A STUDY ON HEALTH RELATED BEHAVIOUR AMONG SCHOOL GOING ADOLESCENTS IN LUSAKA, ZAMBIA.

by

Charles Cheembo Michelo BSc, MBChB

A dissertation submitted to the University of Zambia in partial fulfilment of the requirements of the degree of Master in Public Health (MPH) of the University of Zambia

School of Medicine
Department of Community Medicine
Lusaka

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DECLARATION

I Charles C. Michelo do hereby solemnly declare that this dissertation represents my own work and that it has not previously been submitted for any degree at this or indeed any other University.

Signed:.....

Charles C. Michelo

Date: 12/12/98

FOR SUPERVISORS ONLY:

We the undersigned have read this dissertation and have approved it for examination

1. Dr. K.S. Baboo

Signature:.....

Date: 19/4/99

2. Dr. L. Chiwele

Signature:.....

Date: 19. 4. 99

APPROVAL

This dissertation of Dr. Charles C. Michelo is approved as a fulfillment in part of the requirements for the award of the degree of Masters of Public Health (MPH) by the University of Zambia.

Signature	Date	Title/Position held
.....	.....	.....
.....	19/4/99	.....
.....	19.4.95	.....
.....	.....	.....

DEDICATION

This piece of work is heartly dedicated to my wife Lillian who supported me completely during the period of the study and, to both my children, Chipo and Kalinda whose presence at home always gave me the strength to carry on the work.

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ABSTRACT

Age grouping in medicine assists in identifying risk groups, and adolescence is one such grouping. This study reported and assessed health related behavioral problems in School going adolescents in Lusaka, Zambia. The main areas assessed were recreation/exercise, oral - dental hygiene, substance abuse and sexuality.

A cross sectional survey was conducted on a sample of 490 people aged 9-15 randomly selected using cluster sampling methods and data was collected using focus group discussion in the pilot and a structured questionnaire.

This study revealed presence of bad health related behavior in respect of recreation/ exercise (38.8%), oral dental hygiene (78.4%), substance abuse-alcohol (47.9%) and risk sexual behavior (36.9%) and this was directly proportional to non-availability of health services in the study clusters (69.2%). In addition it was found that these bad health practices were strongly inter-related so much that presence of one often led to presence of another.

The Majority of the respondents were found to reside in low-density areas, and this had a significant effect on the level of sporting activity. The higher the number of pupils were from low-density areas the less the amount of sporting in the school (P= 0.002).

However the level of bad dental practice found was not affected by residential location, but by age (P=0.00) and sex (P=value $6.8x10^4$). The major contributory factor in dental hygiene was eating sweets between meals. One would expect adolescents from low-density areas to have more money for such things thereby causing bad dental practice, but this was not the case as residence insignificantly affected this practice.

The striking finding was the presence of drug-related problems as well as bad sexual behavior. There were significant levels of alcohol use (47.9%), use of mandrax (4.3%), marijuana (6.8%) and unprescribed diazepam (12.9%) beginning as early as 10 years and the frequency had doubled by 11.0 years of age. Sadly at such a tender age, these young ones have tasted all brands of alcohol such as wines, variety of spirits, larger and opaque beer. Furthermore, these adolescents have had sexual relationships (36.9%) as early as 10 years of age and of these, only a few (10.1%) have used condom. They have not only avoided protective sex, but they also think that a condom is not useful (18.1%). It is therefore not surprising that sexually transmitted diseases can be found among them (6.8%).

Such bad behavioral practices do not only suggest a situation of collapsed or collapsing social structures in the society, but they also suggest a presence of moral decay beginning at family level and showing up in schools, where school going adolescents are able to express themselves among peers. These findings show presence of a bad behavior beginning 10 years of age when most of these children are still trainable and the classroom provides such a forum for health education and other preventive strategies.

Lastly but not the least these bad practices were evident as early as 10 years of age.
It was therefore felt that primary preventive strategies aimed at reducing the prevailing bad behavioral practices should now be commenced in primary schools way before any child reaches the age of 10 years.

In addition its strongly recommended that any such preventive strategies should be implemented on the basis of available legislation aimed at reducing disease burden nationally.

Chapter One

BACKGROUND

Age grouping in medicine, helps to understand what people are like and what they need at different times of their lives, particularly in relation to health related problems. Adolescence is one that is very important.

In Zambia about half (48%) of the population is under 15 years of age (Graisie et al 1993) which includes more than 60% of the total adolescent population (Feldman et al 1997). Therefore because half of our population is a youthful one, the state of health in young people (9-20 yr.) should be known particularly in relation to health practices (knowledge, attitude and behavior) their sources of information on health related issues as well as the persons which directly give health education.

Adolescents have a very turbulent stage of human life, different from younger children and adults in terms of physiology, anatomy, psychology and indeed sociology, needing particular attention from all those interested in adolescence including health care workers (Gallagher, 1960). These factors are further affected by traditional and cultural values prevailing at the time, national policies, as well as influences of education.

As a result of this education most adolescents have knowledge on a variety of health related issues. This leads to a particular practice. Therefore behavior (practice) exhibited at any particular time could be followed retrospectively up to the initial source and level of information that led to a particular knowledge and attitude. This relationship can be explored deeply. This process of behavior can be long or short and often affected by many other factors (Gallagher, 1960).

Health related behavior arising out of this process can be negative (bad behavior) or indeed positive (good practice). If the behavior exhibits negative trends soon or later it will lead to disease or discomfort. Looking at the massive inter play of factors in adolescence, disease is the most undesirable situation because it affects acutely or insidiously one's hopes for good health i.e. good career, prospects of marriage etc. Adolescence is so important a time that factors that affect it have several massive implications, including sensitive learning.

Studies have revealed that bad health related behavior is responsible for the majority of medical illness and problems in adolescence such as sexually transmitted diseases (STD) teenage pregnancies (Creatsan G.K et al) and drug abuse (Kuria M.V.). In Zambia, 80% of patients with induced abortion-related complications admitted to hospital are under 19 years of age (Feldman et al 1997). These bad practices are seen despite good knowledge levels. One would therefore tend to think that behavior change comes about from repeated and effective health education campaigns (Mac Alister et al 1980).

In view of this information, it seems clear that the starting point is on behavior i.e. the actual practice being exhibited. It is from this that one can explore in retrospect on knowledge, attitude and also sources of health care information.

This study in Lusaka sought to identify the health related behavior (good or bad) looking at sexuality and its diseases, addictive drug related problems, oral-dental hygiene as well as fitness (exercise and recreation). It is hoped that from this study, grounds for strengthening appropriate health education be founded and explored.

1.1 Statement of the Problem

Behavior patterns in adolescence have a very big impact later in adulthood Gallagher, 1960). In Zambia, about half (48%) of the population being under 15 ears of age, means that if there are bad health practices in this roup,which often would lead to diseases, inevitably, the entire population is affected. (Mkumba 1992), this study aimed at identifying what practices if any) adolescents are engaged in, in terms of sexuality, addictive drugs, oral-dental hygiene as well as sporting and recreation in ages nine to fifteen ears (9-5year). This was considered necessary because of the following reasons.

1. From available evidence, bad behavioral practices are present in all adolescents both school going and non-school going (Chela 1992). These include such practices like unsafe sex leading to sexually transmitted diseases (Chikamba et al 982; Likwa 1989), early sexual intercourse as seen in Burkina Faso (Ouadroogo et al 1990), use of non-injectable addictive drugs in Zambia (Feldman et al 1997), taking strength enhancing drugs for success in competitive athletics (Tsai et al 1996) as well as increased prevalence of Buccodental diseases (Gonzalez de Dios et al 1996).

2. Secondly, the bad health practices are not only present in our adolescents, but they are prevalent in older adolescents. In a review of bad health practices in Scotland concentrating ages 7-15 year, showed gradual emergence of excess morbidity over this life stage (sweating1995). In a comparative study of addictive drug use in Kenyan schools, a prevalence of 15% was found and largely in ages above 12 year, (KuriaM.W.1996).

In Zambia, pregnancy-related complications are the major causes of health problems among 15-19 year olds, (Graisie et al 1993), and sadly unpublished HIV seropositivity rates collected from University Teaching Hospital Blood Bank in Lusaka for 1989-1991 for 17 and 18 year old secondary school students who attempted to donate blood showed 9.8% for females (n=386) and 2.6 for males (n=991) to be seropositive.

Therefore if bad practices are there in older adolescents, one can only assume that the beginning of these trends is in a much Younger adolescent. Therefore facts are necessary to determine at what age the practices begin, and also what the current health related practice could be (Baggaley 1994).

3. In trying to determine how lower down the age limit should be as well as how high, ages 9-15 year have been considered. This is so because the earliest possible age of menarche is 9 years (Gallagher1960) and WHO reproductive age grouping is generally taken to be 15-49 year. This reproductive age grouping in females show that ages 9-14 are left out yet they are very productive and full of experimentation (Feldman 1997)

4. Lastly, it's a well known fact that the growth curve (or spurt) rises very steeply in adolescence. Because of this rapid growth and development, it is necessary that we have all the facts about adolescents, thereby helping us go into preventive measures before they enter this stage, or as soon as they enter it.

It is for this reason that all bad health related practices must be identified and prevented, conversely, good health practices should be strengthened. The question is, do we have a framework to identify these health-related practices? Or do we know who gives health-related information to these very important yet very vulnerable people? For example, many adolescents still don't know the facts about HIV/AIDS yet they engage in sexual activity as early as 10 years of age; meetings with school authorities in Zambia (Headmasters) confirmed their desire for a curriculum that includes sexuality in their schools (Feldman et al 1997). But at what age? This study sought to explore these factors and possibly answer some of these questions. Since this information is lacking, the researcher felt strongly to look for information that would lead to an intervention with a view to prevent disease in school going adolescents in Lusaka.

1.2 Justification

The above stated pieces of information does not only show presence of bad health practices in adolescence worldwide but also show that the problem is more concentrated in older ones. Therefore it is necessary to have facts on the younger adolescents too and if possible be able to establish at which point these bad practices begin. It has been proved by recent studies conducted. It is such a study covering young adolescents that would help reduce or control preventable health problems among adolescents.

In order to have necessary facts on the prevailing practices even in younger adolescents, a deliberate effort must be done to inquire and know these practices, and hence this study.

Chapter Two

OBJECTIVES

2.1 General

To determine health related practices and the sources of information on health, among school going adolescents in Lusaka.

2.2 Specific

1. To find out practices associated with sexually transmitted diseases in adolescents.
2. To identify attitudes of adolescents towards the use addictive drugs
3. To determine the knowledge levels of adolescents on oral dental hygiene.
4. To explore the influence of fitness as a determinant for health related practices in adolescents.
5. To evaluate the major sources of health care information for adolescents especially on sexuality, physical fitness, oral dental hygiene and addictive drugs.

Chapter Three

LITERATURE REVIEW

World-over, adolescents are different in their life styles, values, as well as general behavioral practices, thereby making it clear that when we deal with their issues, we should do it in a different way than we would when considering a child or an adult.

How to talk to these young people (or better, how to get them talk to you), how to deal with them effectively at their points of need, how to utilize for their own good their tendency to accept advise from and imitate and to talk freely to other adults than their parents and indeed how to positively interact among themselves for their good , are all very important issues considered whenever dealing with adolescence (Gallagher 1960). Considerable attention must therefore be devoted to understanding their physiology, anatomy as well a their evaluation and practices in a social model. This will help us understand further the nature of this adolescent i.e. his physiology, needs, personal characteristics, worries and his world. To effectively use this model of understanding, a health care worker, or indeed any other worker interested in adolescence, will learn individual characteristics (genetics) of adolescents and how they interact with the environment, hence when difficulties pertaining to health arise, he will have a much clearer insight in management procedures (Gallagher 1960).

It was until this understanding was complete that the American Health Authorities were able to understand why there was a high increase of Road Traffic Accidents, personal injuries, drug related problems etc. among their adolescents (Gallagher 1960).

3.1 Morbidity and Mortality

Adolescents are generally regarded as the healthiest of the age groups, hence their morbidity and mortality rates are comparatively low worldwide. However these rates are from insignificant levels and have been rising since the early part of the century (Creatsas 1993). For example the total number of adolescents aged 10-19 yr. in the United States was about 30 million in 1960, and had 3000 deaths that year due to a variety of problems. With a population as large as this, and its size increasing year by year, even low mortality rates inevitably yield problems which demand maximum attention (Gallagher 1960).

The morbidity and mortality pattern in Zambia shows increased trends its now not uncommon to hear of deaths in young people. This has largely been caused by HIV/AIDS situation and high degree of westernisation in culture, diet and lifestyles (Feldman1997). Problems of sexuality and drug abuse have their own share.

The HIV seroprevalence rate among STD clinics in Lusaka increased in 1991 to 59.7% among males and 68.7% among females (Hira et al 1991) with a high increase of sexual activity and inevitably STD among youths of average age 14-15 year. (Ankrah 1989). Further, it's not uncommon in Zambia to see carcinoma of the cervix under 20 year of age. The HIV/AIDS epidemic is not an abstract possibility for Zambian teens but an omnipresent daily reality, changing the morbidity and mortality patterns considerably (Feldman 1997).

Whereas, adolescents were regarded as the healthiest age group, this is slowly changing and efforts must be put into place to evaluate this changed pattern (Feldman 1997).

3.2 Sexuality, Drug Abuse, Exercise and Hygiene

1 Sexuality

Sexual activity among adolescents is increasingly becoming more apparent than in earlier decades. In some instances, sexual activity has been reported as early as 10 year of age, and seems to be more in females from age 12-15 yr. and above than males of the same age (Ankral 1989). The biggest problem that has arisen out of sexuality is the HIV/AIDS pandemic. Sadly, the adolescents haven't been spared world-over and there is a definite correlation between HIV/AIDS and other sexually transmitted diseases in direct proportional manner (Likwa 1989; Hira et al, 1991). The social and often economic (in the case of females), pressure for adolescents to become sexually active at an early age, and to have multiple partners, places adolescents in one of the highest at risk groups for HIV infection in Zambia today. There is however no published studies of HIV seroprevalence among adolescents in Zambia (U/S bureau of the census, 1994).

In one study (Malibata 1994-unpublished) out of 51 boys and 49 girls in secondary schools in Lusaka, almost half of both sexes (40..8% for girls 62.7% for boys) were involved in penetrating sexual intercourse, while oral sex and anal sex though practiced were not as popular. Thus, it is important to provide programs that would effectively prevent high-risk behavior. In some secondary schools in Cape Town, RSA, 11% of the sexually active students ever used condoms (of all students) and only 40% felt they may use condoms later in future (Feldman et al 1997).

In another study, sexually active students didn't see themselves personally at risk of HIV/AIDS and other STDs even though they knew that sexual activity predisposes to these problems (Ouadrogo et al 1990). The ultimate goal in the adolescence, even to those who are not yet sexually active is to provide accurate facts and knowledge on health problems arising out of sexuality, with a view to emphasis of an effective prevention and fidelity.

2 **Drug Abuse**

Drug related problems are alarmingly in great proportion in adolescents globally. The commonest are the non-injecting types such as Mandrax, though injecting types are also on the upswing (Stimson 1995). The commonly abused drugs are alcohol and nicotine-smoking (Scholz 1995). Whereas its culturally accepted to start smoking and take alcohol drinks in some cultures, generally its a big pointer to bad health practice and often requires urgent intervention (Scholz 1995). In Zambia, non-injecting drug use is common especially in compounds. Marijuana (Chamber or Dagga), Mandrax (Kill me quick) and valium are the most commonly used drugs among Zambian adolescents (Feldman 1997). Alcoholism, especially with a home made brew is common too.

Therefore it is necessary that primary preventive strategies should form a backbone of public health, focusing on the reduction in the demand of these drugs in today's adolescent.

The responsibility of health care providers should be to enable adolescents make healthy choices in order to promote public health. Inevitably, this can only be done with availability of facts such as these, which can be used in making "health" policies for "healthy" people (Broer 1995). In Zambia, the extent and variety of risk taking behavior on drugs clearly call for the development of culturally sensitive and accessible health education and health care services within a broader array of social, education and support services.

3 **Fitness/Exercise/Recreation**

To most health workers, there is a strong link between fitness, fatigue and often with diet too (Key 1994). When problems of physical fitness appear, often there may be some dietary problems or an illness with a predisposing factor being fatigue (Gallagher 1960).

Other relationships documented include exercise frequency with onset of sexual intercourse (Brown 1997), exercise and bone mineral density in athletes (Tsai et al 1996), anabolic drug use and exercise (Emery 1996), eating behavior and fitness (Cursatis 1996), amenorrhoea and female athletes (Timmerman 1996), cardiovascular problems and adolescent fitness (Pate et al 1994) and general health behaviors and adolescent fitness (Lipp et al 1993).

There are certain general facts that can be mentioned under fitness and recreation. Firstly it is necessary to engage a youth in any such physical exercise, because these contribute greatly to health by increasing bone mineral density (BMD). However efforts to groom competitive and elite athletes sometimes will be too excessive; this often will be at the expense of their health. Further this sometimes exposes them to anabolic steroids (Emery 1996). Secondly, ammenorrhoea is a common problem of female athletes and may contribute greatly to stress fractures and future osteoporosis (Timmerman 1996). Thirdly, one study showed a perceived romantic appeal in male-exercise adherence (Douthitt 1994). We should therefore ask ourselves questions, If exercise will increase romantic appeal thereby increasing risks of sexuality such as HIV/AIDS.

There is need to change this perception in adolescence so that corrective objective of fit healthy body is guaranteed. Further it is clear that exercise though necessary can be dangerous especially to female adolescents unless measures such as calcium supplements are taken. However, this information is not readily available in schools hence girls may end up with preventable medical problems purely because of poor health information flow (Douthitt 1994).

The issue of exercise (fitness/recreation) should always be considered in adolescence because of its link to other factors like sexuality and general health.

4 **Oral-Dental Hygiene**

Buccodental health is a problem of high prevalence including mainly caries, malocclusion and malposition. Dental caries is the principal oral problem of childhood and adolescence worldwide (Gonzalez de Dios, 1996). It has been further suggested that most predisposing factors to poor oral dental hygiene has largely been because of poor hygienic practices among adolescents augmented with poor eating habits (Gonzalez de Dios 1996). Whether this arises out of poor health information, customary attitudes and beliefs, or just sheer neglect, is still unclear hence the need for exploitative studies.

The four variables under consideration-sexuality, drug use, oral dental and fitness in adolescence are closely associated in impact, and often a problem in one could lead to a problem into another. However, generally, it seems clear that the need to have health education in schools especially in these areas cannot be over emphasized (Creasas 1993). The first step towards good health promotion is to know the reality of the problem by research. This would lead to proper policy formulation on health programs that of are ultimate importance to adolescents (Rossow 1992).

The sample size (Pupil per cluster) was calculated at 80% power with 5% confidence level using the following formulae.

$$n = \frac{t^2pq}{d^2}$$

$$nf = \frac{n}{1+ n/N}$$

Where n=first estimate of sample

t=1.96 size (95% confidence level)

p = 0.5 (maximum variability assumed)

q = 0.5

d = 0.05 (5% accuracy)

N= Target population size

nf = final sample size

$$n = \frac{(3.84)(0.25)}{0.00285} = 384$$

$$nf = \frac{384}{1+\frac{384}{2000}}$$

$$nf = 322$$

Sample size for cluster sampling = (SZR) [1+(b-1) x rho]

$$n_c = SZR\ [1 + (b-1) \times rho]$$

$$n_c = n_f\ [1 + (b-1) \times rho]$$

Where:

SZR = Sample size for simple random sampling i.e. n_f

b = Design effect

s = (rho) = Intra-cluster correlational coefficient. In this case, this was 0.052

$n_c = n_f[1 + (b-1) \times s]$

$= 322[[1=(10-1) \times 0.052]$

$=322\ [1.468]$

$= 473$

The initial estimated sample size was a minimum of 473. It is noted here that, where the value of rho is not known, one can use the maximum possible figure of 0.9. This inserted in our estimate gives a maximum possible sample size of 2930. This give a sample range of 473 -2930. For this study it was initially estimated to have 500 pupils at fifty (50) per cluster.

However, the final sample size was 490 giving a non-response rate at 2%.

4.4 Data Collection and Analysis

Data was collected using a structured questionnaire on both self-administered and interviewer administered basis. The information on this questionnaire was largely obtained from qualitative data collected using focus group discussions from one of the schools prior to the commencement of the survey.

Using this questionnaire, data was collected systematically in Feb. 1998 using two trained research assistants. The questions were then properly arranged and pre-coded for easy computer entry and analysis.

Data analysis was done on EPI-INFO software version 6.3 by calculating frequencies, values of dispersion and central tendency as well as testing significance using Chi-square values. Stratification was sometimes done for comparison purposes.

4.5 Ethical Consideration

Ethical clearance was sought and obtained from the school of Medicine Research Ethics committee. After this was done, permission to carry on the survey was obtained from the Permanent Secretary, Ministry of Education who in turn informed the headmasters of the Schools where the survey was to be carried out. Lastly, but not the least, permission was also obtained from all parents through the headmasters and Parents and Teachers Association (PTA).

4.6 Study Limitation

The major limitation in the study was financial so much that the clusters could have been increased to include peri-urban and rural schools in order to give a better picture of what takes place in different school situations. In addition, the on-school going adolescents could have been studied too at higher cost because the study type would change to a more appropriate household survey.

Chapter Five

FINDINGS AND PRESENTATION OF RESULTS

This chapter presents the results of the study and is divided in the following sections: Demographic data, Analysis of specific variables (i.e. recreation & exercise/oral-dental hygiene, drugs & sexuality as well as sources & availability of health care information & practice respectively), Analysis of inter-relationships of variables.

In general, it has been found that there exits a health related behavior which is difficult to ignore among school going adolescents.

1 **DemographicData**

Age: The study population had a modal age of 14.0 and a mean age of 13.2 (SD 1.39, t-statistic 209.9, df 489, P value 0.00).

Study Cluster (Schools): There were a total of ten clusters (schools) each representing about 10% of the study population (n=490). Response rate was 100% except in one cluster which had a response rate of 90%. Reasons for this were not searched. Out of the ten clusters, seven were government-managed institutions and three were private.

Residential Location: Most of the study subjects were found to reside in low-density areas (55.7%) and the rest in either high or moderately dense areas (44.3%). These geolocations were divided using local municipal classification in Lusaka.

5.2 Analysis of Specific Variables

Recreation/Exercise

This study revealed that 57.3% of school going adolescents had no formal or organized physical training whereas 42.7% had. Despite the non-availability of formal or organized physical training in schools, 61.2% of the respondents were involved in some sporting activity ranging from football, netball, squash, cricket, basketball and many others. Of great concern were the 38.8% who lead a sedentary life at this tender age. Despite this level of sedentary life in these adolescents, most of them (83.5%) still felt they were physically fit arising from either walking to school or doing manual work both at home and school.

The most popular sport was football and netball (44.9%) followed by athletics (22.9%). It was further found that the desire for sport in these adolescents was high in that majority of them preferred to spend money in sport and sporting clothes (71.6%) rather than spend money in bad practices such as purchasing cigarettes (7.6%), alcohol (8.2%), or indeed going to a party (30.1%) see table 1. This result corresponds with the amount of sporting activity (61.2%) as well as level of fitness (85%) present in these adolescents.

The level of fitness was found to have a directly proportional and significant relationship with age (Pvalue 0.000039,X^2 = 30.04, df=6). The amount of sporting in these adolescents significantly varied depending on sex giving Odds Ratio (OR) of 30.52 (95% CI 0.35, 0.77) and Pvalue of 0.0007 (Yates corrected X^2 of 11.49). The level of sport and fitness also varied significantly from school to school (X^2 = 99.51, df 8, Pvalue 0.000) as well as residential location, OR 0.56 (CI 0.38-0.80) and Pvalue of 0.0022, X^2 = 9.32.

In addition, going to a government school seem to predispose to bad practices such as going to parties, cigarettes, etc. (Pvalue = 0.00003, $X^2 = 35.07$, df 8).

TABLE 1: **ADOLESCENTS' PREFERENCES WHEN THEY HAVE MONEY**

n=490

	Yes (%)	No (%)
Sweets	53.2	46.8
Cigarettes	7.6	92.4
Alcohol	8.2	91.8
Sport clothes	71.6	28.4
Football	47.6	52.4
Party	30.1	69.9

Oral-Dental Hygiene

The respondents were found to have a good practice regarding tooth brushing, i.e. brushing their teeth once to three times a day (see table 2) amounting to 97.3% of good practice.

TABLE 2: **TOOTH BRUSHING IN ADOLESCENTS**

Frequency per day	Percentage
Once	19.8%
Twice	27.3%
Thrice	50.2%
Sometimes	1.8%
Never	0.8%

This level of dental practice had a significant relationship with age ($P = 0.00$, $X^2 = 71.20$, df = 24,) sex ($P = 6.8 \times 10^4$, $X^2 = 24.33$) but not with residential location ($X^2 = 4.88$, df 4, $P = 0.30$) and also it didn't matter which school one went.However, this good practice (tooth brushing) was diluted by the other bad dental practices found, such as eating sweets between meals (see table 3) suggesting that the respondents may not have been honest in their toothbrushing responses.

TABLE 3: **DENTAL PRACTICES PREVALENT IN SCHOOL GOING ADOLESCENTS**

Practice	Frequency(%)
Toothbrushing 1-3 x / day	93.3%
Eating between meals	77.6%
Sweets	80.2%
Cakes	79.0%
Chocolate	80.0%
Biscuits	78.4%
All	20.4%
Nothing	

As stated above, type of school or residential location had no significant bearing on the dental care practices, but sex had (Yates X^2= 3.96, P= 0.0466) such that females were more likely to engage in bad practices such as eating sweets (OR 1.59 95 CI 1.00-2.53)

Drugs

The practice of using illicit drugs was checked. This included presence of smoking and smoking habits, alcohol, Mandrax and marijuana use.

TABLE 4 **FREQUENCY OF SMOKING IN ADOLESCENTS**

Smoking Habit	Percentage
Once or twice	7.4%
Smokes occasionally	2.7%
Smokes regularly	4.5%
Never smoked	79.0%

Smoking

From these results(see table 4), 21% of the adolescents either presently smoked or have smoked before. Out of those who smoke regularly there was a sex ratio of 1:1. and there exits an age variation (see table 5).

TABLE 5: **ADOLESCENTS WHO SMOKE REGULARLY BY AGE AND RESIDENTIAL LOCATION (N=103)**

Age	Percentage
9 years.	4.5%
10 years.	18.2%
12 years.	13.6%
13 years.	13.6%
14 years.	27.3%
15 years.	22.7%
Residential area (High) (Low)	59.1% 40.9%

Frequency of smoking increases by age and was prevalent in high-density area (59.1). In addition it was further associated with those adolescents who lead a sedentary life (68.2%). However these findings were statistically insignificant.

Other Drugs: Bad health related behavior was found to be present. There were significant levels of alcohol use (47.9%), frequent use of unprescribed-prescribed valium (12.9%), use of marijuana (6.8%), and mandrax use (4.3%). (See table 6)

TABLE 6: **DRUG USE IN ADOLESCENCE**

	Yes	No
Smoking	21%	79%
Alcohol	47.9%	52.1%
Valium	12.9%	87.1%
Marijuana	6.8%	93.2%
Mandrax	4.3%	95.7%

The earliest age these practices began was found to be 10 yr. and by 11 yr. use of addictive drugs increased by 50% (See Table 7).

TABLE 7: **DRUG USE BY AGE (FREQUENCIES AND P-VALUES)**

Age	Smoking n=486	Valium n=488	Alcohol N=489	Mandrax	Marijuana
9	2 (6) 33%	1 (6) 16%	0 (6)	0 (6) 0	0 (6)0
10	4 (23) 17.3%	4 (23) 17.4%	12 (23) 52%	3 (23) 13%	2 (23) 8.7%
11	9 (33) 27.2%	7 (34) 20.5%	20 (34) 58%	3 (34) 12.5%	3 (34) 8.8%
12	16 (66) 24.2%	15 (66) 22.7	47 (67) 70.1%	3 (66) 4.5%	4 (66) 6.1%
13	13 (97) 13.2%	13 (97) 13.4%	44 (97) 45%	2 (97) 2.1%	4 (97) 4.1%
14	39 (95) 20%	21 (196) 10.6%	85 (196) 43%	9 (196) 4.6%	15 (196) 7.6%
15	15 (66) 22.7%	2 (66) 3%	26 (66) 39.4%	1 (65) 1.5%	5 (66) 7.6%
Pvalue	0.000	0.024	0.00044	0.19	0.89
df	24	6	6	6	6
X^2	52	4.52	24.38	8.65	2.24

Regarding alcohol, these adolescents have drank a variety such as wines, variety of spirits, Mosi and indeed many other types of lager beer as well as opaque beer.

Sexuality:

Sexual behavioral practices seen in this study are illustrated in the tables (see table 8 & 9).

TABLE 8: **PREVALENCE OF SEXUAL RELATED PRACTICES**

Practice/State	**Percentage**		**Earliest Age**	
	Yes	No	Female	Male
Have had sex	36.9	63.1	9	9
Worry about HIV	63.4	36.6	10	12
Have used a condom	10.1	89.9	9	10
Think condom is useful	81.9	18.1	10	10
Have had a sexually transmitted disease	6.8	93.2	10	11

n=490

Table 9: **RELATIONSHIP BETWEEN SOCIO-DEMOGRAPHIC VARIABLES AND SEXUALITY IN ADOLESCENTS**

	Had Sexual Intercourse	Use of a Condom	Worry about HIV	Had STD
Age	0.42	* 0.008 df 6, X2 = 17.37	0.38	0.73
Sex	* OR 0.36 95% CI 0.24-0.54 P = 1.9 x 107 RR 0.52 (0.40-0.67)	OR 0.88 (0.54-1.44) P = 0.67	P = 0.047 *	0.97
Residence	OR 1.44 (0.98-2.14) * P = 0.05	P= 0.12	0.66	* OR 2.68 (1.2 -6.1) P = 0.007
School	* 0.000049	* 0.011	NS	0.07

There exists not only a sexual behavior among adolescents but "bad" in nature. The earliest age of sexual knowledge and activity increase with age in both males and females.

Some Socio-demographic factors do significantly affect the levels of sexual behavior (see table 9)

Sources of Health Care Information

The major sources of health care information was parents regarding oral-dental hygiene (78.1%) drugs (56.2) whereas most information regarding sexuality came from the media (71.7%).

Table 10: **ADOLESCENTS' SOURCE OF HEALTH CARE INFORMATION**

	Friends	Parents	Books	Teachers	Posters	Media	Other *
Oral-dental	19.1%	78.1%	48.6%	51.2%	28.7%		n=20 other 33%
Drugs	43.5%	56.2%	15%	46.5%	36.1%	49.2%	n=18 other 20%
Sexuality	43.1%	56.8%	60.2%	56.2%	49.7%	71.7%	n=25 other 28.2%

Availability of Health-Care Services

It was found that only 30.8% of the respondents said there was some health care at their schools, 69.2% had none. This didn't matter whether the school was private or government run.

Table 11: **AVAILABILITY OF HEALTH CARE SCHOOL BY SCHOOL**

School	Amount of health care
1.(AA)	31.4%
2.(D.K)	2.5%
3. (J)	1.7%
4 (KG)	20.7
5.(LF)	15.7%
6.(TT)	5.8%
7.(VV)	5.0%
8. (WD)	17.4%

5.3 Inter-Relationships Between Variables

The main independent variables under-consideration namely recreation, oral dental hygiene, drugs and sexuality seem to have some interesting relationship as illustrated below (see tables 12, 13 & 14).

Demography Vs Recreation/Dental hygiene/Drugs and Sexuality

Table 12: **RELATIONSHIP OF INDEPENDENT VARIABLES AND SOCIO-DEMOGRAPHIC FACTORS**

	Recreation		**Oral-dental**		**Drugs**		**Sexuality**	
	Sport	Sedentary life	Tooth-brushing	Eating between meals	Smoking	Alcohol	Had sex	Had STD
Sex	0.52 (0.35-0.77) P = 0.0007	2.06 (1.38-3.06) P = 0.0002)	P = 0.0006	1.59 (1.0-2.53) P = 0.04	P = 0.0015	0.89 0.61-1.29 P = 0.58	0.95 0.24--0.54 P = 0.0000	0.95 0.44-2.05 P= 0.97
Live	0.56 0.38-0.82 P = 0.0022	1.88 1.27-2.79 P = 0.0011	P = 0.30	0.95 0.60 - 1.50 P = 0.90	P = 0.15	0.97 0.66-1.41 P = 0.91	1.44 0.98-2.14 P = 0.05	2.68 1.20-6.10 P = 0.0126
Age	P = 0.13	P = 0.09	P = 0.0000	P = 0.34	* (E<5) 0.000	P= 0.0021	P =0.42	P= 0.73
School	P = 0.000	P=0.0000	P=0.0000	P = 0.45	P=0.0000	0.0000	0.00004	0.079

(All odds ratio figures at 95% CI, P values all Yates corrected)

Demographic factors do affect health behavior especially going to particular schools.

Recreation and Other Variables

The most specific factors studied under recreation were where one was involved in any sporting and physical activity or leading a sedentary life. These two factors were checked on whether they would influence bad health practices relating to oral dental hygiene, drug abuse or bad sexual behavior (see table 13)

Table 13: **EFFECTS OF RECREATION ON DENTAL HYGIENE**

	Oral-dental		Smoking		Alcohol		Sexuality	
Sport	Good	Bad	Yen	No	Yes	No	Sex +	STD +
Yes No	59.7% 37.5%	1.4% 1.2%	14.8% 6.2%	46.2% 32.7%	32.0% 15.9%	29.2% 22.0%	23.5% 25.4%	3.5% 3.3%
X^2 Df Pvalue	4.14% 4 0.38			9.85% 4 0.04	0.019		0.41	0.328

Drug Abuse, Oral dental hygiene and Sexuality (See Table 14)

Table 14: **EFFECT OF DRUG ABUSE ON ORAL-DENTAL HYGIENE AND BAD SEXUAL PRACTICES**

All values represent Pvalues at 95% CI

	Oral-dental (tooth brushing)		Sexuality	
	Good practice	Bad Practice	Had Sex	Had no sex
Smoking	p=0.000	P= 0.000	P =.0025	-
Alcohol	-	P= .0044	P= 0.0001	-
Marijuana	P = 0.000	-	-	P = .038
Mandrax	P = 0.000	-	-	P = 0.41

Sexuality and Availability of Health Care in Schools (See Table 15)

Table 15: **SEXUALITY OF ADOLESCENTS BY AVAILABILITY OF HEALTH CARE IN SCHOOLS**

	Sexuality					
	Had sex n=392		Had STD n= 390		Knows condom is useful	
Health care availability	Yes	No	Yes	No	Yes	No
Yes	8.7%	22.2%	1.0%	4.1%	26.9%	1.3%
No	28.8 %	40.3%	4.1%	65.1%	57.7	11.5%
	P = 0.014		P = 0.4		P = 0.36	

In schools where health care information was lacking, incidences of early sexual contact was high.

Chapter six

DISCUSSION OF THE RESULTS

This chapter presents the discussion of the results or the man findings of the study on adolescents. This discussion is presented under the following sub-headings: Demography Health behavior, Assessment of exposure and risky inter-relationships, Sources of health care information), and Availability of health care.

6.1 Demography

Age in clusters; The mean age of 13.2 (SD 1.39) in the study population of adolescents aged 9-15 years shows an eschewed-to-the-right distribution curve of the sample. This study sample showed a response rate of 100% in all but one cluster where the rate was 90%. In general there was a no-response rate of 2% (at estimated n=500). This suggests that whenever one wants to communicate with adolescents, they are always ready to listen, and willing to participate. This finding can therefore be exploited to the full in giving health care information. This was true in both public and private schools.

Area of Residence: 55.7% of the study sample was found to reside in low density areas as compared to 44.3% of those who were found to reside in high density areas. Reasons for this difference were to be exploited. However, one could suggest that as a child grows, those parents in low density areas are more capable of providing moral as well as financial support to their children. It is for this reason that school drop out rate is directly proportional to poverty levels, the higher the poverty levels, the higher the drop out rate.

6.2 Health-Related Behavior

The finding of this study shows that there exits a health-related behavior (in adolescents) which must not be ignored if proper health planning, policy making and health programs shall be implemented to to make society better.

Recreation/Exercise: The link between recreation, fatigue and fitness to general good health in adolescents is widely proven (Lipp et al 993). It therefore follows that the lack of fitness and recreation can be a strong precursor to medical problems in all age groups including adolescents (Tsai et al 1996).

This study reveals an institutionalized lack of physical fitness in that more than half of the respondents (57.3%) said they had no formal or organized physical training in their schools, despite the desire to physical training (6.2%). This finding was further strengthened by the fact that 38.8% of the respondents lead a sedentary life. This is a bad health practice, which must not be ignored, because it is a risk factor, which has been associated with many medical problems later in life such as cardiovascular problems. The earlier an adolescent is groomed into a useful fit person, the healthier he would be because his bone mineral density (BMD) improves. In addition, the break from studying to such recreational ventures is a useful academic weapon (Lipp 1993). In grooming a school going adolescent in useful physical exercise, institutions of learning have a big role to play as far as health education is concerned because it has been found that when adolescents are left to manage their affairs, they find it easier to engage in "bad" practices such as substance abuse, and even sex.

Therefore the finding in this study of institutions not being fully involved in physical training, is surprising and must be halted. Since physical training instills discipline, it may follow that it could be easier to promote good health behavior in such adolescents and this will lead them into a healthier, happier and disciplined life as they enter the more risk age grouping, 15-45 yr., particularly so in the advent of HIV/AIDS pandemic.

Oral-Dental Hygiene: Buccodental health especially carries a problem of high prevalence among adolescents and the main predisposing factor seem to be poor oral-dental hygiene (Gonzalez, 1996). The findings of this study show bad oral-dental practices prevailing in adolescence. Despite the fact that these adolescents have a good knowledge in tooth brushing and the place of tooth brushing in buccodental health. These bad practices include the eating of sweets between meals. The actual good dental practices is small (20.4%).

In recent literature about oral-dental behavior in young Zambians, tooth brushing is a virtue understood and may be practiced sufficiently, but visits to dentist accounts for 15% of all health visits by young people (Sims,1998). The findings of bad dental practices are supported by the high level of dental problems in adolescents such as toothache, bleeding gums, bad breath and high rate of extraction (Sims, 1998). As long as adolescents don't change their practices, in this regard, buccodental health will progressively deteriorate in Zambian youths. With the advent of HIV/AIDS, there is need to improve oral dental hygiene as an interventional method, and this could be done by dissuading adolescents from this strong desire for sweets because poor oral-dental health (e.g.caries, gingivitis, etc.) increases HIV penetration three-fold when exposed to an infected person.

Substance-Abuse: Drug related problems and its abuse has been known to exist in Zambian youths except it has been difficult to ascertain the prevalence levels. Feldman and others did establish the presence of abuse for marijuana ,valium, mandrax and alcohol (Feldman 1997). Qualitative data (from focus group discussions) did confirm this finding hence the search for the prevalence values.

Even through the frequency values are somewhat small, drug abuse as a practice exists and surprisingly in these very young schoolboys and girls. It is expected that there should never exist an idea of mandrax, marijuana, and the rest, in this age group, but its not so. This finding seem to be global in that these findings are comparable with findings in other countries e.g. for smoking Kenya 14% (Kuria 1996) and Germany 14.3% (Scholz 1995).

Alcohol abuse is alarmingly high (47.9%) and frequencies of marijuana use (6.8%) mandrax use (4.3%) and valium use (12.9%) are too high in an age where zero prevalence is expected. Sadly this study reveals that by the age of 10, a good number of young people have had a feel of smoking any tobacco, mandrax, marijuana and have taken many forms of alcoholic drinks.

Where as it maybe culturally acceptable to smoke and drink alcohol at this age in some cultures, this is a big pointer to bad health practices and health workers as well as the community at large must take all responsible remedial measures to redress the situation (Scholz, 1995). One way would be to try the use of peer models as advocated for in the control of HIV/AIDS (Feldman, 1997).

This should be done particularly with the strong links drug abuse has with HIV/AIDS (Turner NH 1996) as well the risks it possesses to make an adolescent be extremely vulnerable to HIV/AIDS, accidents (Turner 1996), psychiatric problems (Stimson G.V. 1995), other sexual risky behaviors (Brindis C. 1995), and cardiovascular problems in these adolescents (Kitange H.M 1993).

Certain risky behaviors such as drug abuse may show results soon while others only show later. Whatever the case may be, whenever the health practice is bad it must be prevented because if one delays, the health care burden later in life will be extremely costly to individuals and nationally yet this could have been prevented. Therefore primary preventive strategies form the backbone of public policies focused on reduction of demand for hard drugs (Broer J. 1995).

Sexuality: In the Zambian culture and indeed many other cultures talking about of sexuality is a taboo. It is for this reason that it is unclear in many people including parents, at what age talks on sexuality should begin. One way is to establish actual sexual practices and then assume that these begin at a much earlier period. Secondly the WHO grouping of the reproductive age of 15-45 years. completely shifts the target leaving the 9-14 year olds as if they were not sexually active.

This study has shown that even by age of 10 years some adolescents have already engaged in sexual activity (36.9%) and this frequency increases with increasing age. Sadly some of them have already have engaged in unprotected sexual intercourse (10.1%), see table 8. Worse still 18.1% of them still have doubts on the usefulness of a condom in preventing sexually transmitted diseases & unwanted pregnancies.

As a result of this 6.8% these adolescents had had one form of STD or another by the age of 10 for females and 11 for males.Therefore there exists a sexual practice among school going adolescents and this practice begins much earlier than the focused reproductive age of 15-45 yr. In addition, it seems sex is a risk factor so much that being a female increase the risk of bad behavior by almost 52%, (OR 0.36 95% CI 0.24-0.54) see table 9. Furthermore residential location seem to be a factor in bad sexual behavior such as engaging in unprotected sexual intercourse (P = 0.05) and contracting STDs (P = 0.0007).

The findings are similar to projections made in other studies (MOH 1996) explaining the fact that teens are getting infected with HIV more and more than before (Luo .N. 1996) as the case in Uganda where its now uncommon to find 15 year olds with HIV/AIDS. In addition , prevalence of unplanned pregnancies in teens is on the increase as well as abortions and STDs (Likwa 1996). In another study (40.8% for girls, 62.7% for boys) almost half of both sexes in secondary schools were involved in penetrative unprotected sexual intercourse. Therefore there exists not only a bad sexual behavior in school going adolescents, but this even involves young ones such as 9 year olds.

This is of great concern and all stake holders-parents, teachers, friends, uncles etc. do not need to be shy any more to talk about it to their 9 yr. olds. That's the only way to change the trend. If cultures and traditions hinder this scope of thinking they must be put behind, buried and forgotten so that life will be saved and general state of health in society improved.

6.3 Exposure and Risk (Inter-Relationship)

Whenever a particular practice exists, its always ideal to assess what could have led to it or what factors contribute to its existence, hence this discussion.

Demographic Factors: Among the social demographic factors studied namely, sex, age, place of residence and school, it was found that some of them have significant bearing on the outcome of some particular practice.

Sex significantly affected recreation, oral dental hygiene, substance abuse and sexuality. If one was female, they were more likely to engage in health sporting activity (OR 0.52, P = 0.0007),or even lead sedentary life (OR = 2.06, Value = 0.0002), eat sweets between meals and have increased dental problems (P = 0.0006, OR = 1.59). Lastly but not the least, females have a high frequency of sexual contact (P= 0.0000) but reported incidence of sexually transmitted diseases has no significant sex difference (OR 0.95, P = 0.97). The males on the other hand are more likely to be engaged in substance abuse (0.00015). These findings suggest that being females seem to predispose to bad health practices such that intervention measures could target this group.

Area of residential location seem to significantly affect the level of sporting (P = 0.0022) and sedentary life (P = 0.00011) but this didn't seem to significantly affect oral dental hygiene and use of hard drugs. However living in a high-density area increased the likelihood of one having had sexual contact (OR = 1.44, Pvalue = 0.05) and many had sexually Transmitted Disease (OR = 2.68 Pvalue = 0.012).

This suggests that involvement of communities in interventional methods could reduce the incidence of risk sexual behavior especially if high density residential location are targeted. This is similar to findings in other studies (Likwa 1996).

The findings that the younger one is the more likely that they are interested in good dental care (Pvalue = 0.000) could be exploited and make these adolescents grow with good dental behavior. Secondary, this study reveals that frequency of alcohol abuse increases with increasing age especially often 10 yr. of age (Pvalue = 0.021). It follows that if health education campaigns are commenced much earlier than at 10 years, the trends could change. Lastly, but not the least these bad practices seem to begin at 10 year. Hence in order to control them interventional measures should be aimed at ages less than 10. In view of this the view that sexuality be taught as soon as a child enters school has credence and could be the answer to the many bad health related behaviors in sub-Saharan Africa.

This study reveals that going to public school predisposed one to sedentary life (P = 0.000), less sporting (P= 0.0000), increased incidence of smoking and alcoholism (P = 0.000) as well as incidence of early sexual contact. It therefore seems private schools are better in this regard may be because of close supervision by teachers and superiors. The adolescents in public schools are also more likely to reside in high-density areas, a risk factor too.

In order to address this problem, one need to involve policy makers as well as implementation at government level with maximum intersectoral collaboration, e.g. Ministry of Education (Schools) working hand in hand with Ministry of Community Development (Community participation), Sport and youth development as well as Ministry of Health (Monitoring & Evaluation).

Recreation, Substance-Abuse and Sexuality: Generally, this study reveals that presence of one bad health behavior in one area often meant the likelihood of bad behavior in other areas were very high. Among adolescents found to either leading sedentary life or engaged in healthy sporting activity, 22.8% of them had drunk all brands of alcohol and 25.7% had had sexual contact (table 13). In addition, if an adolescent smokes, drinks alcohol or uses marijuana or mandrax, the likelihood of having bad oral dental practices was high; similarly the risk factor for early sexual contact were smoking (P = 0.0025), drinking alcohol (P= 0.0001), and use of marijuana (P =0.0380).Lastly but not least, health care availability in schools significantly affected the levels of sexual contact (P=0.014). In areas where there was little or no health care, incidence of sexual contact was as high as 28.8% compared to 8.7% in areas where there was health care. Because of these inter-relationships, these findings suggest that interventional measures at these risk factors should adopt a "Supermarket Approach" instead of targeting one area. In the last 20 years no single intervention measure has been found to be successful. Single intervention measures are very expensive to be successful and has more chances of failure if not followed up and continued. Combined intervention though expensive in the initial implementation has in the long run proved to be affordable, successful and sustainable as seen here in the HIV/AIDS intervention in Uganda (Central Board of Health report, 1997).

Chapter Seven

CONCLUSION

In general, there exists bad health related behavior in school going adolescents in respect of recreation physical activities, oral dental hygiene, substance abuse as well as risk sexual behavior. This behavior is seen as early as 10 yr. of age. Therefore we no longer need to be shy about discussing these issues with our children but face them openly so as to reverse the current trends.

Bad health related behavior doesn't only exist in each of these individual areas but this study has also shown that existence of bad practice in one field seem to be an indicator that the individuals in question also have bad practice in other areas.

This correlation is very evident especially in people with substance abuse who are also found to engage in risky sexual behavior. With the advent of IV/AIDS being a reality in adolescence , one would also think that prevalence of oral-dental problems, and drug related problem could be on the increase. Further research is necessary to explore these inter-relationship deeply. However, this suggests that any interventional efforts in any one field must never exclude the other areas too i.e. a super-market interventional approach is necessary to reverse the current trends. This being the case, it seems also that any interventional efforts would be costly in view of this super-market approach. Therefore all such efforts must involve all stake holders particularly policy makers in government ministries, Non-governmental organizations, the church, the community at large, parents and indeed the adolescents themselves, so that the interventional cost is shared.

Lastly but not the least since these "bad" practices seem to occur in direct proportional ratios with availability of health services in schools, it suggests that the initial steps may be to revive school health services so that they provide health education among school going adolescents. In addition, all such efforts would only be successful if parents and peers are involved since they provide the bulk of health related information as revealed in the study. Sadly the role of posters in causing positive behavior change seem to be little yet a lot of money has been spent, in the past, in this area. What seem to be effective tool of information dissemination would be the media as shown in this study.

In view of all these inter-relationships, solving problems of health in adolescence is not as straight forward as many imagine but requires money, institutional capacity building as well as strong inter-sectoral collaboration among all the stake holders. Interventional (preventive) efforts must begin now aiming at primary school pupils before they enter this risky age group i.e. 10 years and upwards. These should include health education with a lot of input from teachers and parents, as well as use of art and drama as suggested by Feldman (Feldman 1997)

Chapter Eight

RECOMMENDATIONS

In view of the findings of this study, it is hereby recommended that;

1. ***Health Education*** strengthening in school going adolescents must begin far before these young people reach the age of 10 years. It is further suggested that the period of reproductive age be widened to a 9-45 years to include these young people unlike the case now.

2. ***Health educational*** campaigns be incorporated into science curricula in primary, basic and indeed all secondary schools. This means the teacher must be equipped with such necessary knowledge.

3. ***Screening services*** such as laboratory and clinical investigations should be introduced every year for four years after primary school entry. This will ensure that as a pupil enters this risky age group beginning at 10 years , a lot of effort will have been taken to identify and help the risky child specially in relation to drug abuse and sexuality.

4. ***Counseling services*** be made available in all schools. There should be necessary legislation to support the above recommendations, and to deter young people from any things that may encourage them to engage in bad health behavior. In this regard taxes on alcoholic beverages and other drugs be reviewed bi-annually in consultation with health personnel.

5. ***Families*** should teach primary prevention, emphasising health practices for these "children". This means parents and guardians should set examples of good living, health practices, and model living.

It is hoped that if the above mentioned recommendations are followed, Lusaka and consequently Zambian adolescents will benefit with good health and as they grow they will in turn help build a healthy country.

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APPENDIX 1

BUDGET

An estimate of the budget towards the final completion of this proposed study is as follows:

Description	Units	Cost
PERSONNEL		
Secretarial		
Typing	@ K1000 per page	100,000.00
Photocopying	@ K150 X 100 pages X 5	75,000.00
Statistician	@ K130 000 per day	260,000.00
Research Assistants (RA)	@ K7000 X 30days X 4	840, 000.00
Computer Programmer	@ K50,000.00 X 2	100,000.00
FIELD SERVICE		
Transport	@ K 1000 X 30 days X 30 X 4	120,000.00
Training of RA		50,000.00
STATIONERY		
Computer paper (5 reams)	@ K15,000 X 5	75,000.00
Ribbon	@ K25,000 X 1	25, 000.00
Diskettes	@ K25,000 X 1	25, 000.00
Clip folders	@ K 10,000 X 5	50,000.00
Scientific Calculators	@ K50, 000 X 1	50,000.00
Others: Envelopes, Erases Correcting fluids, Pens	@ K50 000 X 1	50, 000.00
Sub Total		2,320,000.00
Contingency @ 10%		232,000.00
Total		2,552,000.00

APPENDIX 2

PARTICIPANT INFORMATION AND CONSENT FORM

Dear.....

We invite you to participate in our research on issues relating to your health status. We believe that your contribution will contribute positively to health programs for youths in this country.

A questionnaire has been prepared in this regard and we request you to answer all questions if possible as truthfully as possible. Where you don't understand ask and you will be assisted.

Answers to these questions will be treated with strictest confidence and your name will not appear anywhere in our records.

Thank you for your cooperation.

Researchers

.....

.....

.....

CONSENT

The above information has been explained to me clearly and I fully understand. Therefore I hereby consent to my participation in this study.

Full Name .....

Signature/Thumbprint:.....

Witness:.....

Date:.....

QUESTIONNAIRE

A. **INSTRUCTIONS**

1. Welcome to this interview. Please answer all questions as honest as possible.
2. Please don't write your name anywhere on the interview paper.

B. **DEMOGRAPHIC DATA**

1. Age.....Date of birth.....
2. Name of school.....
3. Where do you live.....

C. **RECREATION/EXERCISE**

4. Is there any physical training in your class: [1 | YES]
   [2 | NO]
5. What sporting activity are you involved in?
   1.....atheletics
   2.....football/netball
   3.....nothing
   4.....other (specify)
6. How fit are you [1 | VERY FIT]
   [2 | NOT FIT]
7. If you were given money which one of the following would you buy or pay for?
   1.....sweets 2.....sports clothes
   3.....cigarattes 4.....watch football
   5.....alcohol 6.....disco/party

D. **ORAL DENTAL HYGIENE**

8. How many times do you brush your teeth in a day?
   1.....once 2.....never
   3.....twice 4.....sometimes
   5.....three times
9. Which one of the following foodstuffs would you like to be eating between main meals?
   1.....sweets 2..... biscuits
   3.....cakes 4.....all the above
   5.....chocolates 6.....noe of the above.

10. Who is your main source of oral dental care information?

1.....friends 2.....teachers

3.....parents 4.....posters

5.....books 6.....no one

7.....other specify

E. **DRUGS.**

11. Smoking:

Which one of the following describes you best?

1..... regularly 2..... once/twice only

3..... occasionally 4..... never smoked

5..... given up

12. Other drugs: Have you ever used (drink, smoke or sniff) any of these (please tick)

1..... alcohol 2..... marijuana

3..... Valium 4..... mandrax

3. Alcohol: How many units of alcohol can you tolerate per week.

.....1 unit .....3 units .....0 units

.....2 units .....4 units

4. What is your source of information on drugs, alcohol, and smoking?

1.....media 3.....friends 5.....parents

2.....posters 4.....teachers 6.....other(specify)

....

F **SEXUALITY**

5. How much do you worry about catching HIV infection?

1..... not at all 2..... quite a lot

3..... a little 4..... don't think about it

5..... don't worry

16. Have you ever had sexual intercourse?

1.....yes 2.....no

17. When having sex is it important to use a condom?

1..... yes 2..... no

18. Have you ever had any sexually transmitted disease?

1 ..... yes 2..... no

19. Which of these is your main source of information on HIV/AIDS and sex?

1..... parents 2..... friends

3..... teachers 4..... media (TV, videos, newspapers)

5.....books 6..... posters

7.....other (specify)

.....

G. **CONCLUSION**

20. If you can, comment on health care availability at your School:

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.....

THANK YOU FOR TAKING PART IN THIS INTERVIEW..

Dr. Charles C. Michelo,
University of Zambia,
School of Medicine,
Department of Community Medicine
P.O. Box 50110,
LUSAKA.

21st January, 1998

The Permanent Secretary,
Ministry of Education,
LUSAKA.

Dear Sir,

Re: **PERMISSION TO CARRY OUT A STUDY IN SCHOOLS - LUSAKA**

The above subject refers.

I am pursuing a Master of Public Health in Department of Community Medicine, at the Univesity of Zambia.

I am hereby seeking permission to carry out a study entitled "HEALTH RELATED BEHAVIOUR IN SCHOOL GOING ADOLENCENTS" in Lusaka schools that will be randomly selected.

The study protocol has already been approved by the Research and Ethics Committee as well as the Board of Studies at University of Zambia. Data collection will be by focus group discussions as well as Interviewer Administered Questionnaire. In addition Research Assistants will be recruited from among the selected schools. It is hoped that results of this study will help us understand and help solve the many health related problems experienced by our school going adolencents.

Forwarded for your consideration.

Thank you.

Yours faithfully,

C.C. Michelo BSc, MBChB
Staff Development Fellow

All communications should be addressed to the Permanent Secretary to the Ministry of Education and not to any Individual by name

Telephone: 250855/251293/251315
251283/251298/251318
251291/251306/251319

In reply please quote;

No.....

REPUBLIC OF ZAMBIA

MINISTRY OF EDUCATION

P.O. BOX 50093
LUSAKA

REPUBLIC OF ZAMBIA
MINISTRY OF EDUCATION
PROVINCIAL EDUCATION OFFICER
LUSAKA REGION
P/B RW 21 E LUSAKA

ME/101/38/20 CONF.

9th February, 1998

Dr. C.C. Michelo,
University of Zambia,
School of Medicine,
Department of Community Medicine,
P.O. Box 50110,
LUSAKA.

PERMISSION TO CARRYOUT A STUDY IN LUSAKA SCHOOLS

Reference is made to your application for permission to undertake study on Health related behaviour in school going adolecents in Lusaka Schools.

I am pleased to inform you that permission is hereby granted. By copy of this letter, the Provincial Education Officer, District Edication Officer and Headteachers in Lusaka are informed accordingly.

B. Y. Chilangwa (Mrs.)
Deputy Permanent Secretary (TC)
for/PERMANENT SECRETARY
MINISTY OF EDUCATION

c.c. The Provincial Education Officer,
Lusaka Region,
LUSAKA.

c.c. District Education Officer,
LUSAKA.

City Of Lusaka: Schools And Health Centres