is the level of knowledge, measured by true-false statements, concerning HD among International respondents, United States respondents, International respondents from countries of differing HD prevalence, and International respondents from countries of differing industrialization?
2. What are the attitudes, measured by a semantic differential scale, concerning HD among International respondents, United States respondents, International respondents from countries of differing HD prevalence, and International respondents from countries of differing industrialization?
3. What are the sources of information, measured by a checklist, concerning HD utilized by International respondents, United States respondents, International respondents from countries of differing HD prevalence, and International respondents from countries of differing industrialization?
4. What are certain health related opinions, measured by a questionnaire,

among International respondents, United States respondents, International respondents from countries of differing HD prevalence, and International respondents from countries of differing industrialization?

5. What are the associations among knowledge, attitudes, and sources of information concerning HD, as revealed in the investigation?

C. NEED FOR THE STUDY

The goal stated by WHO is health for all by the year 2000 (64). In order to achieve that goal it will be necessary to increase programs in health education and in the process give more attention to HD in countries where it is a significant health problem. Findings from this study will be especially pertinent to future health planners, as misinformation and negative attitudes that exist about HD are revealed.

The need to determine the sources of information that are most effective in health education programs is frequently overlooked. Gombeski stated that "the selection of channels to disseminate health information is critical to the success of any health education program"

(19:205). Kolbe discussed school health programs and also stated it would be useful to determine "the effectiveness of . . . channels of communication" (30:11).

The United States has increased foreign aid to countries in which HD is a major problem (50), and theoretically health education programs in those countries should include HD education. Determining how the money should be allocated at the present time is a difficult matter and depends upon the opinions of the concerned country's health planners. Many of these health planners are not indigenous to the country for which they are planning and have been trained in another country. This study may facilitate health planning and provide information upon which to base some decisions; but it must be remembered that the population of this study is atypical, and the health planners must also conduct local studies to obtain realistic data on which to firmly base their programs. Ideally, a separate investigation should be conducted in each country. As a beginning, however, the present study of International students within the United States will provide some idea of the needs that exist in other countries.

The importance of health education in programs dealing with HD is readily acknowledged (6, 10, 21, 25, 40, 64). A systematic plan to

develop future programs related to HD necessitates the evaluation of the effectiveness of past programs and determining the present level of knowledge and attitudes concerning HD (20). Reference to this investigation can be a significant help to future health planners in developing HD programs in any country. Third-world countries, where HD is often prevalent, have two-thirds of the world's population and only one-tenth of the world's resources (2). Comparing knowledge and attitudes of subjects from countries in which HD is rare, with subjects from countries in which HD is more common, and with subjects from countries in which HD is very prevalent will help to determine which aspects of HD education programs are deficient. The present study, therefore, is economically valuable to the countries involved. Also, identifying sources of information that are most effective, and which deserve more financial attention, is economically relevant. Utilizing time, money, and effort promoting ineffective programs is, of course, detrimental to health education.

Bryceson and Pfaltzgraff reported "there is no other disease (HD) so associated with stigma . . . " (6:2). The need to confront the attitudes and prejudices concerning HD is important. The influence of attitudes

concerning this disease is a subtle factor that must be taken into account when developing HD education programs world-wide.

Analyzing an entire education program would be difficult. However, looking at a portion of a program is possible. A crucial part of any education program is dissemination of information and a great deal of the financial support of a program is related to this factor.

International students provide an excellent means of identifying various aspects of the International health situation. They are available in the United States and have been exposed (negatively, positively or neutrally) to most education programs that exist in their countries.

D. BASIC ASSUMPTIONS

Underlying this study was the basic assumption that the participants responded to the research instruments truthfully and to the best of their ability.

E. DELIMITATIONS

The delimitation of this investigation was that the study involved selected International students and United States students at The University of Tennessee, Knoxville.

F. LIMITATIONS

A limiting factor was that the participants were not randomly selected for inclusion in this study. Available International students, whose comprehension of English varied, completed the instruments during the spring, summer, or fall of 1987. In addition, United States students from two general health classes (having students from non-health majors) completed the instrument in the spring of 1987.

G. DEFINITIONS

The following definitions are of terms used in this investigation:

1. Hansen's Disease (HD) - a chronic, infectious disease that is caused by a bacillus, Mycobacterium leprae, and frequently is the cause of physical deformities; it is commonly called leprosy.

2. Knowledge - information concerning HD, assessed through use of true-false statements in Part I of the investigation instrument.

3. Attitudes - respondents' beliefs concerning HD, assessed through use of the semantic differential in Part II of the investigation instrument.

4. Source of information - the method through which HD knowledge was acquired, assessed through use of a checklist in Part III of the investigation instrument.

5. Opinions - respondents' assumptions regarding selected questions, assessed through answers to questions in Part IV of the investigation instrument.

6. International - all countries, excluding the United States.

7. Singapore and Hong Kong - considered to have the same status as countries in regard to HD prevalence and industrialization.

H. SUMMARY

This study is divided into six chapters. The first chapter contains an introduction, purpose, statement of the problem, need for the study, basic assumptions, delimitations, limitations, and definitions. Chapter II is a review of literature related to this research--including studies related to knowledge, attitudes, sources of information that involve HD, and certain health related opinions. Also, information on the semantic differential technique is included. Chapter III is an explanation of methods used in this investigation. Chapter IV includes an analysis of the data obtained in this study. Chapter V is a summary of the investigation and includes conclusions and recommendations for further research as suggested by the findings of this study. Chapter VI is an epilogue.

CHAPTER II

REVIEW OF LITERATURE

Planning health education programs concerning Hansen's Disease (HD) is important throughout the world. However, countries where HD is most prevalent are the same countries with the least financial ability to support such programs (2).

While endeavoring to enhance HD education in the most efficient manner, it is necessary to determine those sources of information that have been most effective in the past. It would then be possible to know which sources should be continued, altered, eliminated, or emphasized in future programs.

This chapter is arranged with a review of studies in the content area related to HD knowledge, attitudes, and sources of information; those in related fields; and those with research methods similar to the ones used in this investigation. The final section presents the development and description of the semantic differential technique.

A. STUDIES IN CONTENT AREA RELATED TO HD KNOWLEDGE, ATTITUDES, AND SOURCES OF INFORMATION

HD is a disease with many myths surrounding it. In 1932, a small study was done in which some participants asserted their belief that heredity was a factor in the spread of HD (24). In 1983, heredity was still believed by some to be a cause of HD (34). Thus, education related to HD has not been very successful.

In the 40's and 50's a few HD researchers wrote about HD education (11,12, 27, 57). They mentioned that education was needed and attempted to identify different methods that would be useful for certain people (rural, urban, illiterate, educated, and patients). There was no subsequent attempt, however, to determine the effectiveness of the methods that had been suggested.

In discussing the need for education in HD education in 1946, Sloan (59) stated that at the beginning of a program there are three groups that need to be reached: 1) Educated people can be reached through carefully and attractively made materials; specifically, the written word, radio talks, short films, diagrams, charts, and photographs; 2) Uneducated people can be reached through the use of slides and

posters/slogans in schools and public buildings; 3) Patients need special attention. Sloan suggested that other groups be included later: employees, teachers, and children.

Diwan (13) emphasized in 1958 that any printed health education material should be in the local language. In 1960, Sen (58) recommended that a plan should be used to develop an education program concerning HD. That plan should include illustrations, written material for publication (newspapers, magazines, journals), lectures/talks (to physicians, students, welfare organizations), films, radio, exhibits (models, charts, posters), folders, leaflets, and booklets. Unfortunately, the effectiveness of these methods was not assessed.

There are few studies concerning attitudes toward HD in the United States. In 1968, Moskal and Nolen (41) investigated public attitudes concerning HD in Louisiana, near the city of Carville, where the Gillis W. Long HD Center is located. A statement sheet with 21 items was developed for a mailed questionnaire. A Likert scale was used to assess attitudes involved. Although few significant differences were found, there was one difference that proved significant (at the .01 level of confidence). Blacks have a more positive attitude than Whites toward HD. At the .05 level of confidence, 68% of the non-married group indicated

positive HD attitudes, while 45% of the married group indicated positive HD attitudes. No recommendations concerning future research were offered.

Ebner (16) studied HD knowledge and attitudes in Baton Rouge, Louisiana, in 1968 and found that the public was not well informed about HD. Knowledge was found to increase with education, but stigma was difficult to identify. A semantic differential scale was used to determine HD attitudes, and generally a negative attitude was expressed. Some respondents felt that the patient should be isolated from society.

Rolston and Chesteen (54) interviewed 57 patients, in 1970, at the Gillis W. Long HD Center. Twenty patients stated that they had never heard of HD before they acquired it. The main sources of HD information were from the Bible (47%) and from family or friends (29%). Approximately 5% said that magazines, books, radio, or television were their major means for obtaining HD information.

A study conducted in India in 1973 was based on interviews of fifty HD patients (28) and involved attitudes toward HD and its treatment. The attitudes expressed by a majority of the patients were positive, and Kasturi reported that these findings resulted from the study having been

done in an area where a leprosy control program, including education, had been conducted effectively for years.

Another study, one conducted in India in 1974, involved cured HD patients. Numerous factors, including income level, sex ratio, religious affiliation, and literacy, were used to describe the participants. No factor seemed to be particularly influential, and Dwivedi (15) stated that attitudes were apparently based on prejudices. About one-half of the respondents considered fate as the cause of HD, and 38% considered "sins" as the cause.

The socio-cultural variables concerning the HD victim vary to a large extent in different countries. Ramu, et al. (53) studied a group of 40 patients and a group of 25 non-patients in India, in 1975. Through a questionnaire survey, they determined the factors that influence reaction to HD, most of which were reported to be culturally based. It was concluded that the relationship between the influences and the sources of HD information must be understood by health planners developing HD programs.

In 1977 a comparison of HD knowledge (42) was made between the residents of two villages in India. One village, Poona, had health education activities and the other village, Jalgaon, did not. The residents

of Poona consistently scored higher in knowledge of HD than those in Jalgaon. The influence of knowledge on opinions and prejudices was made clear, although it was stated that some beliefs, like the assumed hereditary nature of the disease (believed incorrectly by many respondents in both villages), would be difficult to alter.

In 1978, attempting to further define attitudes and knowledge, Matthews and Jesudasan (40) investigated both the general public and HD patients in India. Negative and positive statements were given and the respondents completed a Likert scale. The survey findings from both groups were compared. In nearby villages, surveys corroborated the fact that the general public had less knowledge and more negative attitudes than did patients. More health education programs were recommended, although the specific methods to be used were not identified.

Dogliotti (14) surveyed studies, in 1979, related to HD in many cultures and found that emotion, disgust, and rejection toward the person suffering from the disease were common to most cultures. He felt that creative measures were essential to enhance education programs, but he did not make any practical suggestions concerning what measures should be utilized.

A concern for education about HD was expressed by Kushwah,

et al. (35). In 1981 they interviewed HD patients in Gwalior, India, and found in a longitudinal investigation that stigma was experienced by over 62% of the participants. The authors suggested that physicians and social agencies need to dismantle the prejudice and ignorance that are still associated with HD.

In 1981, Raj, et al. (51) investigated HD knowledge among HD outpatients at the dermatology outpatient department of the Jawaharlal Institute of Postgraduate Medical Education and Research, Pondicherry, India, with the goal of developing proper health education programs. Of the 100 participants, 58 patients were literate. All respondents were over 15, with 66 being 36 years or older. Data were collected using interviews. The major findings were as follows: 62 patients were aware of the disease before they were diagnosed with it, 60 knew the nature of treatment, 61 knew the consequences of lack of treatment, and 58 knew how to prevent the infection. It was recommended that knowledge could be improved through increased use of printed material, pictorial charts, and films in HD education programs.

In reviewing the social and economic aspects of HD in 1981, Mutatkar (43) stated that knowledge should be tested among various groups and prevalence rates needed to be considered. It is "important that

leprosy workers know the people and what they think of the disease" (43:16).

A 1982 meeting held at the University of the Philippines (61), one addressing the social and economic aspects of HD, concluded that there was need for more research. However, it was agreed that basic questions should be considered and later more involved sociological instruments could be used. For example, Valencia (61) found that it was first necessary to know how the disease was perceived. Health education programs need such information before designing field activities. The construction of pamphlets and brochures could then be made to more accurately meet the needs of the targeted population.

An investigation was conducted in 1983 to aid in identifying the specific sources of information that would be best in India. The study concerned home interviews of 955 community members and 225 adult HD patients. It was found that the public had little knowledge about HD. The sources of information cited were 95% from HD patients or friends/ relatives, 1% from mass media (cinema, television, radio), and less than 1% from doctors/health workers (31).

Kumar and Anbalagan (32) investigated, in 1983, using interviews, the socio-economic experiences of 225 HD patients. They

concluded there were many social ramifications of HD and there was a need to develop more efficient and effective leprosy control programs.

Kumar, et al. (33) interviewed 310 community leaders in 1984 and encouraged their participation in a health program in 21 villages of Chingleput district of Tamilnadu, India. Their findings showed that knowledge and willingness to participate in an HD education program were influenced by more positive HD attitudes. It was concluded that support for the National Leprosy Control Programme in India and utilization of mass media need to be increased to improve HD education.

One study (9) conducted in 1984 reported that the magnitude of HD in the world encourages leaders to determine ways and methods of educating the people concerned. The researchers placed posters in the buses of Madras, India, with the message "LEPROSY IS CURABLE." Later, when 500 persons were interviewed, 100% said they had seen the signs and 97.3% responded favorably to wanting to obtain more information. Researchers then recommended that similar visual displays should be used more extensively in future health programs.

A Nigerian study conducted in 1987 (46) utilizing 840 primary school students examined misconceptions regarding several tropical diseases. HD was found to have several misconceptions associated with it.

For example, 71% of the respondents falsely believed that the loss of fingers and toes of HD victims could not be prevented.

B. INFORMATION IN RELATED FIELDS

Takeshita (3) in the early 1960's conducted a family planning study in Taiwan and Korea. Three groups were selected from areas with heavy, medium, or light population density. The effectiveness of the dissemination of family planning information was examined. Four methods of dissemination were used; mass media, mailings (letters with information and locations/times of neighborhood clinics), group meetings, and home visits. In each country the effectiveness of methods differed. Nonformal methods were most successful but in general the attempt to influence decisions was unsuccessful. One conclusion was that the best way to educate people was to use as many methods as possible.

It was determined by Young (67) in 1966 that third-world adults responded better to word-of-mouth health messages; but Lau, et al. reported in 1980 that in the United States mass media (particularly television) was most effective (37).

In 1975, Ahmed (1) reviewed the economics of nonformal education, finding that economic decision making included numerous parts, such as cost-reduction possibilities, internal efficiency, and external productivity. Third-world countries used nonformal aspects of education to a greater extent than other countries.

In 1977, Yen (66) used a checklist to assess the main source of information utilized concerning sex and reproduction information in Taiwan. A majority of students obtained information from printed material.

Green, et al. (20) stressed the need, in 1980, to identify factors (predisposing, enabling, and reinforcing) when planning health education programs. Knowledge and attitudes are major components of predisposing factors and sources of information are enabling and/or reinforcing factors. While discussing predisposing factors Green reported ". . . programs in which health information is disseminated without concurrent recognition of the influence of enabling and reinforcing factors will most likely fail . . ." (20:69).

Bartlett (2) made an interesting attempt to identify the allocation of resources for health education programs in 1980. Bartlett stated that there were four main areas of health education activity. The areas were

school health, patient education, community, and workplace. The sources of information used for health education programs were those he deemed most appropriate for the particular health problem being addressed. The best method to be used with a specific health problem was identified. The author mentioned methods (mass media, print mass media, and home visits) but their use was based on the experience of the author in the United States rather than on an objective evaluation of relative merit.

William Gombeski, et al. (19) reported a study done in Houston, Texas, in 1981, concerning health information sources related to cardiovascular disease. It was found that the poorly informed (on health matters) most often received their health information from a physician, whereas the well informed were more likely to have used a printed source. The electronic media (television and radio) were mentioned as sources for health information by both well informed and poorly informed groups at the same rate. In the discussion of the findings, it was stated that "to implement successful health information campaigns, health educators and communicators should . . . select channels which will reach and motivate . . . positive health action" (19:206).

Evans, et al. (17) reported in 1981 that developing countries need to reduce conflict between different elements of health care. Efficiency

and effectiveness of the use of present resources are vital considerations for countries where money is scarce and health problems are many.

In 1982, Cernada (7) reviewed published data for planning health education programs. He concentrated on Taiwan, but the information was relevant to both developing and developed countries. He reviewed many books and articles and concluded that research concerning sources of information must be incorporated into health planning.

Luebke (39) suggested, in 1984, the following steps for planning health education activities: 1) identification of needs, 2) establishment of objectives, 3) selection of methods, 4) implementation of program, and 5) evaluation.

Several studies alluded to by Lindzey and Aronson (38) in 1985 involved mass media. The increase in the use of mass media in the world has meant an increase in its use in health education programs. Reactions of the audiences have differed from country to country.

C. SEMANTIC DIFFERENTIAL

The semantic differential technique has been used by many researchers. Osgood, et al. (48) first reported on it in 1957. They stated that there were three dimensions into which all pairs of adjectives could be divided: evaluation, potency, and activity.

The logic of the technique is based on the idea of Osgood, et al. (48) that descriptions and judgements can be identified by pairs of polar adjectives. Using several pairs of bipolar adjectives, ones that include the three dimensions mentioned above, gives a comprehensive view of the entire situation being examined.

Osgood (47) focused on a variety of cultures (Finland, Lebanon, Iran, India, China, and Japan) in his investigations. He developed a list of 50 equivalent adjective pairs by comparing the groups and choosing only those adjectives that were used by all groups. He found that cross-cultural investigations gave very similar data. Words vary in exact meanings in different languages, but concepts remain the same. Studies involving one culture can be compared effectively with another and the resulting data can be valid. Here is an example of one scale and the rating involved in the semantic differential technique:

Concept: HD

Bad ___ ___ ___ ___ ___ ___ ___ Good

1 2 3 4 5 6 7

The respondent marks the space that represents his own attitude regarding HD, the number below that space is noted, and the higher the score, the more positive the attitude. Because the present study used an identical scoring system, it was possible to compare the data from the present study with the statistics from Ebner's study.

Validity and reliability have been confirmed by Osgood, et al. (48), who cited the test-retest correlation as 0.85. Heise (23) verified that finding.

D. SUMMARY

The literature review revealed that there have been several studies involving attitudes and knowledge regarding HD; however, little practical use of those investigations has been made. There have been very few studies involving the discovery of information sources regarding HD with the goal of identifying which sources are superior.

HD studies have been done but little information from former studies have been incorporated into new research. Consequently, unnecessary duplication of studies has resulted in added financial burdens for the governmental agencies or health programs involved.

By reviewing the major studies in the area of HD education, the investigator made it easier for the health worker to get an overall view of what exists, what is still needed, and what has already been determined.

CHAPTER III

METHODOLOGY

A. INTRODUCTION

The primary purpose of this study was to determine knowledge, attitudes, and sources of information concerning Hansen's Disease (HD), and to elicit health related opinions about HD and general disease prevalence held by selected International students and United States students at The University of Tennessee, Knoxville. A secondary purpose was to assess differences in knowledge, attitudes, and sources of information concerning HD, and certain health related opinions that existed among International students in general, United States students, International students from countries of differing HD prevalence, and International students from countries of differing industrialization.

B. STUDY POPULATION

The participants in this study were obtained from two sources. One source was a group of International students (N=119) who volunteered to complete the research instrument, which was given out during spring, summer, and fall terms of 1987, at The University of Tennessee, Knoxville. The other source was United States students (N=37) who were in two general health classes, in the spring term of 1987, at The University of Tennessee, Knoxville. The International students were further divided into groups (according to their countries' HD prevalence rate and again according to their countries' industrialization). The size of the group from the United States was comparable to a single HD prevalence group of International students.

The total of 156 respondents was composed of 94 males, 61 females; 1 respondent failed to provide this information. Eight participants were 38-47 years old, forty-one were 28-37 years old, one hundred and one were 18-27 years old, and one was less than 18 years old.

C. INSTRUMENTATION

During a search of the literature, no single instrument was found that would be appropriate to use for all parts of the present investigation. Therefore, an original instrument was developed.

The instrument was designed in four parts. Part I of the instrument, which assessed HD knowledge, consisted of 14 true-false statements which could be answered "true," "false," or "don't know." Originally, 15 statements were chosen following a review of other research articles cited in Chapter II of this dissertation. The statements were critiqued by four experts employed at the Gillis W. Long HD Center in Louisiana, and their recommendations resulted in the use of 14 statements on the final form of the instrument.

Part II of the research instrument consisted of the semantic differential test, one similar to that used by Ebner (16), to assess HD attitudes and to allow the separation of respondents according to positive, negative, and neutral HD attitudes. The mean scores obtained through the semantic differential by Ebner (16) in 1968 and those of United States respondents and International respondents in this study are summarized in Table 3 - 1. Six of the means obtained by Ebner were the highest (most

TABLE 3 - 1
SEMANTIC DIFFERENTIAL MEANS

Scale	Ebner (1968) United States N = 98	Aghaie (1988) United States N = 37	Aghaie (1988) International N = 119
Bad-Good	2.88*	1.70-	1.72
Sick-Healthy	2.08*	1.73-	1.95
Worthless-Valuable	3.67*	2.76-	2.87
Dangerous-Safe	2.63*	2.05-	2.34
Dirty-Clean	3.52*	2.24-	2.62
Passive-Active	3.63-	4.49*	3.91
Weak-Strong	2.34-	4.51*	4.19
Slow-Fast	3.24-	3.81*	3.38
Foolish-Wise	3.78*	3.41-	3.65
Unpredictable-Predictable	3.24-	3.74*	3.38

*Highest mean in the respective scale.
-Lowest mean in the respective scale.

positive) of the means for the same scales by respondents in the present study, and four means were the lowest (most negative) of the means for the same scales by respondents in the present study. The means obtained by the respondents in Ebner's study and the means obtained by the United States respondents in the present study either exceeded all means or were below all means for the same scale. The International respondents exceeded six mean scores of the United States respondents in the present investigation.

A list of sources of information, contained in Part III of the instrument, was used to identify those sources of information most often referred to by leaders in HD education programs. The respondents were to select two sources of information they used that were most important to them in acquiring information related to HD. They were then to identify a maximum of two other sources they may have used. One choice was given for those who "did not know" and another for "nowhere."

In Part IV, a few questions were developed by the researcher to gather further information from the respondents. Most of the statements concerned HD or HD in health education programs, but two questions asked about the respondents' perceptions of the most prevalent disease in their countries and in the world.

C. PILOT STUDY

The instrument was used with a group of five International students in a pilot study that was conducted to determine the ease in understanding the directions, the comprehension of the instrument, and the time needed to complete it. Based on the results and analysis by The

University of Tennessee Computer Center, appropriate changes were made in the final copy of the instrument (Appendix A).

D. ADMINISTRATION OF THE INSTRUMENT

The instrument was administered in two general health classes by the researcher during a regular class session. The International students were obtained in two ways: students who attended the International House at The University of Tennessee were asked individually to participate; and participation was requested during the group orientation program at the beginning of the fall term at The University of Tennessee, Knoxville.

The instrument was presented in a similar manner for a group or for an individual. Questions clarifying the meaning of the directions were answered, but respondents were to use their own knowledge or opinions in marking the questions or statements on the research instrument.

E. ANALYSIS OF DATA

The data were analyzed and appropriate SAS procedures were used. Frequency tables and percentages were utilized. Chi-square statistics were developed to identify the strengths of certain comparisons.

The respondents were separated into groups based on demographic factors and then by certain descriptive categorizations (International students in general, United States students, International students from countries of differing HD prevalence, and International students from countries of differing industrialization). The responses were cross-correlated according to knowledge, attitudes, and sources of information concerning HD and according to certain health related opinions.

Wilcoxin's theta and gamma were used as measures of association (8). Theta allows comparisons between nominal data and ordinal data. Gamma is most appropriate for comparing nominal data with nominal data.

F. SUMMARY

This chapter contained descriptions of the procedures used in the completion of the investigation. The population consisted of 119 International students who completed the instrument during spring, summer, and fall terms of 1987 and 37 United States students who were in two general health classes during the spring of 1987 at The University of Tennessee, Knoxville.

CHAPTER IV

RESULTS

A. INTRODUCTION

This chapter presents the analysis of data. It is divided into five sections: 1) description of the respondents, 2) responses according to educational level of parents, religion, gender, age, and academic status, 3) research questions, 4) selected group comparisons, and 5) summary.

The investigation was designed to compare responses from the subjects divided into different groups. The groups were composed of International subjects in general, United States subjects, International subjects separated according to prevalence of Hansen's Disease (HD) (Appendix B) in their countries, and International subjects separated according to industrialization (Appendix C) of their countries. The groups were compared according to demographic factors; high, medium, and low HD knowledge; positive, neutral, and negative HD attitudes;

sources of HD information; and health related opinions identified by the respondents.

The knowledge scores from Part I (Appendix D) and attitude scores from Part II (Appendix E) allows comparison of the scores obtained by all the participants.

In Part III of the research instrument the respondents chose secondary sources and major sources of HD information from a checklist with thirteen choices. When the sources were considered separately, both the major sources and secondary sources were reported; but at all other times only the major sources were used. Also, the thirteen categories were reduced into the following six groups:

"personal" (family members, friend, and general talk)

"medical" (physician, nurse, and paramedics)

"school" (teachers)

"religious teaching" (statements of leaders and religious writings)

"mass media" (television, radio, movies, billboards, and posters)

"printed material" (books, newspapers, magazines, and pamphlets)

B. DESCRIPTION OF THE RESPONDENTS

There were 156 respondents with 37 from the United States and 119 from other countries.

The respondents were from families in which the majority of parents had several years of formal education, as shown in Table 4 - 1. Of the respondents' mothers, 30 (19%) were elementary school graduates, 47 (30%) were high school graduates, and 52 (33%) were college graduates.

TABLE 4 - 1
EDUCATIONAL LEVEL OF PARENTS

	Mother		Father	
	#	%	#	%
Illiterate, Few Grades	17	11	7	4
Elementary School	30	19	31	20
High School	47	30	27	17
University	52	33	79	51
Vocational Training	3	2	5	3
Not Reported	7	4	7	4
	156	99	156	99

Note: Percentages do not equal 100% due to rounding.

Thirty-one (20%) of the respondents' fathers were elementary school graduates, 27 (17%) were high school graduates, and 79 (51%) were college graduates. Seven of the respondents did not identify the education of their parents.

Table 4 - 2 contains some of the demographic information concerning the participants in this investigation. There are 83 (53%) who are Christians, 56 (36%) who are Moslems, and 17 (11%) who listed other choices. The sample consisted of 94 (60%) males and 61 (39%) females; one respondent did not mark gender. There are 8 (5%) of the respondents who are 38-47 years old and 41 (26%) who are 28-37 years old. Most of the respondents, 101 (65%), are 18-27 years old. Only one individual is below 18 years of age. Five (3%) of the respondents did not identify their year of birth. There are 94 (60%) undergraduate students and 53 (34%) graduate students. Nine respondents did not identify their academic status (graduate or undergraduate).

In an attempt to verify the English proficiency of the respondents, the TOEFL (Test of English as a Foreign Language) score was requested. However, many students, 52 (33%), did not report their TOEFL score; and one student had a low score. Some of the students may not have had a

TABLE 4 - 2
RELIGION, GENDER, AGE, AND ACADEMIC STATUS OF SUBJECTS

		#	%
Religion			
	Christians	83	53
	Moslems	56	36
	Other	17	11
		156	100
Gender			
	Male	94	60
	Female	61	39
	Not Given	1	1
		156	100
Age			
	38-47	8	5
	28-37	41	26
	18-27	101	65
	Below 18	1	1
	Not Given	5	3
		156	100
Academic Status			
	Undergraduate	94	60
	Graduate	53	34
	Not Given	9	6
		156	100

score because they were not required to take the test. The main reasons The University of Tennessee at Knoxville would not require the test were a) the respondent was from a country in which English is not a foreign language, or b) the subject had received a degree from a college in the United States that did not require the TOEFL. One respondent reported a score below 420, but had subsequently received a degree from another college in the United States.

C. RESPONSES ACCORDING TO EDUCATIONAL LEVEL OF PARENTS, RELIGION, GENDER, AGE, AND ACADEMIC STATUS

To assess the level of HD knowledge of the subjects, the number of correct responses obtained on the true-false statements in Part I of the research instrument were tabulated. The subjects were separated into three groups according to the upper third, middle third, and lower third of the scores. A subject with a high level of HD knowledge had 10 or above correct responses . A subject with a medium level of HD knowledge had 5 to 9 correct responses. A subject with a low level of HD knowledge had 4 or fewer correct responses.

The subjects' responses to Part I (HD knowledge) were inversely related, interestingly, to the educational level of the mother or father. The higher the educational level of the parents, the lower the HD knowledge of the respondents. Nineteen (56%) of the respondents whose mothers had a university education scored in the low group, and only 1 (13%) scored in the high group. Of the respondents whose mothers had an elementary education, 4 (50%) were in the high group and 6 (18%) were in the low group. Mothers who were reported as being illiterate, having attended school for only a few grades, or having vocational training were excluded because of the low number. Twenty-three (64%) of the respondents whose fathers had a university education were in the low group, while 3 (38%) were in the high group. Five (63%) of the respondents whose fathers had an elementary education were in the high group, and 7 (19%) were in the low group. Fathers, like the mothers, who were reported as being illiterate, having attended school for only a few grades, or having vocational training were excluded (Table 4 - 3).

The respondents' opinions on world prevalence of HD, as related to their parents' educational level, are presented in Table 4 - 4. Most respondents selected "unusual"/"rare" for HD prevalence Of the respondents who reported their mothers' educational level as elementary,

TABLE 4 - 3
SUBJECTS' HD KNOWLEDGE RELATED TO
EDUCATIONAL LEVEL OF PARENTS

	Knowledge					
	High		Medium		Low	
	#	%	#	%	#	%
Mothers' Educational Level						
Elementary	4	50	20	23	6	18
High School	3	38	35	40	9	26
University	1	13	32	37	19	56
	8	101	87	100	34	100
Fathers' Educational Level						
Elementary	5	63	19	20	7	19
High School	0	0	21	23	6	17
University	3	38	53	57	23	64
	8	100	93	100	36	100

Note: Responses of subjects with parent educational level reported as being illiterate, having attended school for only a few grades, or having vocational training were excluded.
Some percentages do not equal 100% due to rounding.

TABLE 4 - 4
OPINIONS OF HD PREVALENCE IN THE WORLD RELATED TO EDUCATIONAL LEVEL OF PARENTS

	Elementary		High School		University	
	#	%	#	%	#	%
Based on Mothers' Educational Level						
Common	9	30	11	23	8	15
Unusual/Rare	21	70	36	77	40	77
No Response	0	0	0	0	4	8
	30	100	47	100	52	100
Based on Fathers' Educational Level						
Common	9	29	4	15	16	20
Unusual/Rare	22	71	23	85	59	75
No Response	0	0	0	0	4	5
	31	100	27	100	79	100

Note: Responses of subjects with parent educational level reported as being illiterate, having attended school for only a few grades, or having vocational training were excluded.

9 (30%) selected "common" and 21 (70%) selected "unusual"/"rare". "Common" was selected by 9 (29%) of the respondents who reported their fathers' educational level as elementary, by 4 (15%) of the respondents who reported their fathers' educational level as high school, and by 16 (20%) of the respondents who reported their fathers' educational level as university.

The responses to the question concerning the area of suggested emphasis in a HD program, in which the respondents were separated according to parents' level of education, are revealed in Table 4 - 5. There were five areas: "vocational training," "housing," "education," "medical treatment," and "rehabilitation." All respondents marked "education" most frequently, except for respondents who reported their fathers' educational level as elementary who identified "vocational training," 11 (35%), most frequently. "Vocational training" was selected next often, after "education," by respondents who reported their mothers' educational level as elementary, 9 (30%), and "medical treatment" was the second choice of the respondents who reported their mothers' educational level as high school, 13 (28%), and university, 13 (25%). Respondents who reported their fathers' educational level as high school or university identified "education" as most important, 20 (74%) and 31 (39%)

TABLE 4 - 5
SUGGESTED AREAS OF EMPHASIS IN HD PROGRAMS IN SUBJECTS' COUNTRIES ACCORDING TO EDUCATIONAL LEVEL OF PARENTS

	Elementary		High School		University	
	#	%	#	%	#	%
Based on Mothers' Educational Level						
Vocational Training	9	30	1	2	4	8
Housing	3	10	7	15	9	17
Education	14	47	22	47	21	40
Medical Treatment	3	10	13	28	13	25
Rehabilitation	1	3	1	2	2	4
No Response	0	0	3	6	3	6
	30	101	47	100	52	100
Based on Fathers' Educational Level						
Vocational Training	11	35	1	4	5	6
Housing	5	16	3	11	12	15
Education	5	16	20	74	31	39
Medical Treatment	5	16	3	11	22	28
Rehabilitation	4	13	0	0	4	5
No Response	1	3	0	0	5	6
	31	99	27	100	79	99

Note: Responses of subjects with parent educational level reported as being illiterate, having attended school for only a few grades, or having vocational training were excluded.
Some percentages do not equal 100% due to rounding.

respectively. "Rehabilitation" was selected least often by all respondents.

The differences between Moslems and Christians are summarized in the following four tables. A comparison of Moslems (N=56) and Christians (N=83), with sources of information utilized to acquire HD information reported most often and least often, is displayed in Table 4 - 6. Moslems selected "personal" most often, 42 (40%), and "religious teaching" least often, 5 (5%). Christians selected "religious teaching" most often, 30 (23%), and "medical" least often, 4 (3%).

A number of chi-squares were run to determine the significance of the differences that were found. The level of significance accepted was .05, and tables with those findings are presented elsewhere in the chapter. Some tables had several cells with fewer than five responses in certain cells. Chi-square statistics for those tables were not reported.

"Religious teaching" as a major source or a secondary source for acquiring HD information was reported less often by Moslems than Christians, as shown in Table 4 - 7. Only 16% of the Moslems and 49% of the Christians selected "religious teaching" as a major or secondary source. Christians selected it most often as a major source, 30 (36%), and 11 (13%) selected it as a secondary source. Moslems selected "religious teaching" as a major source, 5 (9%), and as a secondary source, 4 (7%).

TABLE 4 - 6
SOURCES OF HD INFORMATION ACCORDING
TO MOSLEMS AND CHRISTIANS

	Moslems		Christians	
	#	%	#	%
Personal	42	40	24	18
Medical	9	9	4	3
School	13	13	25	19
Religious Teaching	5	5	30	23
Mass Media	20	19	25	19
Printed Material	15	14	23	18
	104	100	131	100

Note: Multiple responses were allowed.

TABLE 4 - 7
RELIGIOUS TEACHING AS SOURCE OF HD INFORMATION
ACCORDING TO MOSLEMS AND CHRISTIANS

	Moslems		Christians	
	#	%	#	%
Major Source	5	9	30	36
Secondary Source	4	7	11	13
Responded to Other Choices	47	84	42	51
	56	100	83	100

Chi-square = 16.794
Degrees of Freedom = 2
p = 0.000226

Chi-square was 16.794, which indicates that the two variables are not independent. The association was positive at a significant level. The probability was well below .05; it was 0.000226.

As revealed by the responses in Table 4 - 8, the area of emphasis in HD programs in the subjects' countries selected most often by Christians and Moslems was "education." Twenty-two (39%) of the Moslems and 48 (58%) of the Christians selected "education."

Table 4 - 8 also displays responses concerning what area of HD health care needs most emphasis world-wide. "Education" was selected most often by Moslems, 23 (41%), and Christians 37 (45%). Moslems selected "rehabilitation," 10 (18%), more often than did Christians, 2 (2%).

There were numerous diseases that were identified as prevalent according to Moslems and Christians. In Table 4 - 9, Moslems identified "tuberculosis" most often, 17 (30%), and next frequently chose "heart disease," 10 (18%). Christians identified "heart disease" most often, 40 (48%), followed by "cancer," 17 (20%).

Males had a higher level of HD knowledge than females, as seen in Table 4 - 10. There were 28 (30%) of the males who indicated a high level of HD knowledge and 23 (24%) who indicated a low level of HD

TABLE 4 - 8
SUGGESTED AREAS OF EMPHASIS IN HD PROGRAMS
ACCORDING TO MOSLEMS AND CHRISTIANS

	Moslems		Christians	
	#	%	#	%
Emphasis in Subjects' Countries				
Vocational Training	8	14	5	6
Housing	7	13	8	10
Education	22	39	48	58
Medical Treatment	8	14	17	20
Rehabilitation	10	18	3	4
No Response	1	2	2	2
	56	100	83	100
Emphasis in the World				
Vocational Training	4	7	9	11
Housing	5	9	8	10
Education	23	41	37	45
Medical Treatment	12	21	25	30
Rehabilitation	10	18	2	2
No Response	2	4	2	2
	56	100	83	100

TABLE 4 - 9
OPINIONS OF MOST PREVALENT DISEASE IN THE WORLD
ACCORDING TO MOSLEMS AND CHRISTIANS

	Moslems		Christians	
	#	%	#	%
Tuberculosis	17	30	1	1
Heart Disease	10	18	40	48
Parasitic Diseases	5	9	9	11
Diabetes	9	16	2	2
Diarrheal Diseases of Infancy	4	7	7	8
Stroke	1	2	3	4
Cancer	6	11	17	20
Leprosy (HD)	2	4	1	1
No Response	2	4	3	4
	56	101	83	99

Note: Percentages do not equal 100% due to rounding.

TABLE 4 - 10
LEVELS OF HD KNOWLEDGE ACCORDING TO GENDER

	Males		Females	
	#	%	#	%
High	28	30	2	3
Medium	43	46	41	67
Low	23	24	18	30
	94	100	61	100

knowledge. Forty-three (46%) of the males indicated a medium level of HD knowledge and 41 (67%) of the females indicated a medium level of HD knowledge. Two (3%) of the females had a high level of HD knowledge and 18 (30%) had a low level of HD knowledge. (Gender was not identified by one respondent, and the data above did not include that answer sheet.)

More males, 76 (81%), wanted HD included in programs of health education than females, 39 (64%), as revealed by the responses summarized in Table 4 - 11. Females marked "No," 17 (28%), more often than males, 13 (14%).

TABLE 4 - 11
OPINIONS OF INCLUSION OF HD IN HEALTH EDUCATION PROGRAMS IN SUBJECTS' COUNTRIES ACCORDING TO GENDER

	Males		Females	
	#	%	#	%
Yes	76	81	39	64
No	13	14	17	28
No Response	5	5	5	8
	94	100	61	100

As seen in Table 4 - 12, males used "mother" as a source for acquiring HD information more often than did females. Seventeen (18%) of the males identified "mother" as a major source, and 7 (11%) of the females identified "mother" as a major source. Twenty-one (22%) of the males identified "mother" as a secondary source, as did 7 (11%) of the females. The chi-square was determined to be 6.379, which indicates that the two variables are not independent. The association was positive at a significant level. The probability was below .05; it was 0.041.

A larger percentage of older respondents, 2 (25%), had a higher level of HD knowledge than younger respondents, 2 (2%), as revealed in Table 4 - 13. Five respondents did not identify their age and were not included in the statistical analysis.

TABLE 4 - 12
MOTHER AS SOURCE OF HD INFORMATION
ACCORDING TO GENDER

	Males		Females	
	#	%	#	%
Major Source	17	18	7	11
Secondary Source	21	22	7	11
Responded to Other Choices	56	60	47	77
	94	100	61	99

Note: Some percentages do not equal 100% due to rounding.

Chi-square = 6.379
Degrees of Freedom = 2
p = 0.041

TABLE 4 - 13
LEVELS OF HD KNOWLEDGE ACCORDING TO AGE

	38-47		28-37		18-27	
	#	%	#	%	#	%
High	2	25	5	12	2	2
Medium	5	63	29	71	66	65
Low	1	13	7	17	33	32
	8	101	41	100	101	99

In Table 4 - 14 through Table 4 - 17 the responses were separated according to undergraduates and graduates. The academic status of nine subjects was not given and their responses were excluded.

Table 4 - 14 displays the data indicating that 5 (5%) of the undergraduates and 10 (19%) of the graduates utilized "sister" as a major source. Both groups reported "sister" as a secondary source about as often, 6 (6%) of the undergraduates and 4 (8%) of the graduates. Chi-square was 7.048, which indicates that the two variables are not independent. The association was positive at a significant level. The probability was below .05; it was 0.029.

In Table 4 - 15 there was a difference revealed in the responses concerning undergraduates and graduates in their use of "brother" as a major source and secondary source for acquiring HD information. More graduates, 11 (21%), reported "brother" as a major source than did undergraduates, 4 (4%). However, as a secondary source, more undergraduates selected "brother," 5 (5%), than did graduates, 1 (2%). Also, as shown in Table 4 - 15, more graduates marked "medical" as a major source, 11 (21%), than did undergraduates, 10 (12%). Five (9%) of the graduates selected "medical" as a secondary source but no undergraduates selected it.

TABLE 4 - 14
SISTER AS SOURCE OF HD INFORMATION ACCORDING TO ACADEMIC STATUS

	Undergraduates		Graduates	
	#	%	#	%
Major Source	5	5	10	19
Secondary Source	6	6	4	8
Responded to Other Choices	83	88	39	74
	94	99	53	101

Note: Percentages do not equal 100% due to rounding.

Chi-square = 7.048
Degrees of Freedom = 2
p = 0.029

TABLE 4 - 15
BROTHER AND MEDICAL AS SOURCE OF HD INFORMATION ACCORDING TO ACADEMIC STATUS

	Undergraduates		Graduates	
	#	%	#	%
Brother as a Source				
Major Source	4	4	11	21
Secondary Source	5	5	1	2
Responded to Other Choices	85	90	41	77
	94	99	53	100
Medical as a Source				
Major Source	10	12	11	21
Secondary Source	0	0	5	9
Responded to Other Choices	84	89	37	70
	94	101	53	100

Note: Some percentages do not equal 100% due to rounding.

TABLE 4 - 16
SCHOOL AS SOURCE OF HD INFORMATION ACCORDING TO ACADEMIC STATUS

	Undergraduates		Graduates	
	#	%	#	%
Major Source	9	10	12	23
Secondary Source	24	26	17	32
Responded to Other Choices	61	65	24	45
	94	101	53	100

Note: Some percentages do not equal 100% due to rounding.

Chi-square = 6.825
Degrees of Freedom = 2
p = 0.033

TABLE 4 - 17
RELIGIOUS TEACHING AS SOURCE OF HD INFORMATION
ACCORDING TO ACADEMIC STATUS

	Undergraduates		Graduates	
	#	%	#	%
Major Source	7	7	11	21
Secondary Source	24	26	9	17
Responded to Other Choices	63	67	33	62
	94	100	53	100

Chi-square = 6.123
Degrees of Freedom = 2
p = 0.047

Graduates exceeded undergraduates in their use of "school" as a major source for acquiring HD information, as revealed in Table 4 - 16. "School" was selected by 12 (23%) of the graduates and by 9 (10%) of the undergraduates as a major source. As a secondary source, 17 (32%) of the graduates and 24 (26%) of the undergraduates selected "school." "School" was not selected by 61 (65%) of the undergraduates and 24 (45%) of the graduates. Chi-square was 6.825, which indicates that the

two variables are not independent. The association was positive at a significant level. The probability was below .05; it was 0.033.

The data in Table 4 - 17 concerning "religious teaching" are similar to those in Table 4 - 15 concerning "brother." Graduates exceeded undergraduates in selecting "religious teaching" as a major source for acquiring HD information, but undergraduates exceeded graduates in selecting it as a secondary source. As a major source, "religious teaching" was selected by 11 (21%) of the graduates and 7 (7%) of the under- graduates. As a secondary source, more undergraduates, 24 (26%), than graduates, 9 (17%), selected "religious teaching." The chi-square was 6.123, which indicates that the two variables are not independent. The association was positive at a significant level. The probability was below .05; it was 0.047.

D. RESEARCH QUESTIONS

1. What is the level of knowledge, measured by true-false statements, concerning HD among International respondents, United States respondents, International respondents from countries of differing

HD prevalence, and International respondents from countries of differing industrialization?

Table 4 - 18 displays the responses of all participants concerning levels of HD knowledge, as obtained from Part I of the survey instrument. A high level of knowledge was shown by 13 (11%) of the International subjects. A medium level was shown by 79 (66%) of the International subjects. A low level was shown by 27 (23%) of the International subjects.

The majority of students from the United States had a medium or low level of knowledge concerning HD. Twenty-two (59%) of the respondents had a medium level of HD knowledge, and 14 (38%) had a low level of HD knowledge. Interestingly, only 1 of the respondents had a high level of HD knowledge (Table 4 - 18).

Table 4 - 18 shows that many subjects from countries where HD prevalence is high had a high level of HD knowledge, 7 (21%); 4 (10%) of the International subjects from countries where HD prevalence is moderate had a high level of HD knowledge; and 2 (4%) of the International subjects from countries where HD prevalence is rare had a high level of HD knowledge. Twenty-one (62%) of the subjects from countries with high HD prevalence had a medium level of HD knowledge;

TABLE 4 - 18
LEVELS OF HD KNOWLEDGE OF PARTICIPANTS

Levels of HD Knowledge	International Respondents		United States		Prevalence* Rare		Moderate		High		Industrialization* Industrialized		Non-industrialized	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
High	13	11	1	3	2	4	4	10	7	21	5	16	8	9
Medium	79	66	22	59	27	59	31	79	21	62	21	68	58	66
Low	27	23	14	38	17	37	4	10	6	18	5	16	22	25
	119	100	37	100	46	100	39	99	34	101	31	100	88	100

*Respondents from the United States were not included.

Note: Some percentages do not equal 100% due to rounding.

31(79%) of the subjects from countries with moderate HD prevalence had a medium level of HD knowledge; and 27 (59%) of the subjects from countries with rare HD prevalence had a medium level of HD knowledge. Six (18%) of the subjects from countries with high prevalence had a low level of HD knowledge; 4 (10%) of the subjects from countries with moderate prevalence had a low level of HD knowledge; and 17 (37%) of the International subjects from countries with rare HD prevalence had a low level of HD knowledge.

There was little difference in the respondents' HD level of knowledge when compared to their countries' degree of industrialization. Five (16%) of the International respondents from industrialized countries had a high level of HD knowledge and 8 (9%) of the respondents from non-industrialized countries had a high level of HD knowledge. Twenty-one (68%) of the International respondents from industrialized countries had a medium level of HD knowledge and 58 (66%) of the respondents from non-industrialized countries had a medium level of HD knowledge. Low HD knowledge was exhibited by 22 (25%) of the respondents from non-industrialized countries and 5 (16%) of the International respondents from industrialized countries (Table 4 - 18).

2. What are the attitudes, measured by a semantic differential

scale, concerning HD among International respondents, United States respondents, International respondents from countries of differing HD prevalence, and International respondents from countries of differing industrialization?

Part II of the research instrument was the semantic differential which was used to assess HD attitudes. The responses are shown in Table 4 - 19. For purposes of comparison the responses were separated into three groups. The groups were designated to be positive, neutral, or negative. Positive HD scores, those above a score of 33, were obtained by 45 (38%) of the International respondents; negative HD scores, scores below 23, were obtained by 19 (16%) of the International respondents; and neutral HD scores, those in between the above ranges, were obtained by 55 (46%) of the International respondents.

Most United States students had neutral HD attitudes, with 21 (57%) of the respondents falling in that category, as displayed in Table 4 - 19. There were 11 (30%) of the United States respondents with positive HD attitudes and 5 (14%) with negative HD attitudes.

HD attitudes, as revealed by the responses in Table 4 - 19 of International respondents separated into HD prevalence of their countries, showed that more positive HD attitudes were held by respondents from

TABLE 4 - 19
HD ATTITUDES OF PARTICIPANTS

HD Attitudes	International Respondents		United States		Prevalence* Rare		Moderate		High		Industrialization* Industrialized		Non-industrialized	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Positive	45	38	11	30	21	46	10	26	14	41	10	32	35	40
Neutral	55	46	21	57	14	30	25	64	16	47	13	42	42	48
Negative	19	16	5	14	11	24	4	10	4	12	8	26	11	13
	119	100	37	101	46	100	39	100	34	100	31	100	88	101

*Respondents from the United States were not included.

Note: Some percentages do not equal 100% due to rounding.

countries with rare HD prevalence than by any other classification. Neutral attitudes were indicated by 25 (64%) of the respondents from countries of moderate HD prevalence and by 16 (47%) of the respondents from countries of high HD prevalence.

Respondents from non-industrialized countries were more positive, 35 (40%), than International respondents from industrialized countries, 10 (32%). There was a smaller percentage of respondents from non-industrialized countries who indicated negative HD attitudes (11 or 13%) as compared to that for International respondents from industrialized countries (8 or 26%) (Table 4 - 19).

3. What are the sources of information, measured by a checklist, concerning HD utilized by International respondents, United States respondents, International respondents from countries of differing HD prevalence, and International respondents from countries of differing industrialization?

Part III of the instrument was a list of sources of information from which the International respondents reported having acquired HD information: "personal," "medical," "school," "religious teaching," "mass media," and "printed material." Table 4 - 20 displays the data related to the sources used to acquire HD information.

TABLE 4 - 20
SOURCES OF HD INFORMATION OF PARTICIPANTS

Sources of Information	International Respondents		United States		Prevalence* Rare		Moderate		High		Industrialization* Industrialized		Non-industrialized	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Personal	84	37	5	11	24	32	28	35	32	45	11	21	73	42
Medical	14	6	0	0	3	4	7	9	4	6	4	8	10	6
School	33	15	8	17	10	14	11	14	12	17	6	11	27	16
Religious Teaching	17	8	16	34	10	14	6	7	1	1	5	9	12	7
Mass Media	39	17	10	21	15	20	11	14	13	18	8	15	31	18
Printed Material	39	17	8	17	12	16	18	22	9	13	19	36	20	12
	226	100	47	100	74	100	81	101	71	100	53	100	173	101

*Respondents from the United States were not included.

Note: Multiple responses were allowed.
Some percentages do not equal 100% due to rounding.

As seen in Table 4 - 20, International respondents selected "personal" most often, 84 (37%), and "medical" least often, 14 (6%). United States respondents selected "religious teaching" most often, 16 (34%), and no respondents chose "medical." International respondents from countries with rare HD prevalence selected "personal" most often, 24 (32%), and "medical" least often, 3 (4%). Respondents from countries with moderate HD prevalence selected "personal" most often, 28 (35%), and "religious teaching" least often, 6 (7%). Respondents from countries with high HD prevalence also selected "personal" most often, 32 (45%), and "religious teaching" least often, 1 (1%). Respondents from industrialized countries selected "printed material" most often, 19 (36%), and "medical" least often, 4 (8%). Respondents from non-industrialized countries identified "personal" most often, 73 (42%), and "medical" least often, 10 (6%).

4. What are certain health related opinions, measured by a questionnaire, among International respondents, United States respondents, International respondents from countries of differing HD prevalence, and International respondents from countries of differing industrialization?

Table 4 - 21 summarizes respondents' feelings toward requiring HD health education programs in their respective countries. A majority of all groups expressed an affirmative response. There were 93 (78%) of the International subjects who selected "Yes," and 16 (13%) who selected "No." Twenty-four (65%) of the United States subjects selected "Yes," and 11 (30%) selected "No." Thirty-two (70%) of the International subjects from countries with rare HD prevalence selected "Yes," and 6 (13%) selected "No." Thirty-two (82%) of the subjects from countries with moderate HD prevalence selected "Yes," and 7 (18%) selected "No." Twenty-nine (85%) of the subjects from countries with high HD prevalence selected "Yes," and 3 (9%) selected "No." Twenty-two (71%) of the International subjects from industrialized countries selected "Yes," and 7 (23%) selected "No." Seventy-one (81%) of the subjects from non-industrialized countries selected "Yes," and 9 (10%) selected "No."

Table 4 - 21 also contains data on the opinions of respondents about required HD education programs world-wide. Eighty-eight (74%) of the International respondents selected "Yes," and 18 (15%) selected "No." Twenty-two (59%) of the United States respondents selected "Yes," and 13 (35%) selected "No." Thirty-three (72%) of the International respondents from countries with rare HD prevalence

TABLE 4 - 21
INCLUSION OF HD IN HEALTH EDUCATION PROGRAMS ACCORDING TO PARTICIPANTS

	International Respondents		United States		Prevalence* Rare		Moderate		High		Industrialization* Industrialized		Non-industrialized	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
In Subjects' Countries														
Yes	93	78	24	65	32	70	32	82	29	85	22	71	71	81
No	16	13	11	30	6	13	7	18	3	9	7	23	9	10
No Response	10	8	2	5	8	17	0	0	2	6	2	6	8	9
	119	99	37	100	46	100	39	100	34	100	31	100	88	100
In the World														
Yes	88	74	22	59	33	72	30	77	25	74	24	77	64	73
No	18	15	13	35	8	17	5	13	5	15	5	16	13	15
No Response	13	11	2	5	5	11	4	10	4	12	2	6	11	13
	119	100	37	99	46	100	39	100	34	101	31	99	88	101

*Respondents from the United States were not included.

Note: Some percentages do not equal 100% due to rounding.

selected "Yes," and 8 (17%) selected "No." Thirty (77%) of the respondents from countries with moderate HD prevalence selected "Yes," and 5 (13%) selected "No." Twenty-five (74%) of the respondents from countries with high HD prevalence selected "Yes," and 5 (15%) selected "No." Twenty-four (77%) of the International respondents from industrialized countries selected "Yes," and 5 (16%) selected "No." Sixty-four (73%) of the respondents from non-industrialized countries selected "Yes," and 13 (15%) selected "No."

Table 4 - 22 displays the responses of the respondents' opinions of the time that should be devoted to HD in a health education program that included HD education. Five choices were given: "brief mention" (one or two oral sentences), "direct questions" (responses to participants in the program),"only discuss importance" (talking about the importance of the disease), and "full discussion" (thoroughly discussing the disease).

All groups considered "full discussion" to be the best choice, as revealed in Table 4 - 22. It was selected by 78 (66%) of the International subjects and 28 (76%) of the United States subjects. "Full discussion" was selected by 27 (59%) of the International subjects from countries with rare HD prevalence, 26 (67%) of the subjects from countries with moderate HD prevalence, and 25 (74%) of the subjects from countries

TABLE 4 - 22
SUGGESTED TEACHING METHOD IN HD PROGRAM ACCORDING TO PARTICIPANTS

	International Respondents		United States		Prevalence*						Industrialization*			
					Rare		Moderate		High		Industrialized		Non-industrialized	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Brief Mention	20	17	9	24	9	20	7	18	4	12	4	13	16	18
Direct Questions	10	8	0	0	5	11	3	8	2	6	3	10	7	8
Only Discuss Importance	6	5	0	0	3	7	2	5	1	3	2	6	4	5
Full Discussion	78	66	28	76	27	59	26	67	25	74	21	68	57	65
No Response	5	4	0	0	2	4	1	3	2	6	1	3	4	5
	119	100	37	100	46	101	39	101	34	101	31	100	88	101

*Respondents from the United States were not included.

Note: Some percentages do not equal 100% due to rounding.

with high HD prevalence. "Full discussion" was selected by 21 (68%) of the International subjects from industrialized countries and 57 (65%) of the subjects from non-industrialized countries.

Respondents were asked to select "common" or "unusual"/"rare" as their opinion of HD prevalence in their countries and the world (Table 4 - 23). The majority of International students selected "unusual"/"rare," 97 (82%); and 16 (13%) selected "common." United States respondents selected "unusual"/"rare," 36 (97%); and 1 (3%) selected "common." International respondents from countries with rare HD prevalence selected "unusual"/"rare," 45 (98%); and none chose "common." Respondents from countries with moderate HD prevalence selected "unusual/rare" 30 (77%), and 8 (21%) selected "common." Respondents from countries with high HD prevalence selected "unusual"/"rare," 22 (65%); and 8 (24%) selected "common." International respondents from industrialized countries selected "unusual"/"rare," 28 (90%); and none selected "common." Respondents from non-industrialized countries selected "unusual"/"rare," 69 (78%); and 16 (18%) selected "common."

Assumptions of world-wide HD prevalence were similar to those for HD prevalence in the respondents' countries. HD was marked "common" by 29 (24%) of the International subjects and "unusual"/"rare"

TABLE 4 - 23
HD PREVALENCE ACCORDING TO PARTICIPANTS

	International Respondents		United States		Prevalence* Rare		Moderate		High		Industrialization* Industrialized		Non-industrialized	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
In Subjects' Countries														
Common	16	13	1	3	0	0	8	21	8	24	0	0	16	18
Unusual/Rare	97	82	36	97	45	98	30	77	22	65	28	90	69	78
No Response	6	5	0	0	1	2	1	3	4	12	3	10	3	3
	119	100	37	100	46	100	39	101	34	101	31	100	88	99
In the World														
Common	29	24	7	19	10	22	8	21	11	32	5	16	24	27
Unusual/Rare	77	65	30	81	30	65	29	74	18	53	19	61	58	66
No Response	13	11	0	0	6	13	2	5	5	15	7	23	6	7
	119	100	37	100	46	100	39	100	34	100	31	100	88	100

*Respondents from the United States were not included.

Note: Some percentages do not equal 100% due to rounding.

by 77 (65%). HD was marked "common" by 7 (19%) of the United States subjects and "unusual"/"rare" by 30 (81%). HD was marked "common" by 10 (22%) of the International subjects from countries with rare HD prevalence and "unusual"/"rare" by 30 (65%). HD was marked "common" by 8 (21%) of the subjects from countries with moderate HD prevalence and "unusual"/"rare" by 29 (74%). HD was marked "common" by 11 (32%) of the subjects from countries with high HD prevalence and "unusual"/"rare" by 18 (53%). HD was marked "common" by 5 (16%) of the International subjects from industrialized countries and "unusual"/"rare" by 19 (61%). HD was marked "common" by 24 (27%) of subjects from non-industrialized countries and "unusual"/"rare" by 58 (66%). These data are revealed in Table 4 - 23.

Table 4 - 24 reveals the responses concerning certain areas to be given emphasis in an HD program in the respondents' countries. Most respondents selected "education." "Education" was selected by 56 (47%) of the International respondents, by 19 (51%) of the United States respondents, by 24 (52%) of the International respondents in countries with rare HD prevalence, by 19 (49%) of the respondents in countries with high HD prevalence, by 13 (38%) of the respondents in countries with high HD prevalence, by 11 (35%) of the International respondents

TABLE 4 - 24
SUGGESTED AREAS OF EMPHASIS IN HD PROGRAMS IN SUBJECTS' COUNTRIES ACCORDING TO PARTICIPANTS

	International Respondents		United States		Prevalence* Rare		Moderate		High		Industrialization* Industrialized		Non-industrialized	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Vocational Training	12	10	3	8	5	11	4	10	3	9	3	10	9	10
Housing	14	12	5	14	8	17	2	5	4	12	4	13	10	11
Education	56	47	19	51	24	52	19	49	13	38	11	35	45	51
Medical Treatment	21	18	9	24	4	9	8	20	9	26	7	23	14	16
Rehabilitation	8	7	1	3	1	2	5	13	2	6	2	6	6	7
No Response	8	7	0	0	4	9	1	3	3	9	4	13	4	5
	119	101	37	100	46	100	39	100	34	100	31	100	88	100

*Respondents from the United States were not included.

Note: Some percentages do not equal 100% due to rounding.

from industrialized countries, and by 45 (51%) of the respondents from non-industrialized countries.

As seen in Table 4 - 25, "education" was selected as having the highest priority in world-wide HD programs. "Education" was marked by 61 (51%) of the International subjects, by 22 (59%) of the United States subjects, by 26 (57%) of the subjects from countries with rare HD prevalence, by 21 (54%) of the subjects from countries of moderate HD prevalence, by 14 (41%) of the subjects from countries of high HD prevalence, by 18 (58%) of the International subjects from industrialized countries, and by 43 (49%) of the subjects from non-industrialized countries.

Table 4 - 26 summarizes responses of the two most frequent selections of assumed prevalence rates of certain diseases in the subjects' countries and in the world. Twenty-two (18%) of the International subjects selected "heart disease" and 21 (18%) marked "cancer." Thirty (81%) of the United States subjects marked "heart disease" and 7 (19%) marked "cancer." Nine (20%) of the International subjects from countries with rare HD prevalence marked "heart disease" and 9 (20%) marked "cancer." Ten (26%) of the subjects from countries of moderate HD prevalence marked "heart disease" and 6 (15%) marked "diarrheal

TABLE 4 - 25
SUGGESTED AREAS OF EMPHASIS IN HD PROGRAMS IN THE WORLD ACCORDING TO PARTICIPANTS

	International Respondents		United States		Prevalence* Rare		Moderate		High		Industrialization* Industrialized		Non-industrialized	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Vocational Training	9	8	3	8	2	4	3	8	4	12	3	10	6	7
Housing	14	12	3	8	6	13	6	15	2	6	5	16	9	10
Education	61	51	22	59	26	57	21	54	14	41	18	58	43	49
Medical Treatment	21	18	8	22	7	15	6	15	8	26	4	13	17	19
Rehabilitation	11	9	1	3	3	7	3	8	5	15	1	3	10	11
No Response	3	3	0	0	2	4	0	0	1	1	0	0	3	3
	119	101	37	100	46	100	39	100	34	101	31	100	88	99

*Respondents from the United States were not included.

Note: Some percentages do not equal 100% due to rounding.

TABLE 4 - 26
MOST PREVALENT DISEASE IN SUBJECTS' COUNTRIES ACCORDING TO PARTICIPANTS

	International Respondents		United States		Prevalence* Rare		Moderate		High		Industrialization* Industrialized		Non-industrialized	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Tuberculosis	16	13	0	0	4	9	5	13	7	21	6	19	10	11
Heart Disease	22	18	30	81	9	20	10	26	3	9	8	26	14	16
Parasitic Diseases	15	13	0	0	7	15	5	13	3	9	2	6	13	15
Diabetes	12	10	0	0	5	11	5	13	2	6	2	6	10	11
Diarrheal Diseases of Infancy	14	12	0	0	4	9	6	15	4	12	3	10	11	13
Stroke	8	7	0	0	6	13	1	3	1	3	3	10	5	6
Cancer	21	18	7	19	9	20	5	13	7	21	7	23	14	16
Leprosy (HD)	5	4	0	0	0	0	2	5	3	9	0	0	5	6
No Response	6	5	0	0	2	4	0	0	4	12	0	0	6	7
	119	100	37	100	46	101	39	101	34	102	31	100	88	101

*Respondents from the United States were not included.

Note: Some percentages do not equal 100% due to rounding.

diseases of infancy." Seven (21%) of the subjects from countries with high HD prevalence marked "tuberculosis" and 7 (21%) marked "cancer." Eight (26%) of the International subjects from industrialized countries marked "heart disease" and 7 (23%) marked "cancer." Fourteen (16%) of the subjects from non-industrialized countries selected "cancer" and 14 (16%) selected "heart disease."

Table 4 - 27 displays responses related to the disease thought to be of highest prevalence in the world. "Cancer" was the most frequently selected by 31 (26%) of the International subjects and "heart disease" was next frequently selected by 24 (20%) of the International subjects. "Heart disease" was selected most frequently by 15 (41%) of the United States respondents and "cancer" was selected next by 9 (24%) of the United States subjects. "Heart disease" was selected most frequently by 12 (26%) of the International subjects from countries with rare HD prevalence and "cancer" was next frequently selected by 11 (24%). "Cancer" was selected most frequently by 10 (26%) of the subjects from countries with moderate HD prevalence and "diarrheal diseases of infancy" was next frequently selected by 8 (21%). "Cancer" was selected most frequently by 10 (29%) of the subjects from countries with high HD prevalence and next frequently selected was "tuberculosis" by 7 (21%). "Heart disease" was

TABLE 4 - 27
MOST PREVALENT DISEASE IN THE WORLD ACCORDING TO PARTICIPANTS

	International Respondents		United States		Prevalence*						Industrialization*			
					Rare		Moderate		High		Industrialized		Non-industrialized	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Tuberculosis	12	10	1	3	2	4	3	8	7	21	4	13	8	9
Heart Disease	24	20	15	41	12	26	6	15	6	18	11	35	13	15
Parasitic Diseases	19	16	5	14	10	22	7	18	2	6	7	23	12	14
Diabetes	6	5	4	11	2	4	2	5	2	6	1	3	5	6
Diarrheal Diseases of Infancy	16	13	1	3	5	11	8	21	3	9	1	3	15	17
Stroke	3	3	2	5	1	2	2	5	0	0	2	6	1	1
Cancer	31	26	9	24	11	24	10	26	10	29	4	13	27	31
Leprosy (HD)	2	2	0	0	0	0	1	3	1	3	0	0	2	2
No Response	6	5	0	0	3	7	0	0	3	9	1	3	5	6
	119	100	37	101	46	100	39	101	34	101	31	99	88	101

*Respondents from the United States were not included.

Note: Some percentages do not equal 100% due to rounding.

most frequently selected by 11 (35%) of the International subjects from industrialized countries and next frequently selected was "parasitic diseases" by 7 (23%). "Cancer" was most frequently selected by 7 (23%) of the subjects from non-industrialized countries and next frequently selected was "diarrheal diseases of infancy" by 15 (17%).

5. What are the associations among knowledge, attitudes and sources of information concerning HD, as revealed in this investigation?

Table 4 - 28 shows the relationship between HD attitudes and HD knowledge. Of the International respondents with a high level of HD knowledge, 2 (25%) had a positive HD attitude and 13 (48%) had a negative HD attitude. From the International respondents with a low level of HD knowledge, 5 (63%) had a positive HD attitude and 11 (41%) had a negative HD attitude. The measure of association, gamma, is -.02. There is no association between the two variables.

Table 4 - 29 contains data comparing high and low HD knowledge with the sources of information respondents utilized to acquire HD information. Ten (45%) of the International subjects with a high level of HD knowledge identified "personal;" 48 (32%) of the International subjects with a medium level of HD knowledge identified "personal;" and 26 (46%) of the International subjects with a low level of HD knowledge

TABLE 4 - 28
INTERNATIONAL SUBJECTS' LEVELS OF
HD KNOWLEDGE AND HD ATTITUDES

	Attitudes					
	Positive		Neutral		Negative	
	#	%	#	%	#	%
Knowledge						
High	2	25	30	38	13	48
Medium	1	13	10	13	3	11
Low	5	63	38	49	11	41
	8	101	78	100	27	100

Note: All items were not marked on 6 answer sheets and the data did not include those total scores.
Some percentages do not equal 100% due to rounding.

A measure of association for two ordinal variables is gamma, which ranges from +1 to -1. A gamma of -0.2 was obtained for this table. There is no association between the two variables.

TABLE 4 - 29
INTERNATIONAL SUBJECTS' LEVELS OF HD KNOWLEDGE AND SOURCES OF HD INFORMATION

	Knowledge					
	High		Medium		Low	
	#	%	#	%	#	%
Sources of Information						
Personal	10	45	48	32	26	46
Medical	2	9	8	5	4	7
School	4	18	22	15	7	13
Religious Teaching	1	5	14	9	2	4
Mass Media	2	9	25	17	12	21
Printed Material	3	14	31	21	5	9
	22	100	148	99	56	100

Note: Multiple responses were allowed.
Some percentages do not equal 100% due to rounding.

Wilcoxon's theta is a useful measure of association which preserves the level-of-measurement properties of the two variables, one ordinal (knowledge) and the other nominal (sources of information). For this table, theta was found to be .02. There is no association between the two variables.

identified "personal." Four (18%) of the International subjects with a high level of HD knowledge marked "school," while 7 (13%) of the International subjects with a low level of HD knowledge selected "school." Theta was .02. There is no association between the two variables.

Attitudes about HD were compared to the sources of information reportedly used to acquire HD information (Table 4 - 30). Both groups chose "personal" most often. "Personal" was chosen by 37 (46%) of the International respondents who indicated positive HD attitudes, by 40 (33%) of the International respondents who indicated a neutral HD attitude, and by 7 (28%) of the International respondents who indicated negative HD attitudes. "Religious teaching" was selected least often by 2 (8%) of the International respondents who indicated negative HD attitudes, by 11 (9%) of the International respondents who indicated neutral HD attitudes, and by 4 (5%) of the International respondents who indicated positive HD attitudes. The measure of association, using theta was .01. There is no association between the two variables.

TABLE 4 - 30
INTERNATIONAL SUBJECTS' HD ATTITUDES AND SOURCES OF HD INFORMATION

	Attitudes					
	Positive		Neutral		Negative	
	#	%	#	%	#	%
Sources of Information						
Personal	37	46	40	33	7	28
Medical	4	5	7	6	3	12
School	12	15	17	14	4	16
Religious Teaching	4	5	11	9	2	8
Mass Media	12	15	22	18	5	20
Printed Material	10	13	25	20	4	16
	79	99	122	100	25	100

Note: Multiple responses were allowed.
Some percentages do not equal 100% due to rounding.

The measure of association is theta. It was determined to be .01. There is no association between the two variables.

D. SELECTED GROUP COMPARISONS

Table 4 - 31 reveals data comparing HD knowledge with the responses of United States subjects, subjects from countries with high HD prevalence, and International subjects from countries with rare HD prevalence. There was 1 (10%) of the United States subjects who exhibited a high level of HD knowledge, 2 (20%) of the International subjects from countries with rare HD prevalence who exhibited a high level of HD knowledge, and 7 (70%) of the subjects from countries with high HD prevalence who exhibited a high level of HD knowledge. There were 14 (38%) of the United States subjects who exhibited a low level of HD knowledge, 17 (46%) International subjects from countries with rare HD prevalence who exhibited a low level of HD knowledge, and 6 (16%) subjects from countries with high HD prevalence who exhibited a low level of HD knowledge.

The responses concerning levels of HD knowledge and HD attitudes of International students and United States students are shown in Table 4 - 32. The medium level of HD knowledge exceeded the other levels; there were 79 (66%) International students and 22 (59%) of the United States students who fell into this category. International students

TABLE 4 - 31
LEVELS OF HD KNOWLEDGE AND SELECTED GROUPS

	Knowledge					
	High		Medium		Low	
	#	%	#	%	#	%
United States	1	10	22	31	14	38
Rare Prevalence	2	20	27	39	17	46
High Prevalence	7	70	21	30	6	16
	10	100	70	100	37	100

Note: Some percentages do not equal 100% due to rounding.

TABLE 4 - 32
HD KNOWLEDGE AND HD ATTITUDES OF INTERNATIONAL STUDENTS AND UNITED STATES STUDENTS

	International		United States	
	#	%	#	%
Levels of HD Knowledge				
High	13	11	1	3
Medium	79	66	22	59
Low	27	23	14	38
	119	100	37	100
HD Attitudes				
Positive	45	38	11	30
Neutral	55	46	21	57
Negative	19	16	5	14
	119	100	37	101

Note: Some percentages do not equal 100% due to rounding.

had more subjects with high HD knowledge (13 or 11%) than United States students (1 or 3%). After examining responses for HD attitudes, neutral HD attitudes exceeded the other attitudes; there were 55 (46%) of the International students and 21 (57%) of the United States students. International students had more positive responses (45 or 38%) than United States students (11 or 30%).

The responses of United States students and International students regarding "religious teaching" differ (Table 4 - 33). Respondents from the United States selected "religious teaching" more often than International students. Sixteen (43%) of the United States respondents selected "religious teaching" as a major source of HD information, and 1 (3%) selected it as a secondary source. A smaller percentage of International respondents selected "religious teaching" as a major source (33 or 28%) than United States respondents (16 or 43%). The responses indicate that 80 (67%) of the International subjects and 20 (54%) of the United States subjects selected other responses.

In Table 4 - 34, the order of frequency of the sources of information selected by certain groups is given. No group was completely similar to another group. The United States is industrialized (63) and has rare HD prevalence (44), but the frequency of some sources

TABLE 4 - 33
RELIGIOUS TEACHING AS SOURCE OF HD INFORMATION ACCORDING TO SELECTED GROUPS

	International		United States	
	#	%	#	%
Major Source	33	28	16	43
Secondary Source 6	5	1	3	
Responded to Other Choices	80	67	20	54
	119	100	37	100

TABLE 4 - 34
RANK FREQUENCY SELECTION OF SOURCES OF HD INFORMATION BY SELECTED GROUPS

	United States	Rare Prevalence	Industrialized Countries
Sources of Information			
Personal	5	1	2
Medical	6	6	6
School	3.5*	4.5*	5
Religious Teaching	1	4.5*	3.5*
Mass Media	2	2	3.5*
Printed Material	3.5*	3	1

*Identical frequencies were attained for two sources.

selected by International subjects who are from similarly industrialized countries and countries with rare HD prevalence differs from the responses of United States subjects. "Religious teaching" was the most frequently selected source among United States subjects. "Personal" was the most frequently selected source for subjects from International countries with rare HD prevalence. "Printed material" was the most frequently selected source among International subjects from industrialized countries. All groups selected "medical" least often.

E. SUMMARY

This chapter contained the analysis of the data. It is divided into Introduction, Description of the Respondents, Responses According to Educational Level of Parents, Religion, Gender, Age, and Academic Status (graduate or undergraduate), Research Questions, Selected Group Comparisons, and Summary.

Most of the data were analyzed by using the SAS computer package and The University of Tennessee computers. Tables and appropriate data were provided.

CHAPTER V

SUMMARY, FINDINGS, CONCLUSIONS, RECOMMENDATIONS, AND DISCUSSION

A. SUMMARY

The primary purpose of this study was to ascertain knowledge, attitudes and sources of information about Hansen's Disease (HD), and to elicit opinions about HD and general disease prevalence held by selected International students and United States students at The University of Tennessee, Knoxville. A secondary purpose was to assess differences in knowledge, attitudes, sources of information about HD, and certain health related opinions that exist among International students in general, United States students, International students from countries separated according to prevalence of HD, and International students from countries separated according to industrialization.

International students (N=119) were divided into groups according to prevalence of HD and degree of industrialization in their countries. The responses of these groups, and a group of 37 United States

students, also from The University of Tennessee, Knoxville, were obtained through the use of a survey instrument. Biographical questions were asked relating to country, gender, academic status, age, religion, marital status, major at the university, parents (their country, religion, and education), and TOEFL (Test of English as a Foreign Language).

The instruments were completed between May and November of 1987. The United States respondents were drawn from two basic health classes held during the spring of 1987. The International respondents who were surveyed attended either the International House at The University of Tennessee, Knoxville, during May and June of 1987, or an orientation registration meeting in November of 1987.

Where appropriate, frequencies, percentages, Chi-square statistics, theta, and gamma were applied to the responses. The following specific questions were addressed.

1. What is the level of knowledge, measured by true-false statements, concerning HD among International respondents, United States respondents, International respondents from countries of differing HD prevalence, and International respondents from countries of differing industrialization?
2. What are the attitudes, measured by a semantic differential

scale, concerning HD among International respondents, United States respondents, International respondents from countries of differing HD prevalence, and International respondents from countries of differing industrialization?

3. What are the sources of information, measured by a checklist, concerning HD utilized by International respondents, United States respondents, International respondents from countries of differing HD prevalence, and International respondents from countries of differing industrialization?

4. What are certain health related opinions, measured by a questionnaire, among International respondents, United States respondents, International respondents from countries of differing HD prevalence, and International respondents from countries of differing industrialization?

5. What are the associations among knowledge, attitudes, and sources of information concerning HD, as revealed in the investigation?

B. FINDINGS

The results of this investigation included the following major findings.

Demographic findings.

1. There were 53% of the respondents who are Christians and 36% who are Moslems. Sixty percent are male. Sixty-five percent are 18-27 years old, 26% are 28-37 years old, and 5% are 38-47 years old. Sixty percent are undergraduates, 34% are graduates, and the academic status of 6% was not given.

2. A high level of HD knowledge was shown by the majority of respondents whose parents had an elementary education, and a low HD knowledge level was indicated by the majority of respondents whose parents had a university education.

3. Respondents whose parents had an elementary education recognized the world-wide occurrence of HD more accurately than respondents whose parents had a high school or university education.

4. Many respondents identified "education" as the area needing the most emphasis in HD public health programs in their countries. Respondents whose fathers' level of education was elementary

most frequently selected the area of "vocational training."

5. As the source utilized to acquire HD information, Moslems selected "personal" most often and "religious teaching" least often, whereas Christians selected "religious teaching" most often and "medical" least often. "Religious teaching" was used significantly more by Christians than Moslems.

6. Moslems and Christians selected the area of "education" to receive the most emphasis in HD programs in their countries and in the world.

7. Moslems most often selected "tuberculosis" as the most prevalent disease in the world, while Christians selected "heart disease."

8. Fewer females than males had a high level of HD knowledge.

9. There were significantly more females (77%) that did not use "mother" as a source of HD information than males (60%).

10. Younger respondents had the highest percentage (94%) of low HD knowledge.

Findings based directly on research questions.

Research Question 1 - What is the level of knowledge, measured by true-false statements, concerning HD among International respondents, United States respondents, International respondents

from countries of differing HD prevalence, and International respondents from countries of differing industrialization?

11. Many respondents 76 (48%), separated according to location and classification (concerning HD prevalence determined by WHO and industrialization determined by The World Bank) of their countries, had medium HD knowledge.

Research Question 2 - What are the attitudes, measured by a semantic differential scale, concerning HD among International respondents, United States respondents, International respondents from countries of differing HD prevalence, and International respondents from countries of differing industrialization?

12. Except for one group neutral HD attitudes were expressed most frequently by respondents separated according to location and classification of their countries. The exception concerned respondents from countries with rare HD prevalence who had a higher percentage with positive HD attitudes, 21 (46%) than neutral HD attitudes, 14 (30%).

13. Negative HD attitudes were least frequently expressed by all respondents separated according to location and classification of their countries.

Research Question 3 - What are the sources of information, measured by

a checklist, concerning HD utilized by International respondents, United States respondents, International respondents from countries of differing HD prevalence, and International respondents from countries of differing industrialization?

14. "Personal" as a source utilized to acquire HD information was chosen most often by International respondents. Each category of International respondents separated according to HD prevalence in their countries also selected this source, as did respondents from non-industrialized countries. International respondents from industrialized countries ranked "personal" second, and United States respondents ranked "personal" fifth.

15. The source "medical" was selected least often, or next to last, by respondents separated according to location and classification of their countries.

Research Question 4 - What are certain health related opinions, measured by a questionnaire, among International respondents, United States respondents, International respondents from countries of differing HD prevalence, and International respondents from countries of differing industrialization?

16. Respondents separated according to location and

classification of their countries agreed that information concerning HD should be included in health education programs in their countries as well as the world.

17. Respondents separated according to location and classification of their countries selected "full discussion" of HD as the suggested teaching method in HD programs.

18. Respondents chose "unusual"/"rare" most often as their opinion of HD prevalence in their countries and in the world.

19. Respondents chose "education" most often as their opinion of the area to be emphasized in HD programs in their countries and in the world.

20. Respondents separated according to location and classification of their countries selected "heart disease" or "cancer" as the most prevalent disease in their countries and in the world.

Research Question 5 - What are the associations among knowledge, attitudes, and sources of information concerning HD, as revealed in the investigation?

21. There was no significant association found between HD knowledge and HD attitudes.

22. There was no significant association found between

sources of HD information and HD knowledge.

23. There was no significant association found between sources of HD information and HD attitudes.

24. High HD knowledge was exhibited by a larger proportion of respondents from countries with high HD prevalence than by respondents from countries with rare HD prevalence (including the United States).

25. More International students had a high or medium level of HD knowledge than United States students.

26. International students had more positive HD attitudes than United States students.

27. United States students used "religious teaching" more than International students as a source for acquiring HD information.

28. Groups similar in some aspects differ in the order of utilization of particular sources reported for acquiring HD information. United States subjects most frequently selected "religious teaching;" subjects from countries of rare HD prevalence most frequently selected "personal;" and subjects from industrialized countries most frequently selected "printed material."

C. CONCLUSIONS

Based on the findings of this investigation several broad conclusions are drawn.

1. Students from all countries, whether having high, moderate or low prevalence of HD or being industrialized or non-industrialized, are likely to have a medium level of knowledge concerning HD.

2. Students from all countries, whether having high, moderate or low prevalence of HD or being industrialized or non-industrialized, tend to hold neutral to positive attitudes toward HD.

3. Sources of HD information that involve individuals (as with "personal") or visual and auditory senses (as with "mass media" and "printed material") appear to be more important to International students. Students from all countries tend to depend upon sources other than "medical" for information concerning HD.

4. HD prevalence was considered to be unusual or rare yet there is a need for HD education in the public education programs in all countries with full discussion being the preferred teaching method.

5. There were no associations between HD attitudes and levels of HD

knowledge. The sources for acquiring HD information are not associated with knowledge or attitudes.

D. RECOMMENDATIONS

1. The instrument was too long and could easily be shortened by having fewer options for specific questions and deleting unnecessary questions.

2. A study should be conducted dividing the four parts of the investigation (knowledge, attitudes, sources of information, and opinions) into two or three at a time (knowledge, attitudes, sources of information; attitudes, sources of information, and opinions; or knowledge and sources of information). Such a study would allow more concentration on the individual issues.

3. Additional investigations of knowledge, attitudes, and sources of information concerning HD and other diseases which have different degrees of prevalence in different areas should be conducted, using International subjects.

4. Studies similar to this investigation should be conducted in other countries.

5. Public health educators need to examine previous HD studies (many mentioned in this investigation) and findings and conclusions of this investigation. Through objective comparisons of the data, planning of appropriate health education programs is possible. Concurrent examination and evaluation of local studies are necessary.

E. DISCUSSION

The respondents were not representative of a comprehensive HD education program, which includes all ages, levels of education, and income groups.

An interesting finding was the inverse relationship between educational level of parents and HD knowledge. The higher the parents' level of education the lower the HD knowledge of the respondents. In many countries, educational level is based on the ability of the individual to afford an education. Therefore, the respondents were from the upper

classes, attested to by the fact that the majority of parents had at least a high school education. HD is less prevalent in the upper classes because it is a disease dependent upon poor sanitation, hygiene, nutrition, and health care. These conditions are found to a lesser extent among the upper classes.

Respondents whose fathers had only an elementary education were more likely to be from the lower end of the upper class. They were less capable of affording formal education. The recognition of the need for employment may have been apparent to those respondents, and therefore they selected "vocational training" as needing more emphasis in their countries than "education."

When considering responses of Moslems and Christians it is important to realize that HD is mentioned in the Bible (the main book of religious teaching for Christians), frequently with derogatory emphasis. Moslems have not "heard" of HD through the Koran (the main religious book of Moslems), which does not mention it. However, many Christians have "heard" of the disease through the Bible.

The Moslems in this study were all from foreign countries, and most of them were from non-industrialized countries where medical personnel are scarce. Tuberculosis is an observable problem in relation

to morbidity and mortality, whereas frequently heart disease is not so apparent. Consequently, because many Moslems may be aware of several victims of tuberculosis but not recognize many individuals affected by heart disease, they chose tuberculosis as being most prevalence world-wide. Also, since tuberculosis is more prevalent than heart disease in third-world countries, some respondents from those countries would identify tuberculosis as being more prevalent in the world as well.

There was ready recognition by many respondents of the importance of education. And most respondents, whether Moslem or Christian, agreed that HD education was needed in general health education programs and would likely encourage, according to their responses, such an endeavor. Yet, in many countries, females have historically received less formal education than males. Consequently, females may be less ready to accept the importance of education, not wanting to admit that what they were lacking was important. Females in this investigation appeared to be saying that education is good, but not extremely important.

The use of "mother" as a source for acquiring HD information was much higher for males than females, probably reflecting the fact that in many cultures the bond between mothers and sons is particularly

strong. (Many times the prestige of the mother is directly related to the number of sons she has.) The relationships between daughters and mothers is not as strong; often daughters resent the low position of women in their society and see their mothers as supporting the old customs.

Younger respondents had less time to have acquired HD knowledge and would therefore be more likely have a lower level of HD knowledge than older respondents. Likewise, graduates had more time to have used more sources of HD information than undergraduates.

Health educators need to be aware of the amount of HD knowledge, HD attitudes, and sources of HD information that are utilized by participants in health education programs. The health educator can then attempt to influence or take advantage of these factors so as to better design and implement such programs.

CHAPTER VI

EPILOGUE

The investigator began working, in 1974, as a health educator in another country. The investigator's education was based mainly on health programming in the United States, and designing an effective health education program in another country had not been addressed. This investigation was a result of wanting to find out what actions would be appropriate for health education in Hansen's Disease (HD) in other countries. It did not answer questions of why, but it did make several discoveries about HD knowledge that existed, HD attitudes that were held, how HD information was acquired by different groups, and certain health related opinions that were prevalent. Inferences concerning methods to be used in developing a comprehensive HD education program were also suggested.

The International subjects were extremely interested in helping the investigator; many brought their friends to fill out the instrument, and several reported that they participated through a friend's encouragement. The majority of the International respondents expressed a desire to

receive information concerning the findings obtained in this study and provided their mailing address to the investigator for that purpose (Appendix D and Appendix E).

At the outset it must be recognized that the respondents were from the upper class in their country, all were literate, and their age range did not include all ages represented in a comprehensive health education program. With those limiting factors in mind, the results may be considered in planning a program in health education on HD.

A major advantage for the completion of this study is the nearness of a major HD center. The researcher was able to utilize its resources and although there is little information available at The University of Tennessee, the Gillis W. Long HD Center provided much assistance.

From this study, it is clear that assumptions based on the responses of one group may not be applicable to another similar group. As an example, the United States is an industrialized country and has rare HD prevalence but it would be a mistake to consider other countries with similar designations to have similar responses. Respondents from the United States, International respondents from industrialized countries, and International respondents from countries with rare HD prevalence, rated differently four sources for acquiring HD information ("personal,"

"school," "religious teaching," and "printed material"). The same rating was given two sources ("medical," lowest, and "mass media," second). The reverse was found for some dissimilar groups representing different countries. For example, the groups of International respondents from countries with rare HD prevalence and respondents from non-industrialized countries had similar responses concerning sources of HD information.

The results may be utilized cautiously in health education programs aimed at dealing with health problems other than HD. Identifying which sources of information are most useful in acquiring correct or incorrect information would be an important consideration in any health education program. Also, the failure of the respondents to recognize the world-wide importance of HD indicated the need for including this information in health education programs.

In addition, professional health educators in other countries can help identify the effectiveness of their health education programs by comparing the sources of information they used with those found most appropriate in this study.

A. DISSEMINATION OF INFORMATION

The dissemination of the findings and conclusions from this investigation will be accomplished through the following means:

1. A copy of the dissertation will be

a. placed in The University of Tennessee library,

b. sent to the Gillis W. Long HD Center Medical Library,

c. sent to the International House, The University of Tennessee, Knoxville.

2. Articles with information from the dissertation will be submitted to

a. WORLD HEALTH FORUM,

b. JOURNAL FOR INTERNATIONAL HEALTH,

c. MEDICAL ANTHROPOLOGY QUARTERLY,

d. AMERICAN JOURNAL OF PUBLIC HEALTH.

3. Information concerning the results of this study will be sent to those participants who requested it.

B. SUMMARY

The need to develop a good health education program (often with limited financial backing, a problem that exists in many countries) makes it mandatory to weigh which aspects of a program should be given the highest priority. The association of "printed material" with a high level of HD knowledge would suggest it be incorporated into HD programs. The frequency of utilization of "mass media" by many International respondents would suggest "mass media" be incorporated into an International setting along with "printed material." The reported desire for "full discussion" of HD in a health education program indicates that such discussion be incorporated into the composition of an HD education program.

REFERENCES

REFERENCES

A. REFERENCES CITED

1. Ahmed, Manzoor, THE ECONOMICS OF NONFORMAL EDUCATION: RESOURCES, COSTS AND BENEFITS, New York: Praeger Publishers, 1975.

2. Bartlett, Edward, "A Framework for Optimizing Resource Allocation for Health Education Programs," HEALTH EDUCATION QUARTERLY, 7 (2): 95-106, 1980.

3. Berelson, Bernard, et al. (ed.), FAMILY PLANNING AND POPULATION PROGRAMS, Chicago: The University of Chicago Press, 1966.

4. Binford, Chapman, Meyers, Wayne, and Walsh, Gerald, "Leprosy," JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 247 (16): 2283-2292, 1982.

5. Bowman, James, "Learning About American Government: The Attitudes of Foreign Students," TEACHING POLITICAL SCIENCE, 5 (2): 181-191, 1978.

6. Bryceson, Anthony and Pfaltzgraff, Roy, LEPROSY, New York: Churchill Livingstone, 1979.

7. Cernada, George, KNOWLEDGE INTO ACTION: A GUIDE TO RESEARCH UTILIZATION, Farmingdale, New York: Baywood Publishing Company, Inc., 1982.

8. Champion, Dean, BASIC STATISTICS FOR SOCIAL RESEARCH, New York: MacMillan Publishing Company, Inc., 1981.

9. Cheriyan, C. and Roopkumar, K., "A Study About the Billboards on Leprosy Displayed in the Pallavan Buses at Madras City," INDIAN JOURNAL OF LEPROSY, 56 (1): 151-157, 1984.

10. Ciba-Geigy, Pharma, LEPROSY CAN BE CURED, Basle, Switzerland: HealthEcon Ltd., 1985.

11. Cochrane, R. G., A PRACTICAL TEXTBOOK OF LEPROSY, New York: Oxford University Press, 1947.

12. Dharmendra, M. B., "What the People Should Know About Leprosy," LEPROSY IN INDIA, XV (2): 46-56, 1943.

13. Diwan, M. B., "Social Aspect of Leprosy," LEPROSY IN INDIA, XXX (1): 109-111, 1958.

14. Dogliotti, M., "Leprostigma in Hanseniasis," HANSENOLOGIA INTERNATIONALIS, 4 (1): 40-41, 1979.

15. Dwivedi, M., "A Study of Medico Social Problems of Cured Leprosy Cases in the Pandri Village of Raipur District, M.P.," LEPROSY IN INDIA, 46: 245-252, 1974.

16. Ebner, J., "Community Knowledge and Attitudes About Leprosy: A Social-Psychological Study of Stigma in a Chronic Disease," unpublished master's thesis, Louisiana State University, 1968.

17. Evans, John, et al., "Health Care in the Developing World: Problems of Scarcity and Choice," THE NEW ENGLAND JOURNAL OF MEDICINE, 305 (19): 1117-1127, 1981.

18. Gill, Ajeet Kaur, "Social Aspects of Leprosy in Malaysia," SOUTHEAST ASIAN JOURNAL OF TROPICAL MEDICINE AND PUBLIC HEALTH, 14 (1): 25-28, 1983.

19. Gombeski, William, Moore, Thomas, Contant, Charles, Ramirez, Amelie, Farge, E., and Kautz, Judith, "Health Information Sources of the Poorly Informed," HEALTH VALUES, 5 (5): 199-206, 1981.

20. Green, Lawrence, Kreuter, M., Deeds, S., and Partridge, K., HEALTH EDUCATION PLANNING: A DIAGNOSTIC APPROACH, Palo Alto, California: Mayfield Publishing Company, 1980.

21. Hayes, Austin, Personal Communication, Deputy Director of Education and Training, Gillis W. Long HD Center, Carville, Louisiana, 1986.

22. "Health for All - All for Health," WORLD HEALTH, Geneva: World Health Organization, January/February, 16-21, 1988.

23. Heise, David, "The Semantic Differential and Attitude Research," ATTITUDE MEASUREMENT, Gene Summers (ed.), Chicago: Rand McNally and Company, 1970.

24. Innes, James Ross, "What the Patient Thinks," LEPROSY IN INDIA, IV: 67-70, 1932.

25. Jacobson, Robert, "Leprosy," MEDICAL MICROBIOLOGY AND INFECTIOUS DISEASES, INTERNATIONAL TEXTBOOK OF MEDICINE, Philadelphia: W. B. Saunders, 1981.

26. _____. "The Treatment of Leprosy (Hansen's Disease), HOSPITAL FORMULARY, 17 (8): 1076-1091, 1982.

27. Jagadisan, T. N., "Social and Economic Aspects of the Leprosy Problem," LEPROSY IN INDIA, XIX (4): 131-141, 1947.

28. Kasturi, G., "A Study on the Attitudes of Leprosy Patients Towards Their Disease Treatment and Their Status in Society," LEPROSY IN INDIA, 45: 239-242, 1973.

29. Kaufman, Alicia, Mariam, Senkenesh, and Neville, Jane, THE SOCIAL DIMENSION OF LEPROSY, London: S. L. Hunt, Ltd., 1982.

30. Kolbe, Lloyd, "International Policies for School Health Programmes," HYGIE, 6: 7-11, 1987.

31. Kumar, A., Prasad, N., Anbalagan, M., and Durgambal, K., "Community Awareness About Leprosy and Participation in National Leprosy Control Programme," LEPROSY IN INDIA, 55 (4): 701-711, 1983.

32. _____ and Anbalagan, M., "Socio-economic Experiences of Leprosy Patients," LEPROSY IN INDIA, 55 (2): 314-321, 1983.

33. _____, et al.,"Community Leaders Involvement in Leprosy Health Education," INDIAN JOURNAL OF LEPROSY, 56 (4): 901-911, 1984.

34. Kumar, R., Ramanaiah, Jessie, and Sabhesan, S., "Level of Knowledge of Leprosy Patients Towards Their Ailment," LEPROSY IN INDIA, 55 (1): 107-110, 1983.

35. Kushwah, S., Govila, A., Upadhyay, S., and Kushwah, J., "A Study of Social Stigma Among Leprosy Patients Attending Leprosy Clinic in Gwalior," LEPROSY IN INDIA, 53 (2): 221-225, 1981.

36. Lang, Gerhard and Heiss, George, A PRACTICAL GUIDE TO RESEARCH METHODS, New York: University Press of America, 1984.

37. Lau, Richard, Kane, R., Berry, S., Ware, J., and Roy, D., "Channeling Health: A Review of Televised Health Campaigns," HEALTH EDUCATION QUARTERLY, 7 (1): 56-89, 1980.

38. Lindzey, Gardner and Aronson, Elliot (eds.), HANDBOOK OF SOCIAL PSYCHOLOGY, Hillsdale, New Jersey: Lawrence Erlbaum Associates, 1985.

39. Luebke, Judith, "Planning for Health Education in Health Care Settings," THE ETA SIGMA GAMMA: MONOGRAPH SERIES, 2 (2): 27-29, 1984.

40. Matthews, Christine and Jesudasan, Mangalam, "A Leprosy Health Education Project," INTERNATIONAL JOURNAL OF LEPROSY, 46 (4): 414-425, 1978.

41. Moskal, Eugene and Nolen, Ronald, "Social Stratification as a Factor in Attitudes Towards Persons Afflicted with Hansen's Disease," unpublished master's thesis, Louisiana State University, 1968.

42. Mutatkar, R., "Health Education in Leprosy: An Evaluation," LEPROSY IN INDIA, 49 (2): 234-239, 1977.

43. _____. "Social and Economic Aspects of Leprosy," MEETING ON SOCIAL AND ECONOMIC ASPECTS OF LEPROSY, World Health Organization, 1-18, 1981.

44. Nordeen, S. and Bravo, L., "The World Leprosy Situation," WORLD HEALTH STATISTICS QUARTERLY, 39: 122-129 1986.

45. Nunnally, J., POPULAR CONCEPTIONS OF MENTAL HEALTH, New York: Holt, Rineholt and Winston, 1961.

46. Okafor, Chinyelu and Stewart, James, "In Nigeria a Study to Identify the Knowledge and Misconceptions of Primary School Pupils about Tropical Diseases," HYGIE, 6: 17-22, 1987.

47. Osgood, Charles, FOCUS ON MEANING, The Hague: Mouton and Company, 1976.

48. _____, Suci, George, and Tannenbaum, Percy, THE MEASUREMENT OF MEANING, Urbana: University of Illinois, 1957.

49. Owie, Ikponmwosa, "Educating the Foreign Prospective Health Educator," HEALTH EDUCATION, 9 (3):24-25, 1978.

50. Quinley, John and Baker, Timothy, "Lobbying for International Health: The Link Between Good Ideas and Funded Programs: Bread for the World and the Agency for International Development," AMERICAN JOURNAL OF PUBLIC HEALTH, 76 (7): 793-796, 1986.

51. Raj, Vasu, Garg, B., and Lal, Sardari, "Knowledge About Leprosy Among Leprosy Patients," LEPROSY IN INDIA, 53 (2): 226-230, 1981.

52. Ramalingaswami, V., "Health Without Wealth," WORLD HEALTH FORUM, 5 (3): 252-255, 1984.

53. Ramu, G., Dwivedi, M., and Iyer, C., "Social Reaction to Leprosy in a Rural Population in Chingleput District (Tamil Nadu)," LEPROSY IN INDIA, 47 (3): 156-169, 1975.

54. Rolston, Richard and Chesteen, Hilliard, THE IDENTIFICATION OF PSYCHOSOCIAL FACTORS RELATED TO THE REHABILITATION OF LEPROSY PATIENTS, Research Grant No. RD-2316-P, Division of Research and Rehabilitation Service, 1970.

55. Sandhu, H., Naik, G., Chandorkar, R., and Bose, C., "A Study of Knowledge, Attitude and Practice of Leprosy Among Doctors of Bhopal, India," INDIAN JOURNAL OF LEPROSY, 56 (3): 633-640, 1984.

56. Sansarricq, H., "Leprosy in the World Today," LEPROSY REVIEW, 52, suppl. 1: 15-31, 1981.

57. Sen, P. and Jagadisan, T. N., "Mass Education in Leprosy -- Methods and Means," LEPROSY IN INDIA, XXVII (2): 76-82, 1955.

58. _____, et al., "Publicity and Health Education," LEPROSY IN INDIA, XXXII (1): 61-69, 1960.

59. Sloan, T. B. M., "The Role of Propaganda in the Control of Leprosy," LEPROSY IN INDIA, XVIII (1): 15-22, 1946.

60. _____. "A Brief History of Hansen's Disease," THE STAR, 45 (2): 10-12, 1985.

61. Valencia, Luzviminda, "Socio-economic Research in the Philippines with Special References to Leprosy," SOUTHEAST ASIAN JOURNAL OF TROPICAL MEDICINE IN PUBLIC HEALTH, 14 (1): 29-33, 1983.

62. Waters, M., "The Six Diseases of WHO: Leprosy," BRITISH MEDICAL JOURNAL, 283: 1320-1322, 1981.

63. WORLD DEVELOPMENT REPORT: 1987, The World Bank, Oxford University Press: New York, 1987.

64. World Health Organization, WHO EXPERT COMMITTEE ON LEPROSY, Geneva, Technical Report Series, No.607, 1977.

65. _____. GLOBAL STRATEGY FOR HEALTH FOR ALL BY THE YEAR 2000, Geneva: World Health Organization, 1981.

66. Yen, Han-Wen, "Knowledge, Sources and Felt Needs of Family Life and Sex Education of Selected College Freshmen in Taiwan," unpublished dissertation, The University of Tennessee, 1977.

67. Young, Pauline and Schmid, Calvin, SCIENTIFIC SOCIAL SURVEYS AND RESEARCH, Englewood Cliffs: Prentice-Hall, Inc., 1966.

B. SUPPLEMENTARY REFERENCES

Abel-Smith, Brian, "Improving Cost-Effectiveness in Health Care," WORLD HEALTH FORUM, 5 (1): 88-90, 1984.

Akinkugbe, O. O., "The University and Health For All," WORLD HEALTH FORUM, 5: 3-4, 1984.

Alsaffar, Ahmed Abdullah, "A Survey of International Students' Opinions and Attitudes at the University of Tennessee," unpublished dissertation, The University of Tennessee, 1976.

Altbach, Philip, Kelly, David, and Lulat, Y., RESEARCH ON FOREIGN STUDENTS AND INTERNATIONAL STUDY, New York: Praeger Publishers, 1985.

Banks, Robert, "Attitudes and Alcohol-The Use of The Semantic Differential with Different Professional and Drinking Populations in East Tennessee," unpublished dissertation, The University of Tennessee, 1982.

Barber, Elinor, Altbach, Philip, and Myers, Robert (eds), BRIDGES TO KNOWLEDGE: FOREIGN STUDENTS IN COMPARATIVE PERSPECTIVE, Chicago: The University of Chicago Press, 1984.

Benenson, Abram (ed.), CONTROL OF COMMUNICABLE DISEASES IN MAN, 14th ed., Washington, D.C.: American Public Health Association, 1985.

Berreman, Janet, "Childhood Leprosy and Social Response in South India," SOCIAL SCIENCE MEDICINE, 19 (8): 853-865, 1984.

Black, James and Champion, Dean, METHODS AND ISSUES IN SOCIAL RESEARCH, New York: John Wiley and Sons, Inc., 1976.

Bloom, Barry and Godal, Tore, "Selective Primary Health Care: Strategies for Control of Disease in the Developing World. V. Leprosy," REVIEWS OF INFECTIOUS DISEASES, 5 (4): 765-778, 1983.

Bloombaum, Milton and Gugelyk, Ted, "Attitudes Towards Leprosy," SOCIAL PROCESS IN HAWAII, Kalaupapa, Hawaii: Hawaii State Department of Health, 27: 69-75, 1979.

Brody, Saul, THE DISEASE OF THE SOUL, Ithaca: Cornell University Press, 1974.

Brown, Wayne A., "A Survey of Attitudes of Certain Medical and Paramedical Professionals Towards Hansen's Disease and Hansen's Disease Patients," unpublished master's thesis, Louisiana State University, 1969.

Brunet-Jailly, J., "An Economist Looks at Health Strategy," WORLD HEALTH FORUM, 5 (1): 65-66, 1984.

Davey, T., "New Dimensions in Our Understanding of the Transmission of Leprosy and Their Impact on Priorities in Leprosy Control," LEPROSY IN INDIA, 52 (1): 104-113, 1980.

de Mesquite, A., "Health Education in Hansen's Disease," HANSENOLOGIA INTERNATIONALIS, 8 (2): 148-149, 1983.

Feldman, Jacob, THE DISSEMINATION OF HEALTH INFORMATION, Chicago: Aldine Publishing Company, 1966.

Freeman, Howard, Levine, Sol, and Reeder, Leo, HANDBOOK OF MEDICAL SOCIOLOGY, Englewood Cliffs: Prentice-Hall, Inc., 1979.

Frist, Thomas, "Community Factors Influencing the Leprosy Patient and HisTreatment," INTERNATIONAL JOURNAL OF LEPROSY, 47 (2): 400-406, 1979.

_____. "Employer Acceptance of HD," INTERNATIONAL JOURNAL OF LEPROSY, 48 (3): 303-308, 1980.

Gandhi, R., "Some Contrasts in the Foreign Student Life-Styles," INTERNATIONAL JOURNAL OF CONTEMPORARY SOCIOLOGY, 9: 34-43, 1972.

Griffin, Suellyn, "A Before and After Study of Hansen's Disease Patients' Attitudes Towards the Disease," unpublished master's thesis, Louisiana State University, 1979.

Gussow, Zachary and Tracy, George, "The Phenomenon of Leprosy Stigma in the Continental United States," LEPROSY REVIEW, 43: 85-93, 1972.

Haide, Ma and Ganyun, Ye, "Eradication of Leprosy in China ," LEPROSY IN INDIA, 55 (3): 512-520, 1983.

Hertroijs, Adrianus, "A Study of Some Factors Affecting the Attendance of Patients in a Leprosy Control Scheme," INTERNATIONAL JOURNAL OF LEPROSY, 42 (4): 419-427, 1974.

Huikeshoven, Han, "Patient Compliance in Leprosy Control: A Necessity in Old and New Regimes," INTERNATIONAL JOURNAL OF LEPROSY, 53 (3): 474-480, 1985.

Hyman, Martin, "Illness, Disability and Stigma: Some Implications for Medical Practice," GERIATRICS, 1972.

Ignacio, L., et al, "Knowledge and Attitudes of Primary Health Care Personnel Concerning Mental Health Problems in Developing Countries," AMERICAN JOURNAL OF PUBLIC HEALTH, 73 (9): 1081-1084, 1983.

Jopling, W., HANDBOOK OF LEPROSY, 3rd ed., London: William Heinemann Medical Books Ltd., 1984.

Joshua-Raghavar, A., LEPROSY IN MALAYSIA: PAST, PRESENT AND FUTURE, Selangor, West Malaysia: A. Joshua-Raghavar, 1983.

Lechat, M., Vanderveken, M., Declerq, E., and Misson, C., "Analysis of Trends in the Occurrence of Leprosy," WORLD HEALTH STATISTICS QUARTERLY, 39: 129-137, 1986.

Lees-Haley, Paul, THE QUESTIONNAIRE DESIGN HANDBOOK, Huntsville, Alabama: Paul R. Lees-Haley Association, Inc., 1980.

Macrorie, R., "Naaman's Dilemma-Factors Influencing the Compliance of Patients to Prescribed Drugs in Chronic Diseases with Particular Reference to Leprosy," LEPROSY REVIEW, 56: 143-152, 1985.

MAKING HEALTH EDUCATION WORK, Washington, D. C.: American Public Health Association, 1976.

Manchester, Keith, "Tuberculosis and Hansen's Disease in Antiquity: An Interpretation," THE STAR, 46 (5): 9-12, 1987.

Moore, L., Van Arsdale, P., Glittenberg, J., and Aldrich, R., THE BIOCULTURAL BASIS OF HEALTH: EXPANDING VIEWS OF MEDICAL ANTHROPOLOGY, St. Louis: The C. V. Mosby Company, 1980.

Moser, C. and Kalton, G., SURVEY METHODS IN SOCIAL INVESTIGATIONS, New York: Basic Books, Inc., 1972. Educator," HEALTH EDUCATION, 9 (3): 24-25, 1978.

Pan American Organization, "Leprosy in the Americas," EPIDEMIOLOGICAL BULLETIN, 4 (6): 1-6, 1983.

Pearson, Earl, "Leprosy or Hansen's Disease: A Study of Semantic Conflict," HANSENOLOGY, 5 (1-2): 5-13, 1974.

Pelto, Pertti, ANTHROPOLOGICAL RESEARCH, Evanston: Harper and Row, Publisher, 1970.

Piotrowski, Chris, "Use of the Semantic Differential Technique in Research on Disaster: A Methodological Note," PSYCHOLOGICAL REPORTS, 56: 527-530, 1985.

Polgar, S., "Health Actions in Cross-cultural Perspective," HANDBOOK OF MEDICAL SOCIOLOGY, Freeman, H. Levine, S. and Reeder, L. (eds.), Englewood Cliffs, New Jersey: Prentice-Hall, 1963.

Reddy, N., Satpathy, S., Krishnan, S., and Srinivasan, T., "Social Aspects of Leprosy: A Case Study in Zaria, Northern Nigeria," LEPROSY REVIEW, 56: 23-25, 1985.

Ree, G., "Psychosomatics of Leprosy," PAPUA NEW GUINEA MEDICAL JOURNAL, 23 (1): 41-45, 1980.

Richards, N., "Methods and Effectiveness of Health Education: The Past, Present and Future of Social Science Involvement," SOCIAL SCIENCE AND MEDICINE, 9: 141-156, 1975.

Rogers, Everett and Shoemaker, F., COMMUNICATION OF INNOVATIONS: A CROSS-CULTURAL APPROACH, New York: The Free Press, 1971.

Rotberg, A., "The Brazilian Phase III of Prevention of Hanseniasis," HANSENIASIS INTERNATIONAL, 5 (1): 37-43, 1980.

Russell, J. and Mehrabian, A., "Evidence of a Three Factor Theory of Emotions," JOURNAL OF RESEARCH IN PERSONALITY, 11: 273-294, 1977.

Russell, W. H., "Tactics and Strategy in the Anti-Leprosy Campaign," LEPROSY IN INDIA, XVII (4): 106-109, 1945.

Schubert, G. et al., "Historical Reflections," Z. GESAMTE HYG., Berlin, 33 (9): 462-464, September, 1987.

Schuman, Howard and Presser, Stanley, QUESTIONS AND ANSWERS IN ATTITUDE SURVEYS, New York: Academic Press, 1981.

Sehgal, Virendra and Srivastava, Govind, "HD Treatment: Past Experience--Present Strategy," THE STAR, 45 (5): 11-12, 1986.

Selvapandian, A., Richard, J., and Wilson, T., "Attitude of People Towards Leprosy: Urban and Rural Areas - A Comparative Study," REHABILITATION IN ASIA, 16-22, 1972.

Sen, P., "A Plea for the Study of Social Aspects of Leprosy," LEPROSY IN INDIA, XIX (4): 123-128, 1947.

Snider, James and Osgood, Charles (eds.), SEMANTIC DIFFERENTIAL TECHNIQUE: A SOURCE BOOK, Chicago: Aldine Publishing Company, 1969.

Stein, Stanley, ALONE NO LONGER, New York: Funk and Wagnalls, 1974.

Subramanyam, Y. K., et al., "Control, Social Aspects and Rehabilitation in Leprosy," LEPROSY IN INDIA, XXXII (1): 45-60, 1960.

Summers, Gene, ATTITUDE MEASUREMENT, Chicago: Rand McNally and Company, 1970.

Szalay, L. and Deese, J., SUBJECTIVE MEANING AND CULTURE: AN ASSESSMENT THROUGH WORD ASSOCIATIONS, Hillsdale, New Jersey: Lawrence Erlbaum Associates, 1978.

Tare, Savita, "Differential Social Stigma in Leprosy," NLO BULLETIN, 12-21, 1981.

Tarimo, E., "Good Intentions Are Not Enough," WORLD HEALTH FORUM, 5 (4): 319-324, 1984.

Thompson, N., Snider, D., and Farer, L., "Variations in National Health Care Practices and Behaviors and Their Influence on International Research," INTERNATIONAL JOURNAL OF EPIDEMIOLOGY, 14 (3): 457-462, 1985.

Trautman, John, "Epidemiological Aspects of HD," BULLETIN OF THE NEW YORK ACADEMY OF MEDICINE, 60 (7): 722-731, 1984.

Volinn, Ilse, "Health Professionals as Stigmatizers and Destigmatizers of Disease: Alcoholism and Leprosy ," SOCIAL SCIENCE MEDICINE, 17 (7): 385-393, 1983.

Wang, Jian, "Efforts Continued in Anti-leprosy Campaign," BEIJING REVIEW,29 (4): 18-19, 1986.

Williams, Alan, "Economics and Health Care," INTERNATIONAL JOURNAL OF EPIDEMIOLOGY, 9 (4): 296-298, 1980.

Williams, Jan, et al., "Using Printed Materials Effectively in Health Promotion," HEALTH EDUCATION JOURNAL, 46 (4): 165-167, 1987.

APPENDICES

APPENDIX A

INSTRUMENT

KNOWLEDGE, ATTITUDES AND SOURCES OF INFORMATION CONCERNING HD AND OPINIONS

Complete personal data as instructed, including country, sex, year of education, birthdate, religion, marital status, TOEFL score, and test number.

Complete the following information, concerning yourself, in the space below.

Major _____

Minor _____

Provide the following information concerning your parents.

	Mother	Father
Education	_____	_____
Religion	_____	_____
Country	_____	_____

Complete Part I - items 1 through 15

Directions: for each item darken one circle on the answer sheet, A for those you are certain are true, B for those you are certain are false, and C for those for which you are not certain.

1. Leprosy is caused by bacteria.
2. Leprosy is hereditary.
3. Leprosy can be stopped by treatment.
4. One of the early signs of leprosy is a patch on the skin with no feeling in it.
5. The incubation period in leprosy is one month.

6. Prevention of leprosy is impossible.
7. After the initial symptoms have disappeared, treatment should be stopped.
8. Leprosy patients should be isolated from the public.
9. Leprosy is worse to have than any other disease.
10. Persons with leprosy can be as successful as other persons.
11. Leprosy is prevalent in tropical countries.
12. Leprosy seldom occurs outside tropical countries.
13. Leprosy is sometimes spread through close, prolonged contact.
14. Sometimes, leprosy is self-healing, goes away by itself.
15. After several years, deformity is always the result of leprosy.

CONTINUE

Complete Part II - items 16 through 25

Below there are ten pairs of adjectives. Please indicate how you feel about each pair in relation to the <u>disease</u> of leprosy by darkening the appropriate circle on the answer sheet for each numbered pair of adjectives.

Example

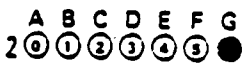
Hard ___ ___ ___ ___ ___ ___ ___ Soft

A B C D E F G

If you feel that the disease of leprosy is very closely related to one or the other adjective, you should place your mark as follows:



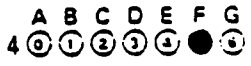
or



If you feel that the disease of leprosy is closely related to one or the other adjective, you should place your mark as follows:



or



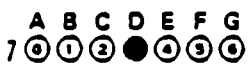
If you feel that the disease of leprosy is only slightly related to one or the other adjective, you should place your mark as follows:



or



If you feel that the disease of leprosy is unrelated to either adjective (it is neutral), you should place your mark as follows:



IMPORTANT: never put more than one mark for each number. Do not spend more than a few seconds marking each pair.

I feel that the disease of leprosy is

16. Bad ___ ___ ___ ___ ___ ___ ___ Good
A B C D E F G

17. Sick ___ ___ ___ ___ ___ ___ ___ Healthy
A B C D E F G

18. Worthless ___ ___ ___ ___ ___ ___ ___ Valuable
A B C D E F G

19. Dangerous ___ ___ ___ ___ ___ ___ ___ Safe
A B C D E F G

20. Dirty ___ ___ ___ ___ ___ ___ ___ Clean
A B C D E F G

21. Passive ___ ___ ___ ___ ___ ___ ___ Active
A B C D E F G

22. Weak ___ ___ ___ ___ ___ ___ ___ Strong
A B C D E F G

23. Slow ___ ___ ___ ___ ___ ___ ___ Fast
A B C D E F G

24. Foolish ___ ___ ___ ___ ___ ___ ___ Wise
A B C D E F G

25. Unpredictable ___ ___ ___ ___ ___ ___ ___ Predictable
A B C D E F G

Complete PART III - items 26 through 40

Directions: mark the circle on the answer sheet below A for those 2 sources which were most important in your acquiring information concerning leprosy, mark the circle on the answer sheet below B for all other sources used, and leave the rest blank.

26. Mother
27. Father
28. Brother
29. Sister
30. Friend
31. Teacher/school
32. Religious teaching
33. Physician
34. Nurse, paramedical personnel
35. Printed material (book, newspaper, magazine, pamphlet)
36. Mass media (movie, TV, radio, billboards, posters)
37. General talk
38. Other (please specify below)

_____

If item 39 or 40 is chosen, mark A , for them.

39. Do not remember
40. Nowhere, I do not know anything about leprosy.

CONTINUE

Complete PART IV - items 41 through 60

Directions: mark A for yes and B for no, for the 3 questions given below that describe how you feel about whether there should be required health education programs that include information on leprosy in...

41. Your country
42. All countries
43. Certain countries, specify _____

Directions: mark the correct circle for the following questions.

44. Please identify the following statement you consider best concerning what should be in a health education program that includes leprosy.

    A. Only brief mention of facts
    B. Only answer direct questions regarding leprosy
    C. Only discuss International importance
    D. Have a detailed discussion of prevention, treatment, stigma, rehabilitation, government/private participation

45. In your country, leprosy is

    A. Common
    B. Unusual
    C. Rare

46. In the world, leprosy is

    A. Common
    B. Unusual
    C. Rare

47-51. Place the following five areas in the order of importance in your country by placing the corresponding letter beside the next five item numbers. (Place the letter of your first choice beside item 47, the letter of your second choice beside item 48, the letter of your third choice beside item 49, the letter of your fourth choice beside item 50, and the letter of your fifth choice beside item 51.)

A. Vocational training
B. Housing
C. Education
D. Medical treatment (drugs)
E. Rehabilitation

52. Which of the five areas below should receive the most emphasis in your country?

A. Vocational training
B. Housing
C. Education
D. Medical treatment (drugs)
E. Rehabilitation

53. Which of the five areas below should receive the most emphasis in the world?

A. Vocational training
B. Housing
C. Education
D. Medical treatment (drugs)
E. Rehabilitation

Rank three of the diseases below, following number 59, in the order of prevalency in your country, then rank them in the order of prevalency in the world.

54. First choice in your country
55. Second choice in your country
56. Third choice in your country
57. First choice in the world
58. Second choice in the world
59. Third choice in the world
    A. Tuberculosis
    B. Heart Disease
    C. Parasitic diseases
    D. Diabetes
    E. Diarrheal diseases in infancy
    F. Stroke
    G. Cancer
    H. Leprosy

60. If you want the results of this study, mark A, and print your name and mailing address below.

_____

_____

_____

_____

APPENDIX B

NUMBER OF RESPONDENTS FROM COUNTRIES OF HIGH, MODERATE, OR RARE HD PREVALENCE

Rare prevalence - below 1 case of HD per 10,000 population

Country	Number of Respondents
Canada	4
Chile	2
China	2
France	6
Germany	5
Greece	1
Honduras	2
Iraq	1
Italy	2
Japan	6
Jordan	2
Kuwait	2
Lebanon	1
Syria	2
Turkey	1
United Arab Emirates	1
United Kingdom (including Ireland)	6

United States (designated as having rare HD prevalence by WHO but it was not included when comparisons were made between countries of differing prevalence.)

Moderate prevalence - 1 to 9 cases of HD per 10,000 population

Country	Number or Respondents
Argentina	1
Bangladesh	1
Egypt	3
Hong Kong	2
Indonesia	3
Iran	4
Korea	2
Malaysia	4
Mauritania	1
Mexico	2
Pakistan	2
Peru	2
Saudi Arabia	3
Spain	2
Tanzania	1
Venezuela	2
Vietnam	1
Yemen	3

High prevalence - above 9 cases of HD per 10,000 population

Country	Number of Respondents
Brazil	7
Burma	1
Gambia	2
Martinique	1
India	7
Liberia	5
Nigeria	8
Singapore	3

APPENDIX C

NUMBER OF RESPONDENTS FROM INDUSTRIALIZED AND NON-INDUSTRIALIZED COUNTRIES

Industrialized Countries	Number of Respondents
Canada	4
France	6
Germany	5
Italy	2
Japan	6
Spain	2
United Kingdom	6
United States (designated as industrialized by The World Bank but it was not included when comparisons were made between industrialized and non-industrialized countries.)	

Non-industrialized Countries	Number of Respondents
Argentina	1
Bangladesh	1
Brazil	7
Burma	1
Chile	2
China	2
Egypt	3
Gambia*	2
Greece	1

Honduras	2
Hong Kong	2
India	7
Indonesia	3
Iran	4
Iraq	1
Jordan	2
Korea	2
Kuwait	2
Lebanon	1
Liberia	5
Malaysia	4
Martinique	1
Mauritania	1
Mexico	2
Nigeria	8
Pakistan	2
Peru	2
Saudi Arabia	3
Singapore	3
Syria	2

Tanzania	1
Turkey	1
United Arab Emirates	1
Venezuela	2
Vietnam	1
Yemen	3

*Not designated by The World Bank, countries nearby, which were non-industrialized, were judged to be similar and their designation was selected.

APPENDIX D

KNOWLEDGE SCORES FROM TRUE-FALSE STATEMENTS OF ALL PARTICIPANTS

KNOWLEDGE SCORES

	Correct Responses	#	%
	0	3	2
	1	2	1
Low	2	9	6
	3	7	4
	4	20	13
	5	24	15
	6	29	19
Medium	7	23	15
	8	17	11
	9	12	8
	10	4	3
	11	4	3
High	12	2	1
	13	0	0
	14	0	0
	15	0	0
		156	101

Note: Percentage does not equal 100% due to rounding.

Mean = 5 .9
Median = 6
Mode = 6

APPENDIX E

ATTITUDE SCORES FROM SEMANTIC DIFFERENTIAL OF ALL PARTICIPANTS

SEMANTIC DIFFERENTIAL SCORES

	Attitude Scores	#	%
	12 and 15	2	1
Negative	16	3	2
	17, 18, and 20	3	2
	21	3	2
_____	22	9	6
	23	4	3
	24	6	4
	25	6	4
	26	6	4
	27	8	5
	28	13	8
Neutral	29	6	4
	30	7	4
	31	9	6
	32	6	4
_____	33	6	4
	34	14	9
	35	11	7
	36	6	4
	37	9	6
Positive	38	5	3
	39	6	4
	40	3	2
	42	3	2
	44 and 45	2	1
		156	101

Mean = 30
Median = 31
Mode = 34

Note: Percentage does not equal 100% due to rounding.

VITA

Edna Lee Aghaie was born on May 25, 1942, in Portland, Oregon. She obtained a B.S. in Health, Physical Education and Recreation, from the University of Oregon, Eugene, Oregon, in 1965. She received her M.S. in Health Education from the same university in 1973.

In 1965, she married an Iranian and had a daughter; two years later she had a son. Until her husband completed graduate school in 1974, she had several different positions of employment. She was a substitute teacher in public schools in Oregon, South Dakota, and Tennessee. In 1973 she was a Health Educator in the Knox County Health Department .

In 1974 she went to Isfahan, Iran, and was an instructor in the Department of Public Health, Isfahan University, until 1980, when she returned to the United States. Her husband was killed in an automobile accident in 1978.

She entered The University of Tennessee, Knoxville, in 1980 and received a MPH degree in 1981. Subsequently, she worked part time at numerous jobs and was a graduate teaching assistant in the Health, Leisure, and Safety Department at The University of Tennessee, Knoxville. She was awarded the Outstanding Senior Participant in the Sport Clubs Organization, participating in the Tae Kwon Do Club. She

received the W.K. McClure Fellowship for study in Jordan during the summer of 1985. In 1987 she was given a Service Award by the Sertoma Learning Center (home for mentally retarded adults). She received her Ph.D. degree, with a major in Health Education, from The University of Tennessee, Knoxville, in 1988.