EVALUATION OF HEALTH EDUCATION OUTCOMES IN SENIOR SECONDARY SCHOOLS OF BORNO STATE

BY

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M.ED/EDUC/58660/2004-2005

A THESIS SUBMITTED TO THE POSTGRADUATE SCHOOL, AHMADU BELLO UNIVERSITY IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF EDUCATION (M.ED) IN HEALTH EDUCATION

DEPARTMENT OF PHYSICAL AND HEALTH EDUCATION, FACULTY OF EDUCATION
AHMADU BELLO UNIVERSITY,
ZARIA - NIGERIA

2006

DECLARATION

I hereby declare that the work presented in this thesis titled "Evaluation of health education outcomes in senior secondary schools of Borno State" is original and has been written by me under the supervision of Professor K. Venkateswarlu and Dr. J. A. Gwani. All informations that are not originally my handwork were adequately acknowledged by referencing. No part of this thesis was previously presented for another degree at any University.

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CERTIFICATION

This thesis entitled "EVALUATION OF HEALTH EDUCATION OUTCOMES IN SECONDARY SCHOOLS OF BORNO STATE", by Usman Garba Dika meets the regulations governing the award of the Degree of Master of Education (M.Ed) in Health Education of Ahmadu Bello University, Zaria, and is approved for its contribution to knowledge and literary presentation.

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DEDICATION

This work is dedicated to my father, Garba Dika, my mother, Amina Sawa, my wife, Zainab Usman (Mrs), and my children whose prayers, patience and thoughts occupied my mind all through.

ACKNOWLEDGEMENT

The researcher wished to thank Almighty God (Allah) for giving him the health, will, time and ability to undertake this research work. The researcher is greatly indebted to his supervisor, Professor K. Venkateswarlu, for initiating the topic, supplying the researcher with relevant literature for ;his review and his relentless supervision of the work, despite his tight schedules. His sincere gratitude goes to Dr. J. A. Gwani, C. E. Dikki, Mrs. C. O. Adegbite, Mamman Musa, A.I. Kabido, and Mallam Umar Musa for their scholarly advice.

The researcher finally wishes to acknowledge the contributions of his Head of Department, Mr. Innocent Ndakudiya, Dean School of Science Kashim Ibrahim College of Education, Maidugari, Mallam Abba and Mallam Ibrahim Kwaya Bura, for their moral support.

The researcher sincerely prays Allah in His infinite Mercy to reward every one in his own way.

ABSTRACT

Health is a basic need of life; therefore health education is necessary if people are to enjoy a worthwhile life style. Since students are the immediate beneficiaries of school health education activities and need to live a productive life in school and after school years, there is need to evaluate health education outcomes to ascertain whether school health education programme achieved its set objectives. The study evaluated health education outcomes in secondary schools of Borno State. To achieve this purpose a total of 1400 subjects were randomly selected from urban and rural secondary schools of Biu and Monguno zone of Borno State. A self developed and validated questionnaire was used to collect the required data. The questionnaire contained 20 statements on health knowledge, 20 on health attitude, and 20 on health practice. Descriptive statistical technique was used in this study. The major findings of this study showed that:

(1) Health knowledge of secondary school students of Borno State was positive while their health attitude and practice were not positive.

(2) Male students had better health knowledge than their female counterparts signifying the effects of gender on health knowledge.

However, their health attitude and practice were not significantly affected by gender.

(3) Students from urban secondary schools had better health knowledge than those from rural secondary schools.

It was inferred from the findings of the study that health knowledge improves health attitude and practice in formal health education program. Adequate health facilities and conducive teaching and learning environment promote health education outcome in secondary schools. However, the acquired health knowledge according to the study was not applied to develop health attitude and practice of the students. It was therefore necessary to make health education functional and compulsory at all levels of schools. Emphasis of health education should not therefore be on examination results or grades but rather on improvement and promotion of health and wellbeing of the students. There is the urgent need to improve school health services in order to create an enabling environment for good health practice and appraisal of health habits and skills. There is also need to improve teaching and learning facilities, most especially in rural areas where such facilities are grossly inadequate. The socio-cultural inhibitions and restriction generally found among girls that make access to

information limited be identified and removed to make teaching and learning gender free.

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CHAPTER ONE

INTRODUCTION

1.1 Introduction

Health is a basic need of life which helps individuals in full utilization of all other facilities that make life better, richer and more meaningful. Since health is perceived in this sense, health education, which prepares individuals to value health as a desirable asset, is necessary if people are to live/enjoy a worthwhile lifestyle. Students are the immediate beneficiaries of the school health education activities and therefore should have that awareness in order to live a productive life in the school and after school years. It is in this context that Ademuwagum Ademuwagum, Ajala, Oke, Moronkola, and Jegede (2002) commented that "Health education can be described as a concept, discipline, and course of study, approach or method by which right health information is made available to people and simultaneously stimulating positive health attitude and practices in them". Turner (1971) on the other hand, viewed health education "as the sum of one's experiences which favorably influences health attitude, health practices and health knowledge". Pp. 10 – 15.

In short, health education is primarily concerned with actions of the individual to value health and to lead a worthwhile life style. This is only

possible in schools when health education objectives are realized. The consensus among health educators is that health knowledge, health attitudes and health practices are health education outcomes in schools (Bucher, 1991; Petty, 2001). Public expectations of such outcomes are always very high. Therefore, evaluating these outcomes would certainly indicate the extent to which they are realized in Nigerian schools. The general belief has been that health education programmes of secondary schools produce limited desirable results, especially in health attitudes and practices.

However, such beliefs are not supported by any objective evidence. It is, therefore, necessary to find out the changes that are brought by health education programmes in the students in terms of the set goals, no matter what they may be. School health education programmes have similar goals all over the world, but policies and implementation processes might differ. And even where similarities exist, the resources supporting them differ, especially in developing nations of the world. In short, desirable health benefits accruing from such programmes vary from place to place.

Nigerian Secondary Schools today do not seem to perform up to expectation even with the acclaimed comprehensive school health education activities (Sanusi & Igbanugo, 2001). Desirable changes are not visible in the students' standard of health attitudes and practices they

maintain. Studies in this field are limited in Nigeria and Borno in particular. There is no evidence to show significant impact of the school health education activities on the health and wellbeing of the students in our secondary schools or to indicate whether it has achieved its set objectives. Therefore, it is the researcher's belief that only when health education outcomes (health knowledge, attitude and practice) of secondary schools in Borno State and Nigeria at large are thoroughly and objectively evaluated, can we be certain of the significant progress made on the impact of the stated outcomes on health and life style of students. It is in this context that evaluation of health education outcomes in Borno State Secondary Schools is necessary.

1.2 **Statement of the Problem**

Health education is diverse in scope. It encompasses all those activities and practices aimed at achieving a physical and social environment conducive to good health, prevention of diseases and minimize negative behaviours through appropriate practices; and also to make students active participants in their care as well as in their operation of the actions of the systems through evaluation. The accomplishment of the set objectives of health education in secondary schools will determine to a large extent desirable health knowledge, attitudes and practices of the

students. However, the planned school health education activities do not seem to produce the perceived desirable health education outcomes (Ajisafe, 1980). The general wellbeing and lifestyle of student, particularly in Borno State, do not seem to reflect positive health outcome (Sanusi and Igbanugo, 2001). Observable health behaviours seem to be generally poor. It is these and similar reasons that prompted the investigator to evaluate health education outcomes in secondary schools in Borno State.

The specific focus of this study was on health knowledge, health attitude and health practices of students in the secondary schools of Borno State. This became necessary because of the fact that little has been reported on health education outcomes, particularly in secondary schools in Nigeria in general and specifically in Borno State. This research work attempts to answer the following research questions.

1.3 **Research Questions**

(i) Are secondary school students in Borno State knowledgeable about health matters?

(ii) Does health knowledge of secondary school students in Borno State influence their attitude towards health?

(iii) Does their attitude towards health influence their health practices?

(iv) Does health knowledge among secondary school students in Borno State influence their health practices?

1.4 Basic Assumptions

On the basis of research evidence and professional opinion, the following assumptions were made for the purpose of this study:

(i) Ideal school education programme promotes and maintains desirable health knowledge, health attitude, and health practices of students.

(ii) Desirable health benefits would only be realized when the school health education objectives are clearly defined and fully accomplished.

(iii) When health education outcomes are fully, objectively and systematically evaluated, it will be possible to ascertain the level of achievement in health promotion and lifestyle of students in secondary schools.

(iv) Health education outcomes, which include health knowledge, attitude and practice, are objectively measurable.

1.5 Purpose of the Study

The specific purposes of this study are:

(i) To assess students' level of factual health knowledge.

(ii) To assess students' level of desirable health attitude.

(iii) To assess students' level of desirable health practice.

(iv) To find out relationship between health knowledge, attitude and practices.

1.6 Question 1

Health knowledge, attitude and practices of secondary school students of Borno State are not positive.

1.7 Hypothesis 1

(i) Health knowledge, attitude and practices of secondary school students of Borno State are not related to each other.

(ii) Health knowledge, attitude and practices of secondary school students of Borno State are not affected by their class level, gender and geographical location.

1.8 Significance of the Study

(i) Most secondary schools of Borno State offer comprehensive health education programme with well-defined objectives. It is not clear whether the secondary school students of Borno State really benefit

from this programme. In other words, it is not well established whether the objectives of the programme, which include knowledge, attitude and practice, are achieved. As this study was concerned with the evaluation of the outcomes of health education of secondary schools in Borno State, it will show whether the students have expected health knowledge, attitude and practices.

(ii) The primary outcomes of the secondary school health education programme have been shown to be health knowledge, attitude and practices. It is not clear whether each of these outcomes has any influence on the other outcomes. The results of the study will show whether these outcomes are related to each other.

(iii) A number of demographic variables seem to affect the extent of benefits that the students of secondary schools can derive from their health education programmes. It is not well understood whether such beliefs that the students derive from health education programme depend on their grade, gender and geographical location they come from. The results of this study will show whether the magnitude of benefits that the students derive varies with their demographic variables.

(iv) The study may bring to light issues concerning health education programme of secondary schools as they affect knowledge, attitude and practices of the students. These issues may be investigated in future.

1.9 **Delimitations of the Study**

The concern of this study was the evaluation of health education outcomes in secondary schools of Borno State. Therefore this study was delimited to the following:

(i) The health education outcomes included health knowledge, attitude and practices.

(ii) Two third of the senior secondary schools of the two education zones of Borno State were used for the sample. This is exactly 17 out of 26 senior secondary schools in Biu and Monguno education zones of Borno State.

(iii) This study was delimited to senior secondary schools because of the assumption that students are exposed to health education at the junior level. By the time they enter senior secondary school, they must

have benefited from health education programme they underwent at the junior secondary school level. It is, therefore, appropriate to evaluate health education outcomes at senior secondary school level.

1.10 **Limitations of the Study**

This study had the following limitations, which would be considered while interpreting the results:

1. The responses of the statement in the questionnaire could not be verified, but care was taken to ensure that the respondents understood every statement in its purported sense.

2. It was not possible to include all health education outcomes in the study especially health skills because of time constraints.

3. Borno State has co-educational schools, purely girls schools and purely boys schools. In comparing responses of boys and girls, it was not possible to separate girls of girls schools from girls of co-educational schools.

1.11 O**operational Definition of Terms**

Technical terms used in this study are defined below in their operational sense:

(i) **Health**: State of wellness of students.

(ii) **School Health Education**: Health education activities carried out in a school setting for promoting and maintaining health of students.

(iii) **Health Knowledge**: The realization of health information, particularly those passed in schools.

(iv) **Health Practices**: These are practices that constitute healthful living.

(v) **Health Attitude**: Feelings of students about good health.

(vi) **Health Education Outcomes**: In this research work they refer to health knowledge, attitude, and practices of secondary school students.

(vii) **Evaluation:** Determining the level to which health education outcomes are accomplished in secondary schools.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.0 Introduction

This research was specifically aimed at evaluating health education outcomes in secondary schools of the four education zones of Borno State. This is indispensable because it is the determining factor as to whether health education objectives in secondary schools are achieved or not, and also the extent to which it influences students' health knowledge, attitude and practice. Several opinions were cited as to what constitute health education outcomes in school and the influence of such outcomes on the students' health and well-being. This chapter focuses on the review of related literature in the following areas:

The Basic Concepts of Health and Health Education.

School Health Education Programme and Objectives.

Health Knowledge and Health Attitude.

Health Knowledge and Health Practices.

Health Attitude and Health Practices.

Health Education Outcomes.

Health Education Evaluation.

Health Education Curriculum of Junior Secondary Schools.

Summary.

2.1 The Basic Concepts of Health and Health Education

The state of health of an individual is very significant to the health of the community and the nation, since one cannot live without the other. It is this state of health that determines the wellbeing of individuals which communities and nations are struggling to maintain and promote because of its implication to national economy and productivity. Health, according to World Health Organization (WHO, 1958) "is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (Pp. 28 – 30). To maintain this state of health means committing oneself to conditions favorable to human existence. However, this condition will only be maintained and promoted when there is awareness and also when people are committed to desirable health practices and attitude towards health. This is only possible with proper health education. Such health education when given at early years of life, especially in

secondary schools, will produce better result. Most schools across the world, according to World Health Organization (WHO, 1996), cited in (Albert et al; 2001), are involved in some form of health education, but teaching and learning efforts have to date largely been confined to the formal curriculum rather ;than examining wider influence on students which shape and improve their health status. To maintain that status, quo, health education needs to embrace knowledge, beliefs and behaviours related to the restoration, maintenance and promotion of health of the school.

Ademuwagun (1974) opined that health education is a process of disseminating scientific knowledge of promoting positive health attitude and motivating desirable health practices. Turner (1971), Bucher (1979), and Fejiwonyomi (1993) hold similar view that health education is an instrument of value transmission and behaviour modification that could lead to students' understanding, acceptance and adjustment to healthful living standard.

From the foregoing, health education is actually a process that could be used in realizing the state of health one cherishes. Lucas and Gilles (1990) cited in Moronkola (1999) agreed that health education encourages

people to value health as a worthwhile asset and to make people know how they can take actions to promote their health as individuals and that of their communities. The school plays a very important role in the health education and health promotion at the crucial stage of adolescence, covering development of personal character, skills, attitudes and physical health, in addition to imparting health related knowledge (Sworth, 1997; in Albert et al; 2001).

Schools, which provide an important environment of enjoyment and peace, are more likely to produce students with enhanced health education outcomes. In Borno State, like in most states in Nigeria, health education is currently being taught as an integrated subject rather than distinctly on its own, especially in senior secondary schools. And it is usually taught by conventional method. It was also observed that the education system in Borno State, like in many neighboring states, puts greater emphasis on examination results. Therefore, students' health is not accorded a very high priority in the school (Sanusi and Igbanugo, 2001).

Schools generally exist for several reasons and among the reasons are those opined by Jenne and Green (1976) cited in Ademuwagun et al (2002), which are to,

(i) transmit culture to the young through organized learning experiences.

(ii) serve as agents of cultural change by changing the content of instruction in line with changing knowledge of social needs and values.

(iii) serve as surrogate homes with teachers as parents.

From the above reasons, one could say that school health education assists students in entering the health care system for care that is related to health promotion as well as for the diagnosis and treatment of health problems. It is also to teach the values of positive health and the known means of promoting it and to develop skills in the choice and use of health products and services.

Ademuwagun (1986) cited in Ademuwagun et al (2002) affirms that the learning experiences and opportunities are provided in schools through health instruction, school health services, healthful school environment and organized cooperation and coordination of home, school and community activities related to school health. In essence, this constitutes the main phases of a school health education programme that contain those elements responsible for producing desirable health education outcomes.

2.2 **School Health Education Programme**

If we accept the definition of health adopted by the World Health Organization (WHO) "as a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity" (Pp. 17 – 19) and that this state of wellbeing is cherished by individuals and communities, then it is apparent that the major function of health education programme in schools is to help conserve that wellbeing of students and staff. Turner (1971) and Udoh et al (1987) cited in Ademuwagun et al (2002) saw school health education programme as "all health activities which are planned, organized and carried out under the auspices of the school" (Pp 9 – 12). It seeks to maintain and improve not only the health of students but also staff through health instruction, health services, and healthful school living as well as through school-community cooperation. This gives rise to the four distinct but interrelated components of the health education programme:

School Health Education/Instruction

Healthful School Living Environment

School Health Services

School-Community Cooperation

Comprehensive school health education programme represents one effective way of providing students with the knowledge and skills to prevent health impairing behaviour (Summerfield, 1995). The varied health experiences accruing from the health education activities of the school can produce desirable health education outcomes if properly coordinated and presented to the students. The school health education programme should be based upon local needs – the health behaviours and problems within the school population, and national data suggesting the health status of students. Experts have identified the following 10 content areas necessary for comprehensive school health education programme, (Summerfield, 1995).

(i) Community health

(ii) Consumer health

(iii) Environmental health

(iv) Personal health and fitness

(v) Family life education

(vi) Nutrition and healthy eating

(vii) Disease prevention and control

(viii) Safety and injury prevention

(ix) Prevention of substance use and abuse

(x) Growth and development

The various components of the school health programme should be able to incorporate all the identified content areas for a desirable health education outcome. The role of the stated components of the school health education programme in producing positive health education outcomes that can influence positive health and wellbeing of students is discussed under each component.

2.2.1 **Health Education/Instruction**

Health instruction, according to Turner (1997), is the aspect of school health education programme which is concerned with the processes of planning and organizing learning experience for the learner under the guidance, supervision or direction of the teacher or accredited health personnel. The purpose of health instruction, according to Ademuwagun (1974), is to bring about the learners' positive health knowledge, attitude and practices among student population. Health instruction is also seen as a

process of providing students with relevant scientific health information as well as method of applying acquired information. However, it is observed that health practice is most meaningful when it is based on sound health knowledge. When such health instruction are well provided expected, students are then expected to shift the content presented to them and be able to come out with appropriate answers when tested, (Ajisafe, 1980) .

The assumption here is that the more a student knows, the more likely he will be able to develop positive attitude and behaviour. To a certain extent, this will happen but this will not be generally so with most of the students. To support this claim, the Louis Harris survey of over 4,700 students, who were attending 199 public schools, found that health knowledge attitude and behaviour improved with increased years of health instruction (Summerfield, 1995). Also the school health curriculum evaluation conducted by Connell, (1985) reported in Summerfield (1995), looked at four different health curricula for 30,000 students in America and found that:

(i) Students receiving health instruction had higher knowledge scores than students with no health instruction, with the greatest difference seen in the knowledge of substance use and abuse.

(ii) Knowledge, attitudes and skills improved even with minimal instruction, but gains were most apparent when students received at least 50 hours of health instruction per school year and more hours were needed to improve attitude than to enhance health knowledge and practice.

Through formal and informal health instruction, knowledge, attitude and habits are gained and desirable health outcome is accomplished. However, accurate health knowledge, according to Patty (2001), does not guarantee correct conduct but gives meaning to emotional attitudes and fixed habits; it also strengthens them. She concludes that human organism does not always operate in a familiar environ and therefore must depend upon knowledge for protection of health when moving into new environment in the varied areas of modern world community.

One can conclude from these views that health instruction is very instrumental to the quality of health education outcome in secondary schools. If health instruction is poorly presented, the perceived positive

health knowledge, health attitude and behaviour or practices will not be fully achieved and consequently health education objective will not be fully achieved. Health instruction provides the bulk of knowledge; attitude and practices while other aspects of the programme are for the utilization of the knowledge gained through it. The learning experiences of students gained from the various components account for the desired health education outcome, (Patty, 2001).

Health education programme in Borno State can be said to be fairly adequate. However, students are faced with problems that affect their health, especially those which occur as a result of inadequate health instruction. Such instructional inadequacies can have negative influence on the total health education outcome. Tanimu (1989), cited in Musa (2002), affirmed that Nigerian teenagers are faced with various problems that affect their health negatively, some of which occur as a reflection of inadequate health instruction in schools.

Cornacchia, Station,. and Irwin, (1974) opined that the goal of health education is positive health practice and not mere health information or knowledge. Until the anticipated action has taken place, there is no health-education.

2.2.2 **School Health Services**

School health services comprise all procedures designed to determine the status of the students and to promote its maintenance. It has to do with all health services offered by school personnel and other accredited professionals by the school for the purpose of promoting, maintaining and prote3cting student's health and wellbeing. Turner (1971) stated that school health services include appraisal, counseling, follow up services, prevention and control of diseases, provision of emergency services and facilities for carrying out those functions. School health services create an enabling environment for good health practices and appraisal of health habits and skills. Observation of students' health attitudes and health practices and skills by teachers and accredited health professionals will aid the process of evaluation of health education outcome in schools.

The effects of such services on students' health knowledge, attitude and practice can not be quantified as it is a common saying that if I hear, I think, if I see, I understand, and if I did, I know (Musa, 2002). However, many schools are now beginning to realize that the health services and facilities they provide to improve health knowledge, health attitude and practice of the students will not be fully effective unless they make use of

these services and undertake various practical measures to improve their health and wellbeing.

2.2.3 **Healthful School Living Environment**

The nature of the environment in which students live and function determines not in a small measure their level of health experiences. An enabling environment is said to promote desirable health outcomes. This shows that all aspects of the school environment, whether physical or psychological, have direct bearing on health and wellbeing of the beneficiaries. This is supported by Ademuwagun et al (2002) who said that healthful school environment is a phrase that encompasses all the various physical, emotional and social aspects of the school and the measures provided at the school to ensure the health and safety. Of the students, and that it focuses attention on:

(i) The emotional climate of the school.

(ii) The health aspects of the administrative policies and practice.

(iii) The maintenance of buildings and grounds.

(iv) Environment and health.

Udoh, (1987) added that healthful school environment includes water supply, waste disposal, toilet and lavatory facilities, heat and ventilation, acoustics, lighting, safety features in construction, food services, and emotional climate of school, accident prevention, health aspects of administration policies and similar aspects. All these are meant to maintain and promote health in the school. Students' behaviour, attitude and practice towards these aspects should be a positive one. To ascertain students' health experiences in relation to healthful living environment relevant test instruments are used to assess their knowledge, attitude and behaviour towards these aspects.

Rodle and Williams (1959) said the emotional wellbeing of students can be expressed to a large extent in terms of their relationship

with staff and their fellow students. To him no true health practice of hygiene, safety and interrelationship can be achieved without turning the spotlight on the emotional and social part played by teachers in the development of health practices of their students.

2.3 Health Knowledge And Health Attitude

For one to assess the effect of knowledge on behaviour, two major interrelated variables have to be looked at. These are attitude and value. It

is apparent that at times well-informed persons reject utilization of knowledge acquired because it does not conform to attitude desired or admired. This is to say that values often affect thoughts of persons which elicit behaviour. Therefore, if the knowledge students hold is consistent with their attitude and value, they will feel at ease, but where they contradict each other then there is need for reinterpretation so that the contradiction is removed, patty (2001).

Musa (2002) reported that people continually attempt to accomplish balance and congruity in their knowledge, attitude and practice. But inconsistency and irrationality are often apparent in health behaviour and that the hierarchy of value or attitude helps us to understand the apparent inconsistencies in the health informed. Therefore health knowledge acquired at formative years helps in the formation of value system, which in turn would reflect in attitude that would be in a manner that is consistent with knowledge about the object with which they relate. Achieving balance and congruity within students' thought, beliefs and behaviour in a meaningful and sensible way is most desirable.

Patty (2001) also opined that accurate knowledge does not guarantee correct conduct in any phase of living and that if a person knows the right

thing to do, he may do it, while he may do the proper thing only by chance unless he knows the right course to follow. Can we not say then that it is desirable for schools to make every effort possible to ensure that students possess the essential healthy knowledge and health attitude?

Attitude according to Patty (2001) consists of emotional factors that are concerned with the following:

(i) Respect for human organism.

(ii) A feeling of responsibility for associates from communicable disease which one may have.

(iii) A desire for abundant health

(iv) A dislike for unsanitary or unhygienic condition.

(v) Confidence of current health practices.

(vi) Enjoyment of current health practices.

(vii) A wholesome fear of communicable disease and other similar attitudes toward major factors influencing health.

(viii) Preference for certain foods.

(ix) A liking for specific physical activities contributing to maintaining health.

(x) Enjoyment of desirable friendship, etc.

He concluded that no test of health attitude could be developed in which health knowledge would not be a factor influencing reactions. Likewise, it seems unjustifiable to conclude that health attitude plays no part in students' answers to questions on health knowledge.

To be precise, knowledge of the basic components of the school health programs offered through health instruction and other health related activities ac counts for the desirable health attitude and practices and also the objectives of the health education programme. These form the bases for evaluation of health education outcomes in schools. Students' understanding and attitudes towards the entire health activities of the school can be objectively evaluated. The contribution of knowledge to students' attitude towards health is clearly explained by authorities in health and their interrelationship can be explained in terms of health education objectives.

2.4 Health Knowledge And Health Practices

School health education, mentioned earlier, provides students with learning opportunities in the area of health promotion; teach the value of positive health and known means of promoting it as well as developing skills in the choice and use of health products and services, (Ademuwagun, 1986; cited in Ademuwagun, 2002). They also maintain that all those things mentioned are provided through health instructional aspect of health education programme of the schools and that it is purposely for promoting positive health knowledge, attitude and practice.

Students are then expected to shift the content presented to them and be able to come out with desirable health education outcome. The assumption is that the more a person knows the more likely he will be able to develop positive attitude and behaviour; which to a certain extent may happen but not generally so with most students. It has been proven by authorities in health education that knowledge comes from information or message acquired and intelligent decision on the message is a function of our stamped knowledge gained. That is to say any action we take on health matters what affect us is a function of the acquired knowledge and what we decide about it, and ultimately what we do about it in the realm of application of knowledge.

It has also been proven beyond reasonable doubt that knowledge does not automatically lead to action. Similarly, health knowledge does not automatically lead to health practice because of various complex factors in the individual's social setting. Health practice, after health information and knowledge is a function of human equation, personal determination "to be or not to be". This is the genesis of the study of knowledge, attitude and practice in situational analysis and need assessment in health education (WHO, 1969). Cornacchia et al (1974) opined that the goal of health education is positive health practice and not mere health information or knowledge. Until the anticipated action has taken place there is no health education.

2.5 Health Attitude And Health Practice

The actions of an individual are governed to a large extent by his attitudes. An attitude, ac cording to Krech et al (1962), can be defined "as an enduring system of three components centering about a single object" (Pp. 30 -36), the belief about the object, the cognitive components; the effect connected with the object, - the feeling components; and the disposition to take action with respect to the object-the action tendency components" (Pp.40). Thus cognitive component of an attitude may

include an exhaustive set of beliefs about the object, the feeling component may be a relatively simple and undifferentiated love for the object, and the action tendency component may be multiple in that the individual is prepared to take many and varied sorts of protective acts towards the object (Krech et al; 1962).

The attitude an individual brings to any health situation determines to a very large extent on “what he will do or fail to do”, “to accept or reject”. Hence, in cases where appropriate health information does not lead to the desired behaviour, the need arises to prove the whole process of health education particularly the quality of information imparted, what health consumers really know, their attitude and behaviour towards what they already know and the influence of their total environmental setting on the action they take or their inactions (Ademuwagun et al; 2002). Patty (2001) is of the view that right attitude towards health values and procedures influences the student to apply his knowledge, and correct health habits actuate the student to react properly to stimuli in a familiar way. He maintained that positive health attitude would lead to desirable health practice, while reverse is the case when there is negative health attitude. This simply means the way students feel and behave towards health often affect their health practices either negatively or positively. Therefore it is

desirable to ascertain students' attitude towards health and to determine their nature of health practices as obtained in school health education programme and also stipulated in health education objectives of schools.

Attitude, motives, drives or impulses, if properly established, according to Bucher (1979), will result in the person's seeking scientific knowledge and utilizing it as a guide to living. Students, according to Bucher (1979), should have the right attitude towards health knowledge, healthful living and health services. If such interests exist within students, proper health practices will follow.

2.6 Methods And Problems In The Measurement Of Attitude

To use the concepts of attitude in understanding and predicting action, we need reliable and valid measures. The measurement of attitude, like the measure of all psychological determinants, is necessarily indirect. Krech, Crutchfield, and Ballachey, (1962) said that attitude can be measured only on the basis of inferences drawn from the responses of the individual toward the object – his overt actions and his verbal statements of beliefs, feelings, and dispositions to act with respect to the object. They maintained that of all the methods for the measurement of attitudes, by far the most widely used and the most carefully designed and tested is the

attitude scale. An attitude scale to them consists of a set of statements or items to which the person responds. The pattern of his responses provides a way of inferring something about his attitude. Scales defer markedly in type and in method of construction, but in every case their objective is identical, to assign an individual a numerical position on a continuum, a position which indicates, for example, the valence of his attitude towards a particular object.

Two major types of items have been used in constructing attitude scales. The most widely used is an evaluating statement about the object which tapes the cognitive and feeling components. Examples of such scales are those reported by Krech, Crutchfield, and Ballachey, (1962) which included Thurstone scale used to study attitudes towards natives in South Africa by Marcrone, (1937) and Murphy and Likert internationalism scale used in (1938). Summated-rating scale, according to Krech, Crutchfield, and Ballachey, (1962), is a method of constructing attitude scales developed by Likert where subjects are asked to indicate on a five step scale the degree of their agreement or disagreement with each of a large and representative set of items. The items are then subjected to item analysis and the most discriminating items are retained for inclusion in the final scale. However, many of the attitudes held by people lack validity,

according to Krech, et al; (1962), because they are not sufficiently well informed. Even if the few facts that a person possesses are substantially correct, a lack of knowledge of related facts can distort the significance of his correct facts.

2.7 **Health Education Outcomes**

The long term overall outcome to be expected from the school health education programme is improving health. This, according to Bucher (1979), refers to all aspects of health, including physical, mental, emotional and social aspects. The school has the responsibility to do everything within its power to see that all students achieve and maintain optimum health.

Health education is not merely to inform, but to promote a quality change in the school and community. Therefore, the primary goal of school health education is to provide the learning experiences relevant to needs and interests of students that will lead to acquisition of factual health knowledge, sound attitudes and responsible behaviour (Summerfield, 1995). Health education programme in schools should be able to produce students who can intelligently assume their share of responsibility for their own health and that of family and community. Bucher (1979) and Patty

(2001) confirmed that the common mentioned educational outcomes to be expected from school health education are health knowledge, desirable health attitude, health practice and skills. It is desirable for schools to make every effort to ensure that each student possesses the essential knowledge concerning health, desirable health attitude and good health practices. The school health education programme contains most essential elements that can promote and maintain these outcomes and the means of influencing students' understanding and benefits.

2.8 **Evaluating Health Education Outcomes**

While we appreciate the fact that health education outcomes in schools are health knowledge, health attitude and health practice, students' level of disposition of such outcomes would certainly be the target of evaluation. The various elements of the different phases of health education programme, which account for the varied health experiences of students, have to be objectively evaluated with a view to finding out how much they have positively influenced their health and wellbeing. This is the basis for evaluating health education outcomes in Borno State secondary schools.

In evaluating attitude, one has to note that student's attitudes are essentially emotional. Probably, there is a considerable proportion of the intellectual intermingled with emotional phenomena in many attitudes. The importance of health attitude as outcome of the education programmes is recognized as especially important to students. It is natural and proper therefore that an effort be made to evaluate these outcomes. Patty (2001) reported that it seems probably that no test of health attitude could be developed in which health knowledge would not be a factor influencing reactions. Likewise, it seems unjustified to conclude that health attitude plays no part in student's answers to health knowledge questions, especially "true – false" and "best – answer" types. He concluded that probably the soundest conclusion is that no test can be devised which tests one kind of health education outcome solely. It seems also that "complete re-call" questions test health knowledge almost exclusively; the "true – false" "best – answer" and "matching" questions obtained answers are influenced by attitude as well as knowledge. Patty (2001) further suggested that observation of the health habits of students by the teacher or ac credited health personnel promises best results in habit evaluation.

According to Lawrence (1980), outcome evaluation is the assessment of health knowledge, health practices of behaviour that have been

hypothesized to show up over a long time and that such evaluation pertains to the mastery of factual health related information and the development of skills, the application of which is associated with health enhancing behaviour and practice.

2.9 Health Education Curriculum Of Junior Secondary Schools

2.9.1 Introduction

Udo et al (1987) asserted that health curriculum is a vital process in health education. It involves organizing the health curriculum into courses of instruction, unit of instruction as well as daily lessons. He maintained that the present model of curriculum organization in Nigerian schools include the vertical and horizontal organization. The vertical organization, according to Udoh, refers to the arrangement of the curriculum from elementary to secondary, so that what is learned at one class level builds up on the learning at a previous level. For example, what is learned at a lower elementary level forms a basis for what is to be learned in the upper elementary level and subsequently in the junior and senior secondary levels. The horizontal organization, according Udoh (1987), refers to the

arrangement of what is learning at a class level which is interrelated. For example, it deals with interrelationship with what is learned in a health course and other subject matters such as physical education, biology, home economics, social studies, and sciences.

The national policy on education (2004) stressed the need to direct the quality of instruction at all levels of secondary schools towards the promotion of the physical and psychological health of the students. The focus was on maintenance of health through proper physical health and also the understanding of the relationship between physical health and optimum functioning of the organs and systems, promotion of health and safe environment, prevention and control of communicable diseases, sex education, emotional and social health and consumer health education. Basically health education curriculum, according to the National Health Policy (1981), is designed to achieve the cognitive, affective and psychomotor domains of learning. Adequate consideration was given to each of the following areas suggested by the National Policy on Education:-

- Usefulness of particular topic/activities in contributing to the attainment of conceptual process, skill and affective objectives.

- Relevance to significant human activities, problems and issues, frequently and critically used.

- Reliability, validity and up-to-datedness.

- Adaptability in terms of student's capabilities and background.

- Usefulness in explaining variety of phenomena and developing a sense of structure of health education.

- Usefulness in developing competence in clarifying value, attitudes and value – laden issues and problems.

The arrangement and order of presentation was under topics like: behavioural objectives and psychomotor achievement. However, such arrangement and order was designed to provide the basic knowledge, attitude and practice in health matters, which this study has attempted to evaluate at the senior secondary level.

The content of Junior Secondary School health education curriculum contains the following in the National Curriculum for Junior Secondary Schools Volume 10 (Federal Ministry of Education, 1985).

- Growth and development

- Safety education and first aid
- Physical health
- Prevention of communicable and non communicable diseases
- Environmental health
- Family life education
- Emotional and social health
- Chemicals which alter behaviour
- Consumer health
- Food and nutrition.

The health instructional programme of the school, according to Ademuwagun (1974), is mainly to bring about student's positive health knowledge, attitudes, skills and practices so that they can improve and promote their own health and well being during and after school years.

2.9.2 **Growth And Development**

The focus here is the growth and development of man. Emphasis is placed on the structures and functions of various organs and body systems.

Students as they grow and develop need to have good understanding of the complexities of the various parts of their bodies and also how each part functions. Two major factors which affect growth are recognized here: heredity and environment. It also recognizes aspects such as posture, postural defects and physical disabilities (National Curriculum for Junior Secondary Schools, 1985).

2.9.3 **Safety Education And First Aid**

The main consideration here is the basic principles of safety and the skills for coping with accidents. It recognizes views about factors in accident causation which can be traced to two major sources, namely, human behaviour and environment. It also recognizes that accidents are caused and therefore can be prevented or minimized. The agencies responsible for disaster control are also considered (National Curriculum for Junior Secondary Schools, 1985).

2.9.4 **Food And Nutritions**

The National Curriculum for Junior Secondary Schools (1985) emphasizes that food nutrients, sources of food as well as classification and balanced diet are topics considered vital to the student who should have an increased understanding of his nutritional needs. Beverages, nutritional processes and problems, factors affecting nutrition, food preservation and storage are considered essential because they broaden student's knowledge; assist him in developing positive attitude and practices toward food and nutrition.

2.9.5 **Physical Health**

The focus of National Curriculum for Junior Secondary Schools (1985) on physical health was basically on the maintenance of health through proper functioning of physical health such as physiological, body balance, physical fitness and corrective methods of vision and auditory defects. The importance and necessity of keeping the physical body in good health through understanding of the relation ship between physical health and optimum functioning of the organs and systems of the body has been emphasized.

2.9.6 **Prevention, Control of Communicable and Non Communicable Diseases**

The focus of National Curriculum of Junior Secondary Schools on communicable and non communicable disease is on the conditions under which diseases occur and general measures of prevention and control. The recognition of the concept of the conditions under which diseases occur should create a guideline for preventive measures. It also deals with type and characteristics of pathogens and parasites that cause communicable diseases and creating awareness of the existence of other carriers of diseases which should motivate students to form desirable health habits and health practice.

2.9.7 **Community And Environmental Health**

This unit considered the health role of the family in the community and relationships among schools, society and home with regard to the health of the students. The National Curriculum of Junior Secondary Schools (1985) emphasizes on the various types of health services available for utilization by family and community members, specific health service system, namely orthodox, traditional and alternative systems such as prayer-healing. Awareness should be created on these areas so that

students can develop good attitude toward environmental health and be able to actualize in practice most of the things learnt.

2.9.8 **Family Life And Sex Education**

This unit is included in the National Curriculum of Junior Secondary Schools in order to teach the students to recognize the relationship between sex education and healthy family living. Deliberate effort, according to the National Curriculum for Junior Secondary School (1985), is made to select and include relevant topics in sex education which will enable the students understand the various roles of individuals, home, school, religious organizations and the society at large in the promotion of healthy sexual family living – boy to girl relationship, courtship, choice of partner, marriage types, need for marriage, parental role and factors affecting health and happy family.

2.9.9 **Emotional And Social Health**

The focus of this aspect of the health education curriculum of Junior Secondary Schools (1985) was aimed at exposing students to the importance of emotional and social health and to help the students to deduce the characteristics of a mentally healthy person and to know the stages of personality development as they relate to the different stages of

development and also childhood problems, behavioural problems and social problems.

2.9.10 **Consumer Health**

Ajisafe (1980) opined that in recent years the growth in science and technology has introduced various types of consumer goods into the Nigerian society, and because of the increase in production and competition among the producers, many advertising devices and tactics have been employed by the producers to mislead consumers in order to increase their sales at the expense of consumer's health. The national Curriculum of Junior Secondary Schools Health education therefore included in the curriculum consumer health education in order to educate students on what consumer health is all about, and to become acquainted with the various factors that influence choice of consumer health products and services, and how to deal with different types of nostrums in curriculum in Nigeria.

2.9.11 **Chemicals Which Alter Behaviour**

The purpose of this, unit, according to the National Curriculum of Junior Secondary School (1985), is to educate the students about the various forms of chemicals which alter behaviour so as to increase their awareness about the various types and effects of the chemical on the

individual. Emphasis was on the reasons why people indulge in the habits of smoking, drug abuse and alcohol drinking and the various methods of preventing and rehabilitating addicts of the various substances so that students can take precautions.

2.10 Summary

Authorities in health have accepted health as a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity; and that this state of wellbeing is cherished by individuals and groups. The consensus of health educators is that school health education is for the maintenance and promotion of the cherished health and wellbeing. This gives rise to the long-term objectives of the programme as "to improve health of the beneficiaries", with reference to physical, mental, emotional and social aspects. The programme should see that all students achieve and maintain optimum health. This, according to literature, is not possible unless the programme of activities contain essential elements for the achievement of the objectives. That is why the entire programme is divided into four phases:- school health instruction, healthful school living environment school health services, and community cooperation.

The instructional aspects contain essential topics that provide the needed health information and take good care of the cognitive, affective and the psychomotor domains. The other three areas provide means and conditions for practicing positive health.

Health education outcome is viewed by health educators as the result of efforts put into the entire health education program for the beneficiaries. This is said to include health knowledge, desirable health attitude and correct health practices. Experts have identified ten content areas of the school health education programme that should be used at various levels of the phases of the programme for effective health education outcome. It has been confirmed that health knowledge acquired at the formative years is very significant in the formation of the value system, which in turn reflects the attitude and behaviour of the child. However, accurate knowledge does not guarantee correct conduct in the phase for living but intelligent decisions on message is a function of a stamped knowledge gained. To sum up, the consensus of the experts is that achieving a balance between student knowledge, attitude and practices is most desirable in health matters. This is the basis of evaluating health education outcomes. Evaluating health education outcomes is the assessment of health knowledge, health attitude and health practice that have been hypothesized

to show up over a reasonable period of time, which pertain to the objectives of the programme.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

The purpose of this research was mainly to evaluate health education outcomes in secondary schools in Borno State. To achieve this purpose, the research design, the population of the study, the sampling technique, the instrument for the collection of relevant data and statistical techniques used in this study are described in this chapter.

3.2 Research Design

This study was on the evaluation of health education outcomes in secondary schools. Since it was an evaluative study, ex post facto research design was employed. The employment of this research design was because events that were observed had already taken place, that is, treatment in the form of teaching had already taken place and therefore not under the control of the researcher. Such design will lead to evaluation of behaviour and attitude and also explore conditions for their occurrence (Asika, 2001).

3.3 **Population**

The population for this study consisted of all senior secondary school students in Borno State. This consisted of all male and female students of both urban and rural backgrounds.

As at 2001/2002 session there were 39,419 students from 60 Senior Secondary Schools in Borno State. Out of this number 14595 Students from 26 schools are from Biu and Monguno education zone (Borno State Teaching Service Board Report Maiduguri 2002). The break down is shown below:

TABLE 3.1: Student Population in Senior Secondary Schools of Biu and Mongmo Education Zones of Borno State

Zone	Senior Secondary Schools	Student Population
Biu	15	10,939
Monguno	11	3,656
Total	**26**	**14,595**

3.4 Sample And Sampling Technique

For the purpose of this study, stratified random sampling technique was used. In this technique, Borno State was divided into strata out of the existing four educational zones. One strata consisted of Biu zone and the other zone consisted of Monguno zone.

According to Gay (1981), if a population is large, say in thousands, the percentage population to sample should be a minimum of about 10%. Therefore, 10% of the male and female students of senior secondary schools of both urban and rural areas were used for the study, giving a total of 1,460 students. The distribution of the sample of 1,460 students to zones was done by proportion, thus the total number of students in the zone divided by the total number in the two zones multiplied by 1,460.

Thus for:

Biu zone: $\frac{10939}{14595} \times 1460 = 1095$ students

Monguno zone: $\frac{3656}{14595} \times 1460 = 365$ students

In each of the zones 60 percent of the sample was for male students and 40 percent for female students. Also, 60 percent of the sample was from urban

and 40 percent from rural schools based on their relative sample size: the details of which are shown in Table 3.2.

Table 3.2**:** **Male And Female Respondents According To Urban And Rural Schools In Biu And Monguno Education Zones**

ZONE	**SEX**	**NO. OF STUDENT**	**URBAN**	**RURAL**
Biu	M	657	394	263
	F	438	263	175
Monguno	M	219	131	88
	F	146	88	58
	Total	1460	876	584

Two thirds of the senior secondary schools in Biu and Monguno zones were used for the study according to which 17 out of 26 schools were used. The distribution of the 17 schools to the two zones was also done by proportion.

Thus:

Biu zone $\frac{15}{26} \times 17 = 10$ schools

Monguno zone $\frac{11}{26} \times 17 = 7$ schools

In each zone, 60 percent of the urban schools and 40 percent of the rural schools were used because of the relative imbalance in number of schools in these locations. Thus for:

Biu zone: - Six Urban and Four Rural Schools

Monguno zone: - Four Urban and Three Rural Schools.

These are shown below:

Biu zone:

Urban	**Rural**
GSSSS Biu Boys	
GSSS Waka Biu Boys	GGSS Miringa Girls
GGSS Biu Girls	GGSS Shaffa Girls
GDSS Biu Boys/Girls	GSS Shani Boys
GDSS Damboa Boys/Girls	GDSS Marama Boys/Girls
GGTC Damboa Girls	

For Monguno Zone:

Urban	**Rural**
GSSS Monguno Boys	GGSS Wulgo Girls
GDSS Monguno Boys/Girls	GSSS Dikwa Boys
GGSS Monguno Girls	GDSS G/Ngala Boys/Girls

GSS Kukawa Boys

All the subjects were selected randomly by using fish bowl method without replacement. The procedure was by writing 'Yes' and 'No' on a piece of paper equal to the number in each set and put into a box for each student to pick. All those who picked 'Yes' were used as part of the sample and were issued with the questionnaire. This distribution is shown in Table 3.3.

Table 3.3**: List Of Sampled Students According To Class Levels And According To Male Female In Urban And Rural Schools Of Biu And Monguno Zones**

			MALE			TOTAL	FEMALE			
Zone	**Location**	**Schools**	**SS1**	**SS2**	**SS3**		**SS1**	**SS2**	**SS3**	**Total**
Biu	Urban	GSSSS Biu	33	33	33	99	-	-	-	-
		GSSS Waka Biu	33	33	33	99	-	-	-	-
		GDSS Damboa	33	33	32	98	22	22	21	65
		GDSS Biu	33	33	32	98	22	22	22	66
		GGSS Biu	-	-	-	-	22	22	22	66
		GGTC Damboa	-	-	-	-	22	22	22	66
Biu	Rural	GSSS Shani	43	44	44	131	-	-	-	-
		GDSS Marama	44	44	44	132	20	19	19	58
		GGSS Miringa	-	-	-	-	20	20	19	59
		GGSS Moromga	-	-	-	-	20	20	19	59
		GGSS Shaffa	-	-	-	-	20	19	19	58
		Total	219	220	218	657	148	148	144	438
Monguno	Urban	GSSS Monguno	14	15	15	44	-	-	-	-
		GDSS Monguno	14	15	15	44	14	15	15	44
		GGSS Monguno	-	-	-	-	14	15	15	44

		GSS Kukawa	14	14	15	43	-	-	-	-
Monguno	Rural	GGSS Wulgo	-	-	-	-	9	10	10	29
		GSS Dikwa	14	15	15	44	-	-	-	-
		GDSS G/Ngala	14	15	15	44	9	10	10	29
		Total	70	74	75	219	46	50	50	146

3.5 **Instrumentation**

For the purpose of this study, questionnaire was used as its instrument, containing 64 items under two sections. Section A consisted of demographic information. Section B consisted of statements to elicit the level of health knowledge, health attitude and health practices of the respondents.

The use of questionnaire as a relevant instrument in such a study has been proven successful by researchers, like Patty (2001) who used it in her study, “Evaluating health education outcome”. Emphasis was on the “best answer type”. Also Armstrong cited in Musa (2002), conducted a research titled “The Health Outcome of Habitual Physical Activities and Exercise”, in which questionnaire type of instrument was used. However, questionnaire drafted for this study was subjected to team of experts in health education in the Department of Physical and Health Education and

Community Medicine, A.B.U., Zaria to vetting in order to establish "face validity. Based on their assessment and suggestion statements were restructured and the final questionnaire for the research work was prepared.

All statements, except those of the demographic information, were arranged on a five point Likert scale, where respondents were expected to tick the correct response.

3.6 **Administration Of The Questionnaire**

In order to administer the questionnaire, the researcher visited each of the 17 schools in Biu and Monguno zones. He requested physical and health education teachers and where physical and health education teachers were not available, accredited teachers were used to administer the questionnaire. The procedure for sampling and completion of the questionnaire were thoroughly explained. The same group of people collected back the filled questionnaire and submitted to the researcher two weeks after distribution.

Out of 1460 copies of the questionnaire distributed, 1,400 (96%) were returned duly filled in, 60 of the questionnaire representing 4.1 percent were missing or wrongly filled. The details are shown in table 3.4.

Table 3.4**:** **List Of Duly Filled In And Returned Questionnaire From Schools In Biu And Monguno Zones According To Class Levels And According To Male And Female**

			MALE			TOTAL	FEMALE			
Zone	**Location**	**Schools**	**SS1**	**SS2**	**SS3**		**SS1**	**SS2**	**SS3**	**Total**
Biu	Urban	GSS Waka-Biu	31	31	33	95	-	-	-	-
		GSS Waka-Biu	30	32	33	95	-	-	-	-
		GDSSD Damboa	31	31	31	93	20	21	20	61
		GDSS Biu	32	32	32	96	21	21	22	64
		GGSS Biu	-	-	-		21	22	21	64
		GGTC Damboa	-	-	-		21	21	22	64
Biu	Rural	GSSS Shani	41	42	43	126				
		GDSS Marama	41	43	43	127	19	18	19	56
		GGSS Miringa	-	-	-		19	20	19	58
		GGSS Shaffa	-	-	-		19	19	18	56
		Total				**632**	-	-	-	**423**
Monguno	Urban	GSSS Monguno	13	14	15	42	-	-	-	-
		GDSS Monguno	13	13	14	40	13	13	14	40
		GGSS Monguno	-	-	-		13	15	15	43
		GSS Kukawa	12	13	14	39	-	-	-	
Monguno	Rural	GGSS Wulgo	-	-	-		8	10	10	28
		GSS Dikwa	13	14	14	41	-	-	-	-
		GDSS G/Ngala	13	15	15	43	9	10	10	29
		Total				**205**				**140**

3.7 **Treatment Of Data**

The data collected were sorted out, and coded using data matrix and entry was made in computer. Descriptive statistical technique was used for the computation of the frequencies, mean and standard deviation.

3.8 **Statistical Technique Used**

For the purpose of this study, mean and standard deviation were used to assess the level of health knowledge, attitude and practice of secondary school students in Borno State. Pearson product moment correlation

analysis was used to test the significant relationship between health knowledge, health attitude and health practices of senior secondary school students in Borno State.

Multiple regression analysis was employed to test for significant differences between classes in health knowledge, health attitude and practice of students, and t-test was used to test significant level of differences between male and female and between urban and rural students in knowledge, attitude and practice.

CHAPTER FOUR

RESULT AND DISCUSSION

4.0 Introduction

To achieve the purpose of this study, the data collected were statistically analysed, the result of which are presented and discussed according to hypothesis in this chapter.

4.1 Results

Before the results are presented according to hypothesis, the demographic characteristics of the subjects are presented in Table 4.1.

Table 4.1: **Frequencies And Percentages Scores Of Demographic Characteristics Of The Subjects**

S/NO	CHARACTERISTICS	FREQUENCY	PERCENTAGE	CUMULATIVE PERCENTAGE
1.	Gender: Male	837	59.8	59.8
	Female	563	40.2	100
	Total:	1400	100.0	
2.	School: Biu	1055	75.4	75.4
	Monguno	345	24.6	100.0
	Total:	1400	100.0	
3.	Location: Urban	836	59.7	59.7
	Rural	564	40.3	100
	Total:	1400	100.0	
4.	Class level: SS I	453	32.4	32.4
	SS II	470	33.6	65.9
	SS III	477	34.1	100.0
	Total:	1400	100.0	

Table 4.1 shows that out of a total of 1400 subjects, 837 (59.8%) and 563 (40.2%) were males and females respectively, 836 (59.7%) and 564 (40.3%) were from urban and rural areas respectively. They were also distributed between SS I, SS II and SS III. Thus 453 (32.4%), 470 (33.6%) were from SS I, 477 (34.1%) from SS III. The subjects were from Biu and Monguno Zones, with 1055 (75.4%) for Biu and 345 (24.6%) from Monguno.

The responses to all statements on health knowledge, health attitude and health practice were made on a 5 point scale. An average response of 3.5 and above was therefore considered as positive and less than that not positive.

Question 1:

Health knowledge, attitude and practice of secondary school students of Borno State are not positive.

To answer this question, means and standard deviations (SD) of responses to statements on health knowledge, health attitude and health practice were computed, results of which are shown in Table 4.2.

Table 4.2**:** **Means And Standard Deviations Of Responses To Statements On Health Knowledge, Health Attitude And Health Practice Of Secondary School Students Of Borno State**

S/No	Variable	No. Of Statements	Mean	SD	Mean Minimum	Mean Maximum
1.	Health	20	3.5466	.5459	1.000	5.000

	Knowledge					
2.	Health attitude	20	3.3927	.6162	1.000	5.000
3.	Health practice	20	3,2948	.5548	1.000	5.000

Table 4.2 shows that the health knowledge of secondary school students of Borno State was positive because the mean score of this variable was 3.5466 $\pm$ .5459. However, health attitude and health practice of these students were not positive because the mean scores of these variables were 3.3927 $\pm$ .6162 and 3.2948 $\pm$ .5548 respectively, because the mean scores were less than 3.5.

HYPOTHESIS 1

Health knowledge, attitude and practice of secondary school students of Borno State are not related to each other.

To test hypothesis I, correlation coefficients between health knowledge, health attitude, and health practice of secondary school students were computed, the results of which are presented in Table 4.3.

Table 4.3: **Intercorelations Between Health Knowledge, Health Attitude And Health Practice Of Secondary School Students**

	Health Knowledge	**Health Attitude**	**Health Practice**
Health knowledge	1.000	.6061	.5405
Health attitude	0.6061	1.000	.6419
Health practice	0.5405	0.6419	1.000

r (1400) = .195 < .05

Observation of Table 4.3 shows positive correlation of health knowledge with health attitude (r = .6061 < .05) and health practice (r = .5405 < .05). Thus 37 percent of the variance of health knowledge, whereas health attitude was explained by 30 percent of health practice was due to health knowledge, and 41 percent of the variance of health practice was explained by health attitude (r = .6419 < .05). Thus, the findings of this study show that the correlation between health attitude and health practice is stronger than other correlations.

HYPOTHESIS 2:

Health knowledge, health attitude and health practice of secondary school students of Borno State are not affected by their gender, geographical location and grade levels.

To test this hypothesis, t-test was used to assess the effect of gender and geographical location on health knowledge, attitude and practice of secondary school students, the result of which are presented in Tables 4.4 and 4.5, respectively.

Table 4.4**: t-test for differences between male and female respondents in their health knowledge, health attitude and health practice.**

S/NO	VARIABLE	GENDER	MEAN0	SD	t-VALUE
1.	Health Knowledge	Male Female	3.5902 3.4817	.567 .506	3.66

2.	Health attitude	Male Female	3.3849 3.4042	.622 .608	0.57
3.	Health practice	Male Female	3.3182 3.2599	.590 495	1.93

t (1398) = 1.96 < .05

Table 4.4 shows significant difference in health knowledge between male and female respondents, because male respondents had better health knowledge (M = 3.5902 $\pm$ .567) than female respondents (M = 3.4817 $\pm$ .5060).

Table 4.4 further shows insignificant differences between male and female respondents in their health attitude and health practice.

Table 4.5**: t-test for differences between urban and rural respondents in their health knoweldcge, attitude and practice**

s/no	**variable**	**locattion**	**x**	**sd**	**t-value**
1.	Health knowledge	Urban Rural	3.6805 3.3480	.550 .474	11.71
2.	Health attitude	Urban Rural	3.4703 3.2776	.641 .558	5.81
3.	Health practice	Urban Rural	3.3369 3.2324	.581 .505	3.48

t- (1398) = 1.96 < .05

Table 4.5 shows significant difference between urban and rural secondary school students in health knowledge because urban respondents, had better health knowledge (M = 3.6805 $\pm$ .550) than rural respondents (M = 3.3480 $\pm$ .474). Table 4.5 further shows significant differences between urban and rural respondents in their health attitude and health practice,

because urban respondents had better health attitude (M = 3.4703 $\pm$ .641) and health practice (M = 3.3369 $\pm$ .581) than the rural respondents. However, the health attitude and health practice of both rural and urban respondents were not positive as their mean scores were less than 3.5.

In order to test the differences between secondary school students from different grade levels, the mean and Standard deviations of responses of students from different class levels were computed, the results of which are shown in table 4.6(a).

Table 4.6(a): **Means And Standard Deviations Of Health Knowledge Health Attitude And HealSTh Practice By Grade Levels Of Secondary School Students**

Class	**SS I**			**SS II**			**SS III**		
Variable	Means	SD	SE	MEANS	SD	SE	MEANS	SD	SE
Health Knowledge	3.9741	.4986	.0234	3.3326	.3592	.0166	3.3515	.5053	0.2131
Health Attitude	3.7483	.6367	.0299	3.1796	.4435	.0205	3.2649	.5965	.0273
Health Practice	3.5764	.5621	.0264	3.1129	.4498	.0207	3.2066	.5361	.0245

Table 4.6(a) shows that students of SS I had better health knowledge, health attitude and health practice than students from SS 2 and SS 3 classes level, (M = 3.9741, 3.7483 and 3.5764), respectively.

In order to find whether the differences in these responses were significant, the data were analysed by using multiple regression analysis, the results of which are shown in Table 4.6(b).

Table 4.6 (b): **Multiple Regression Analysis For Differences Between SS I, SS 2, SS 3 in Health Knowledge, Health Attitude And Health Practice.**

S/NO	VARIABLE	SOURCE	Df	SUMS	X MS	F	MULTIPLE R	R. SQUARE
1.	H/Knowledge	Regression Residual	2 1397	122.46991 294.39862	61.23495 .21074	290.57618	.54202	.29379
2.	Attitude	Regression	2 1397	86.43776 444.84449	43.218998 .31843	135.72590	.40336	.16150
3.	H/Practice	Regression Residual	2 1397	55.18335 374.53858	27.59168 .26810	102.91482	.35835	.12892

F (2,1397) = 2.77 < .05) Scheffe's post hoc test significant between the means of SS I students and the means of SS II and SS III students in health knowledge, attitude and practice.

Table 4.6(b) shows significant differences betweens the responses of students of SS I, SS II, and SS III in their health knowledge, health attitude and practice Scheffe's post hoc test showed that the higher means of SS I students in health knowledge, health attitude and health practice than those of students of SS II and SS III were responsible for the significant difference.

4.2 **Discussion**

The purpose of the study was to evaluate the outcomes of health education in secondary schools of Borno State. The outcomes of health education included in this study are health knowledge, health attitude, and health practice. Studies have shown that socioeconomic differences in health behaviors are very closely associated with a number of factors like childhood background, education, maternal hardship and social integration (Stronks, Van de Mheen, Looman 1979; Lynch, Kaplan, Salonen, 1997; Wardle and Steptoe 2003). Some of these factors exert their effects through most proximal determinants of behavior, like attitudes, beliefs and practices related to health (Fishbein et al; 2001). These proximal determinants of behavior included as health education outcomes in this study were health knowledge, health attitude and health practice. It is these proximal determinants of behavior that are responsible for the influence of socioeconomic factors on health behaviors. Moreover, the long term overall outcome to be expected from the school health education program is improved health, but the educational outcomes expected from school health education are health knowledge, desirable health attitude and health practice

The results of the study showed that health knowledge of secondary school students of Borno State was positive. It has been shown that health knowledge of pupils is acquired and promoted through formal teaching in schools (Ajisafe, 1980). The positive health knowledge shown by secondary school students of Borno State in this study confirms the results of earlier studies by Sanusi and Igbanugo (2001), according to which in Borno State, like in most neighbouring states, greater emphasis was on examination results while students' health attitude and practice were not accorded high priority. This shows that much attention was given to health instruction that accounted for the cognitive aspect of learning, neglecting the affective and the psychomotor domains.

The study also showed positive relationship between health knowledge, health attitude and health practice. The results of this study supported earlier reports according to which any action that affects health positively is a function of the acquired health knowledge. What we decide about it and what we do about it are in the realm of application of knowledge gained (WHO, 1969). Any attitudinal development and change depend on the awareness of the individual and also on the knowledge of the object about which the attitude is to be formed. In this case, the secondary

school students have positive health knowledge that would contribute to positive health attitude and practice.

The study showed that male students had significantly better health knowledge than their female counterparts among secondary school students in Borno State. To explain this gender difference in health knowledge, it is necessary to understand what makes some people more knowledgeable about health than others. Available researched suggests that gender, personality, age, interest and ability are important determinants of knowledge in areas other than health, (Ackerman, 2000; Beier & Ackerman, 2001). Some have reported gender differences favoring men for many knowledge domains examined (Ackerman, 2000 Ackerman, 2001; Beier & Ackerman, 2001). But, more recently, Beir and Ackerman (2003) found gender difference in favor of women in health knowledge. In general, it appears that the domains of health knowledge are similar to other domains of knowledge, like job knowledge (Hunter, 1986) and academic knowledge (Ackerman 2000; Ackerman et al 2001). In other words, general ability accounts for most of the variance in knowledge, suggesting that health education interventions and health care instructions must be assessable to those of all ability levels to be effective.

The results of the study showed better health knowledge of students from urban secondary schools than their counterparts in rural secondary schools of Borno State, suggesting that the geographical location of schools affects health knowledge of students. This may be justified by the fact that students from urban secondary schools have generally better facilities and access for learning compared to their counterparts in rural secondary schools and thus their educational environment is much more enriched required for acquisition for better health knowledge.

The results of this study showed that students from SS I had better health knowledge than students in SS II and SS III. This may be explained by the fact that health education may start in junior secondary schools and that students from SS I are refreshing their memory about health knowledge compared to their counterparts in SS II and SS III, who are usually over burdened by other academic subjects than health education (Albert et al, 2001). Secondly, the emphasis on health education in secondary schools goes down as the students progress from SS I to SS III, which makes the students of upper class less interested in health education.

Health Attitude

It has been shown by authorities in health that the attitude individual brings to any health situation determines what he or she would do or fail to

do and that positive health attitude is believed to lead to desirable health practice.

The results of the study showed that students in secondary schools of Borno State did not have positive health attitude. This confirmed earlier findings of Sanusi and Igbanugo (2001), according to which the health attitude of secondary school students was not positive. This may be attributed to the fact that greater emphasis of health instruction was on examination results and not on health attitude or practices in secondary schools of Borno State.

The study also showed that there was positive relationship between health attitude, health practice and health knowledge. This agreed with earlier studies by Patty (2001), which showed that no test of health attitude could be developed in which health knowledge would not be a factor influencing reactions. Likewise, it seems unjustifiable to conclude that health attitude plays no part in students' answers to health knowledge and practice questions. Health knowledge of basic components of the school health education program offered through school health instruction and other related health activities accounts for desirable health attitude and practice.

This study revealed that gender of the students and geographical location of the school does not have significant effect on the attitude of secondary school students of Borno State towards health. This suggests that so long as the students acquired health knowledge, their attitude towards knowledge will not change because of gender or location of the school. Hence the importance of health instruction to improve health attitude. This assumption is further supported by the findings of the study according to which students of SS I had better attitude towards health than their counterparts in SS II and SS III. This is further justified by the fact that students from SS I had better health knowledge than students from SS II and SS III. Thus the basic requirement for better attitudinal development among students appeared to be sound health knowledge and not gender, geographical location of the school, nor class level.

Health Practice

The goal of health education is positive health practice and not mere health information or knowledge; until the anticipated action has taken place there is no health education (Cornacchia et al; 1974). The purpose of the study was to evaluate health education outcomes which included health practice. The results of the study showed that health practice of secondary school students of Borno State was not positive. This contradicts earlier

findings of Musa (2001), according to which pupils' health practice was better than their acquired health knowledge. The case of Borno State could not be unconnected with the less attention given to the affective and psychomotor domains of health instruction in schools.

The results of the study also showed positive relationship between health practice, health attitude and health knowledge. The results of this study confirmed earlier reports that "action that affects health positively is a function of the acquired knowledge and what we do about it in the realm of application of the knowledge gained (WHO, 1969). This is irrespective of the gender of the students and the geographical location of the schools.

The most interesting finding of this study is that sound health knowledge is the basic requirement for positive development of health attitude and practice. Secondly, the emphasis laid on the different means of providing health knowledge determines the direction of the development of health attitude and practice. If health instruction is provided only to pass examination and obtain grades, it will not have any positive effect on health attitude and practice. On the other hand, if health instruction is provided to improve health knowledge to be applied in actual day-to-day living, it will have significant positive impact on health attitude and practice of secondary school students.

CHAPTER FIVE

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Summary

School health programs have three important components. These include healthful school living, health instruction, school-community cooperation and health services. All these components are practiced in schools to produce three important health outcomes among school students. These include health knowledge, health attitude and health practice.

Although health education is a compulsory subject in junior secondary schools, very little research has been done to find out whether health education received in junior secondary schools is really applied at senior secondary level to achieve the health education objectives in terms of health outcomes. This study was therefore conducted to evaluate health education outcomes among secondary school students of Borno State.

To achieve the purpose of this study stratified random sampling technique was used. One thousand four hundred students from both urban and rural senior secondary schools were randomly selected from Biu and Monguno education zones of the state. A researcher-developed questionnaire on health education outcomes was administered on the selected respondents. This questionnaire contained two sections. Section

‘A’ contained demographic information and section ‘B’ statements on health knowledge, health attitude and health practice of the respondents, to which the responses were to be made on a five point Likert scale. Professional physical and health education teachers and accredited teachers were used in conducting and collecting back the filled in questionnaire. Descriptive statistical techniques were used in this study.

The results of the study revealed the following:

(1) Students in secondary schools of Borno State had positive health knowledge but their health attitude and practice were not positive or adequate.

(2) The study showed positive relationship between health knowledge, health attitude and health practice.

(3) Male students in secondary schools of Borno State had better positive health knowledge than their female counterparts.

(4) Students from urban secondary schools of Borno State had better health knowledge than their counterparts from rural secondary schools. Similarly, geographical location of the schools affected their health knowledge, attitude and practice.

(5) Students of SS I had better health knowledge, health attitude, and health practice, as compared to those of SS II and SS III.

5.2 Conclusions

Based on the findings and the limitations of this study, the following conclusions are draw:

(1) The health knowledge of students acquired and promoted through formal teaching of health education in schools was positive.

(2) The health attitude and practice of senior secondary school students of Borno State were not positive, suggesting that acquired health knowledge was not applied to develop health attitude and practice healthful school living.

(3) Health knowledge, health attitude and health practice were significantly related to each other positively.

(4) Secondary school males were better in health knowledge than their female counterparts.

(5) Students from urban secondary schools were better than students from rural secondary schools in health education outcomes.

(6) Students in SS I had better health knowledge as compared to those in SS II and SS III.

5.3 Recommendations

The following recommendations are been made, based on the findings of this study.

(1) There is urgent need to improve school health services in order to create an environment for good health practices and appraisal of health habits and skills.

(2) There is need to improve teaching and learning facilities, most especially in rural areas where such facilities are grossly inadequate.

(3) The socio-cultural inhibitions and restrictions generally found among girls that make access to information limited be identified and removed to make teaching and learning gender free. This could be achieved by improving the physical and psychological environment of the school and also through improving school-community cooperation.

(4) Health education should be made a compulsory subject in both junior and senior secondary schools. However, the emphasis on such a course should not be on examination results or grades rather on improvement and promotion of health and well being of the students in the school and after school years.

5.4 Suggestions For Further Studies

(1) It is recommended that future research in this area be conducted at primary school level, where strong foundation for positive health education outcomes are expected.

(2) It is also recommended that a study be conducted on other health education out comes, especially on health skills and practice.

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APPENDIX I

DEPARTMENT OF PHYSICAL AND HEALTH EDUCATION
AHMADU BELLO UNIVERSITY, ZARIA.

Date:

_____
_____

_____

_____

Dear Sir/Madam,

REQUEST TO VET A QUESTIONNAIRE

Mal. Usman Garba Dika is a Postgraduate student of this department. He has developed an instrument on Health Education Outcomes in Secondary Schools.

The instrument contains a number of statements on health knowledge, health attitude and health practices in Secondary Schools.

In this regard, the researcher is submitting herewith a copy of the questionnaire for your critical examination and comments. Kindly return the questionnaire after vetting to the researcher.

Thank you.

Yours faithfully,

(Sgd)

Prof. K. Venkateswarlu
(Major Supervisor)

APPENDIX II

QUESTIONNAIRE ON EVALUATION OF HEALTH EDUCATION OUTCOMES IN SECONDARY SCHOOLS OF BORNO STATE

The purpose of this research is to evaluate health education outcomes in secondary schools of Borno State.

This questionnaire contains TWO sections: 'A' and 'B'.

Section 'A' contains statements about personal information.

Section 'B' contains statements on health knowledge, health attitude and health practices.

You are requested to tick ( ) both sections. There are no rights or wrong answers. The information provided will be treated confidential.

SECTION A

PERSONAL INFORMATION:

Please tick the response that best represent your opinion.

(1) Gender: Male ( ) Female ( )

(2) School:

_____

___

(3) Location: Urban ( ) Rural ( )

(4) Class Level: SSI ( ) SS II ( )

SS III ( )

SECTION 'B'

STATEMDENT ON HEALTH EDUCATION OUTCOMES IN SECONDARY SCHOOLS

The following statements are based on a five point Likert scale, relating to health knowledge, health attitude and health practice outcomes of health education in secondary schools in Borno State.

Please tick ( ) the column against each statement which best describes your opinion.

Note:

Strongly Agree - SA

Agree - A

Undecided - UD

Disagree - DA

Strongly Disagree - SD

		SA	A	UD	DA	SD
	Health Knowledge on Growth and Development.					
5.	Balance diet is not necessary for normal growth and development.					
6.	For normal growth and development one should have at least seven to eight hours of sleep.					
	Health Knowledge on First Aid and Safety Education					
7.	Carefulness and orderliness are important					

	considerations in accident prevention.					

		SA	A	UD	DA	SD
8	Following traffic regulations cannot ensure pedestrian safety.					
	Health Knowledge on Physical Health					
9.	For proper maintenance of health and well-being one should go for regular medical check-up.					
10	Regular physical exercise is not necessary to improve health and well-being.					
	Health Knowledge on Prevention and Control of Communicable and Non Communicable Disease.					
11.	For the proper control of contact diseases it is most important to avoid exchanging clothes and foot wears among people.					
12.	Regular vaccination is not necessary to control incidence of killer diseases among children.					
	Health Knowledge on Community and Environmental Health					
13.	It is most desirable to have community water supply safely distributed.					
14.	Weekly inspection of students' personal hygiene is not necessary for schools to maintain high standard of personal hygiene.					
	Health Knowledge on Family and Sex Education					
15.	The use of Condoms cannot avoid unwanted pregnancy and Veneral diseases.					
16.	In ability to bear children is one of the important reasons for divorce.					
	Health Knowledge on Emotional and Social Health					
17.	It is most important to avoid overworking oneself in order to prevent stress.					
18.	Extreme poverty, broken home and isolation do not cause emotional and social					

	problem.					
	Health Knowledge and Drugs which Alter Behaviour					
19.	It is most appropriate to administer drugs to oneself when sick.					

		SA	**A**	**UD**	**DA**	**SD**
20.	I consider it not dangerous for one to smoke Indian Hemp					
	Health Knowledge on Consumer Health					
21.	It is not important to check manufacturing and expiring dates of tinned foods before buying them.					
22.	All consumer health products that do not carry NAFDAC registration number are considered fake.					
	Health knowledge on Food and Nutrition					
23.	It is most important to cook meat properly in order to destroy germs and parasites.					
24.	It is not necessary to avoid over-feeding because it is not dangerous to health					
	Statements on Health Attitude on Growth and Development					
25.	I do not consider balance diet necessary for my normal growth and development.					
26.	I prefer seven to eight hours of sleep for my normal growth and development.					
	Health Attitude on First Aid and Safety Education					
27.	I consider carefulness and orderliness important in accident prevention.					
28.	I believe Pedestrian safety can be ensured when traffic regulations are followed.					
	Health Attitude on Physical Health					
29.	I appreciate regular medical check-up for proper maintenance of my health and well-being.					
30.	I do not consider regular physical exercise					

	necessary to improve health and well-being.					
	Health Attitude on Prevention and Control of Communicable and Non Communicable Diseases.					
31.	I hate exchanging clothes and foot wears with any one because it is a good way of contacting disease.					
		SA	**A**	**UD**	**DA**	**SD**
32.	I do not consider regular vaccination as a means of controlling incidence of killer diseases among children.					
	Health Attitude on Community and Environmental Health					
33.	I consider it desirable to have community water supply safely distributed.					
34.	I do not consider weekly inspection of student's personal hygiene in schools necessary for maintaining high standard of personal hygiene.					
	Health Attitude on Family Life and Sex Education.					
35.	I do not believe using condoms in sex can avoid unwanted pregnancy and veneral diseases.					
36.	I believe inability to bear children is an important reason for divorce.					
	Health Attitude on Emotional and Social Health					
37.	I believe stress can be avoided by not overworking oneself.					
38.	I believe emotional and social problems are often not caused by extreme poverty, broken home and isolation.					
	Health Attitude on Drugs which Alter Behaviour, Alcohol and Smoking					
39.	I feel it is most inappropriate to administer drugs to oneself when sick.					
40.	I do not consider it dangerous for one to					

	smoke Indian Hemp.					
	Health Attitude on Consumer Health					
41.	I believe it is not important to check manufacturing and expiring dates of tinned foods before buying them.					
42.	I regard all consumer health products that do not carry NAFDAC registration number as fake products.					
		SA	**A**	**UD**	**DA**	**SD**
	Health Attitude on Food and Nutrition					
43.	I prefer cooking meat properly because it destroys germs and parasites.					
44.	I believe it is necessary to avoid overfeeding because it is dangerous to health.					
	Statement on Health Practice on Growth and Development					
45.	I often eat balanced diet at home.					
46.	I often have seven to eight hours sleep in order to have normal growth and development.					
	Health Practice on First Aid and Safety Education					
47.	Whenever I am at home or in the school I often keep my things in an orderly and careful manner.					
48.	I do not often follow traffic regulations to ensure my safety.					
	Health Practice on Physical Health					
49.	I often go for medical check-up for the maintenance of normal health and well-being.					
50.	I do not often engage in regular physical exercise for the improvement of my health and well-being.					
	Health Practice on Prevention and Control of Communicable and Non Communicable Diseases					
51.	I do not exchange clothes and foot wear					

	with any one because one is liable to contact disease.					
52.	I do not often receive vaccination against most killer diseases among children.					
	Health Practice on Community and Environmental Health					
53.	I often drink from portable drinking water.					
54.	I do not participate in weekly inspection of personal hygiene conducted regularly in our school.					

		SA	**A**	**UD**	**DA**	**SD**
	Health Practice on Family Life and Sex Education					
55.	I do not use condom during sex in order to avoid pregnancy and veneral diseases.					
56.	I cannot divorce a wife/husband because of inability to bear children.					
	Health Practice on Emotional and Social Health					
57.	I often avoid over working myself in order to prevent stress.					
58.	I do not always guard against extreme poverty, broken home and isolation to avoid emotional and social problems.					
	Health Practice on Drugs which Alter Behaviour, Alcohol and Smoking					
59.	I do not administer drugs by myself even when sick.					
60.	I do not smoke Indian hemp					
	Health Practice on Consumer Health					
61	I do not often check manufacturing and expiring date of tinned foods before buying them.					
62	I do not buy consumer health products that do not carry NAFDAC registration number because I consider them fake.					
	Health Practice on Food and Nutrition					

63.	I always cook my meat properly in order to destroy germs and parasite.					
64.	I don't over feed because it is dangerous to health.					

APPENDIX III

MEAN AND STANDARD DEVIATION SCORES OF RESPONSES OF STATEMENTS ON HEALTH KNOWLEDGE OF SECONDARY SCHOOL STUDENTS OF BORNO STATE

S/No	Statements	Mean	SD	Mean Min.	Mean Max.
5.	Balance diet is not necessary for normal growth and development	3.680	1.215	1.000	5.000
6.	For normal growth and development one should have at least seven to eight hours of sleep.	3.706	1.181	1.000	5.000
7.	Carefulness and orderliness are important considerations in accident prevention.	3.374	1.245	1.000	5.000
8.	Following traffic regulations cannot ensure pedestrian safety.	3.689	1.267	1.000	5.000
9.	For proper maintenance of health and well-being one should go for regular medical check-up.	3.563	1.227	1.000	5.000
10.	Regular physical exercise is not necessary to improve health and well-being	3.656	1.245	1.000	5.000
11.	For the proper control of contact diseases it is most important to avoid exchanging clothes and foot	3.494	1.265	1.000	5.000

	wears among people.				
12.	Regular vaccination is not necessary to control incidence of killer diseases among children.	3.747	1.208	1.000	5.000
13.	It is most desirable to have community water supply safely distributed.	3.579	1.262	1.000	5.000
14.	Weekly inspection of student's personal hygiene is not necessary for schools to maintain high standard of personal hygiene.	3.453	1.283	1.000	5.000

S/No	**Statements**	**Mean**	**SD**	**Mean Min.**	**Mean Max.**
15.	The use of Condoms cannot avoid unwanted pregnancy and Veneral diseases.	3.533	1.248	1.000	5.000
16.	In ability to bear children is one of the important reasons for divorce.	3.588	1.243	1.000	5.000
17.	It is most important to avoid overworking oneself in order to prevent stress.	3.571	1.218	1.000	5.000
18.	Extreme poverty, broken home and isolation do not cause emotional and social problem.	3.414	1.349	1.000	5.000
19.	It is most appropriate to administer drugs to oneself when sick.	3.556	1.322	1.000	5.000
20.	I consider it not dangerous for one to smoke Indian Hemp.	3.367	1.340	1.000	5.000
21.	It is not important to check manufacturing and expiring dates of tinned foods before buying them.	3.485	1.282	1.000	5.000
22.	All consumer health products that do not carry NAFDAC registration number are considered fake.	3.510	1.298	1.000	5.000

23.	It is most important to cook meat properly in order to destroy germs and parasites.	3.550	1.335	1.000	5.000
24.	It is not necessary to avoid over-feeding because it is not dangerous to health.	3.419	1.338	1.000	5.000
		3.5446	**.5459**	**1.000**	**5.000**

APPENDIX IV

MEAN AND STANDARD DEVIATION SCORES OF RESPONSES TO STATEMENTS ON HEALTH ATTITUDE OF SECONDARY SCHOOL STUDENTS OF BORNO STATE

S/No	Statements	Mean	SD	Mean Min.	Mean Max.
25.	I do not consider balance diet necessary for my normal growth and development.	3.541	1.279	1.000	5.000
26.	I prefer seven to eight hours of sleep for my normal growth and development.	3.484	1.280	1.000	5.000
27.	I consider carefulness and orderliness important in accident prevention.	3.414	1.279	1.000	5.000
28.	I believe Pedestrian safety can be ensured when traffic regulations are followed.	3.504	1.311	1.000	5.000
29.	I appreciate regular medical check	3.436	1.318	1.000	5.000

	up for proper maintenance of my health and well-being.				
30.	I do not consider regular physical exercise necessary to improve health and well-being.	3.484	1.313	1.000	5.000
31.	I hate exchanging clothes and foot wears with any one because it is a good way of contacting diseases.	3.306	1.303	1.000	5.000
32.	I do not consider regular vaccination as a means of controlling incidence of killer diseases among children.	3.466	1.258	1.000	5.000
33.	I consider it desirable to have community water supply safely distributed.	3.429	1.297	1.000	5.00

S/No	**Statements**	**Mean**	**SD**	**Mean Min.**	**Mean Max.**
34.	I do not consider weekly inspection of student's personal hygiene in schools necessary for maintaining high standard of personal hygiene.	3.369	1.335	1.000	5.000
35.	I do not believe using condoms in sex can avoid unwanted pregnancy and veneral diseases.	3.357	1.314	1.000	5.000
36.	I believe inability to bear children is an important reason for divorce.	3.416	1.284	1.000	5.000
37.	I believe stress can be avoided by not overworking oneself.	3.216	1.317	1.000	5.000
38.	I believe emotional and social problems are often not caused by extreme poverty, broken home and isolation.	3.362	1.317	1.000	5.000
39.	I feel it is most inappropriate to	3.347	1.340	1.000	5.000

	administer drugs to oneself when sick.				
40.	I do not consider it dangerous for one to smoke Indian Hemp.	3.219	1.363	1.000	5.000
41.	I believe it is not important to check manufacturing and expiring dates of tinned foods before buying them.	3.339	1.311	1.000	5.000
42.	I regard all consumer health products that do not carry NAFDAC registration number as fake products.	3.381	1.311	1.000	5.000
43.	I prefer cooking meat properly because it destroys germs and parasites.	3.379	1.313	1.000	5.000
44.	I believe it is necessary to avoid overfeeding because it is dangerous to health.	3.412	1.310	1.000	5.000
		3.3929	**.6162**	**1.000**	**5.000**

APPENDIX V

MEAN AND STANDARD DEVIATION SCORES OF RESPONSES TO STATEMENTS ON HEALTH PRACTICE OF SECONDARY SCHOOL STUDENTS OF BORNO STATE

S/No	Statements	Mean	SD	Mean Min.	Mean Max.
45.	I often eat balanced diet at home.	3.329	1.301	1.000	5.000
46.	I often have sevens to eight hours sleep in order to have normal growth and development.	3.396	1.316	1.000	5.000
47.	Whenever I am at home or in the school I often keep my things in an orderly and careful manner.	3.334	1.304	1.000	5.000

48.	I do not often follow traffic regulations to ensure my safety.	3.419	1.327	1.000	5.000
49.	I often go for medical check-up for the maintenance of normal health and well-being.	3.268	1.319	1.000	5.000
50.	I do not often engage in regular physical exercise for the improvement of my health and well-being.	3.336	1.326	1.000	5.000
51.	I do not exchange clothes and foot wear with any one because one is liable to contact disease.	3.211	1.312	1.000	5.000
52.	I do not often receive vaccination against most killer diseases among children.	3.301	1.319	1.000	5.000
53.	I often drink from portable drinking water.	3.261	1.304	1.000	5.000
54.	I do not participate in weekly inspection of personal hygiene conducted regularly in our school.	3.291	1.319	1.000	5.000

S/No	**Statements**	**Mean**	**SD**	**Mean Min.**	**Mean Max.**
55.	I do not use condom during sex in order to avoid pregnancy and veneral diseases.	2.989	1.345	1.000	5.000
56.	I cannot divorce a wife/husband because of inability to bear children.	3.409	1.319	1.000	5.000
57.	I often avoid over working myself in order to prevent stress.	3.266	1.265	1.000	5.000
58.	I do not always guard against extreme poverty, broken home and isolation to avoid emotional and social problems.	3.432	1.335	1.000	5.000
59.	I do not administer drugs by	3.374	1.340	1.000	5.000

	myself even when sick.				
60.	I do not smoke Indian hemp.	3.322	1.288	1.000	5.000
61.	I do not often check manufacturing and expiring date of tinned foods before buying them.	3.243	1.261	1.000	5.000
62.	I do not buy consumer health products that do not carry NBAFDAC registration number because I consider them fake.	3.309	1.290	1.000	5.000
63.	I always cook my meat properly in order to destroy germs and parasites.	3.241	1.383	1.000	5.000
64.	I don't over feed because it is dangerous to health.	3.179	1.315	1.000	5.000
		3.2948	**.5542**	**1.000**	**5.000**