Title Awareness of oral cancers among the students of the University of Bedfordshire – Luton Campus- is there a need for oral cancer awareness programme?

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ABSRACT

Oral cancer is a malignancy that develops in and affects the mouth. It affects both male and female alike. The disease has been known to affects people older than fifty years of age; however an increasing number of younger people are now affected. Oral cancer at its earliest stage is often asymptomatic, consequently the patient may be unaware of the disease until signs and symptoms occur. Unfortunately, this type of cancer is sometimes difficult to treat; treatments for the disease at the late stage involve radical measures that frequently lead to loss of facial structures, functions aesthetics. The disease has a high mortality rates. The poor survival rate of the disease has been attributed to the late presentation of the patients in the hospital for treatment as well as various factors such as lack of knowledge about the disease, the inability to readily identify the sign and symptoms of the disease or a lack of knowledge about the risk factors of the disease. This study assessed the level of awareness of oral cancer among the students of the University of Bedfordshire, Luton, United Kingdom. A descriptive cross-sectional survey was carried out using a questionnaire. 100 students comprising of 43 male and 56 female were the responders. Information on knowledge of oral cancer risk factors, signs and symptoms, dental habits as well as socio- demographic details were obtain from the participants. Data was analysed with the aid of SPSS version 12 for windows software. Findings from the study indicated a low level of awareness of oral cancer among the student. Except for tobacco and cigarette; identification of the other risk factors for oral cancer was poor. Hence, public health education aimed at increasing the awareness of the disease is recommended.

Keywords--- Oral cancer, Tobacco, Alcohol, Human papillomavirus, Awareness, dental habits

DECLARATION

This study was completely undertaken and written by Abayomi-Ojumu, Olayinka.
It is being submitted for the degree of Masters of Public Health of the University of Bedfordshire.
It has not been submitted anywhere else. The results as stated here is from the research, and not copied from the scripts of other authors or candidates, and no unauthorised materials were used.
No false information has been included.

Name- Abayomi-Ojumu, Olayinka

Date: October 2008

DEDICATION

This work is dedicated to;-

The Almighty God, for His Faithfulness, Mercy, Grace and Blessings on me and my family.

And

The memory of Oluwatobi

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With special thanks to the following; without whom this project would not have been successful. Therefore my gratitude goes to;-

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My wonderful and lovely children, Michael Oloruntoba, and David Temitope, for their patience and understanding

My husband and friend, Abayomi; thank you for your support always

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ABBREVIATIONS

ACS- American Cancer Society

BDHF- British Dental Health Foundations

HPV- Human papillomavirus

NHS- National Health Service.

SPSS- Statistical Package for the Social Sciences

UK- United Kingdom

UOB-University of Bedfordshire

USA- United States of America

WHO-World Health Organisation

CHAPTER ONE

INTRODUCTION

1.1 Introduction:

Arguably the first part of the human body to be noticed by other people on a first meeting is the mouth. The smile or other facial expressions may be the personal attribute attracting others to an individual. The mouth, though small, is a highly significant and essential part of the human body. It is necessary for speech, eating, chewing, and swallowing (Cochrane, 2007). Likewise, it is vital for facial expressions such as smiling, laughing, frowning and finally aesthetic. For instance the World Health Organisation (2007a) has described oral health as a state of being free from chronic mouth and facial pain, oral and throat cancer, oral sores, birth defects such as cleft palate, periodontal diseases, tooth decay, tooth loss and other diseases or disorders that affect the oral cavity. Therefore, having a good oral health is essential for good physical wellbeing.

Moreover, the mouth plays a very important and indispensable role in the human body; it may be describe as the door to the body or the entrance, since it gives access for the intake of food. It is divided into different parts comprising the lips, the teeth, the gums, the anterior two- third of the tongue, the hard palate, the floor of the mouth and the retro molar region. While the oro- pharynx includes the soft palate, the tonsils, tonsillar pillars, the lateral and posterior pharyngeal walls (Cochrane, 2007). Thus any disease that affects an individual's oral health invariably affects the overall physical health. One of such diseases is oral cancer; a disease that is amenable to early detection and treatment yet continues to add to the global burden of diseases. One of the reasons for this could be that the level of awareness of the disease is low; hence people are not aware of the preventable nature of the disease. This research will evaluate the level of awareness of the disease amongst the University of Bedfordshire students.

The following gives a brief overview of the structure and content of this project.

1.1.1 Outline structure of this project:

Chapter one –Introduction:

This chapter provides the background information about oral cancer. It discusses the epidemiology, incidence, prevalence, signs and symptoms of the disease. Likewise, the focus and justification for this research is discussed. The aim and individual objectives of this research are identified.

Chapter two- Literature review:

This chapter examines the trend of oral cancer in the world, the epidemiology, signs and symptoms of the disease, as well as the risk factors for the disease. It discusses the action taken by the Government and relevant Agencies in the world aimed at reducing the effects of the disease. The level of awareness of the disease amongst different groups of the population is evaluated, and a gap in research is identified.

Chapter three- Research methodology:

This chapter discusses and justifies the research approach (Quantitative), study method and strategy (Cross- sectional survey) adopted for this study. It provides details of the population, site, sample as well as the data collection technique employed, together with the analysis, reliability and validity of the data collected. Furthermore, details of the ethical issues considered in the course of this research are provided.

Chapter four- Results analysis, discussion and conclusions:

This chapter reports on the results from the study. The results of the survey are described, discussed and analysed against evidence from the literature review. In addition necessary recommendations based on the results from the study are provided, while the conclusion is made by revisiting the overall aim and objectives of the study as well as summarising the findings.

Chapter five-

This chapter provides the plans for the dissemination of the findings from this study. A section on reflection on the learning is provided to give the reader an overview of the process undertaken to complete this project. Likewise, the alphabetical listing (using the Harvard system of referencing) of the sources referred to in this study is given. Finally, supplementary resources to support the discussion are given in the appendices.

1.2 Background:

Oral cancer (also known as Mouth cancer) is a malignancy that develops in, and affects the mouth. Presently, the World Health Organisation (2008a) acknowledge it to be the eighth most common cancer in the world, affecting both male and female alike; though research indicate that it is twice common in men than in women (British Dental Health Foundation 2007; Cancer Research UK 2007a). The disease usually affects people older than fifty years of age; however it can occur at any age. For instance, an increasing number of younger people are now affected by oral cancers- a disease formerly thought to affect only older people (Iype et al 2001; Llewellyn et al 2001; British Dental Health Foundation 2007). Any part of the mouth or oral cavity can be affected by oral cancer; although the usual sites affected are, the surface of the tongue, the lips, and the gums. This is evident from the Statistic by the British Dental Health Foundation (2007) and the American Cancer Society (2007a), which specify that about 25% of the disease affects the tongue and about 33% affects other parts of the mouth such as the lips, floor of the mouth, gums, minor salivary glands and the pharynx. Meanwhile, despite the fact that the oral cavity is made up of different types of cells and tissues; consequently, different types of cancers can develop from these cells; histological findings shows that about 90% of all oral cancers are Squamous cell carcinomas (Daley and Darling 2003).

Oral cancer may be characterised by any of the following sign and symptoms; bleeding, pain, difficulty with speech, eating, swallowing. On the other hand it may be the presence of an ulcer in the mouth that fails to heal that leads the patient to seek medical attention. It should be noted that the disease at its earliest stage is often asymptomatic (without any symptoms at all); consequently the patient may be unaware of the disease until signs and symptoms occur or the disease spreads to other parts of the body (metastasis). Unfortunately, at this stage of the disease, Cancer Research UK (2007a) declares that this type of cancer becomes difficult to treat. Treatments for the disease at the late stage often involves radical measures that frequently leads to loss of facial structures, functions and aesthetics (Silverman 2001; Cancer Research UK 2005b) and probably psychological trauma and disturbances which may follow such radical treatments. The five year survival rate of the disease is generally poor (Silverman 2001), although this survival rate of the disease depends on the site and stage of the cancers as well as the age of the patient (Cancer Research UK 2005b). For instance, Scuibba (2001) comments that cancer affecting the lips tends to have better survival rate than cancer that affect other parts of the mouth, likewise, cancers detected early have a better prognosis than if discovered latter.

Furthermore, the oral cavity is easily accessible to physical examination. Macpherson et al (2003a) noted that the mouth can be examined without the doctor being intrusive or the patients having a feeling that the body or privacy has been invaded or violated; therefore early diagnosis and effective treatment of the disease may be carried out (Cancer Research UK 2005a). This has been shown to be of benefit to the patient resulting in good outcome. However, unfortunately as Scully & Porter (2000) pointed out, most patients present late for treatment of the disease thus leading to poor prognosis and poor survival from the disease. This poor prognosis, according to Silverman (2001) accounts for the generally low five year survival rate for oral cancer. Various reasons given as responsible for the poor survival rate of the disease are the late presentation of the patients in the hospital for treatment, lack of knowledge about the disease (Vora et al 2000; Wardle, Waller and Brunswick 2001), the inability of the public to readily identify the sign and symptoms of the disease or a general lack of knowledge about the contributing risk factors of the disease (West et al 2006). However despite the poor prognosis and survival rate, Scuibba (2001) stated that oral cancers can be easily detected and treated if detected at an early stage. But this is dependant on the patient being aware of the disease in the first place.

Education and awareness will go a long way in helping the public and all concerned to seek medical help and make informed choices when the need arises. As noted by the World Health Organisation's Crete Declaration (2005) on Oral cancers prevention; the dissemination of information about oral cancers, its prevention and care through every possible means is an area that needs to be emphasised (WHO 2005). Therefore for the prognosis of the disease to be increased, a programme directed at creating public awareness and prevention of the disease should be established (Silverman 2001). This comprehensive programme of prevention of a disease should be in different stages/phases. As stated by Bonita, Beaglehole and Kjellstrom (2006, p.198), these stages are; the primordial prevention (prevention of the disease from occurring); primary prevention (preventing the spread of the disease); secondary prevention (early and effective treatment) and tertiary prevention (rehabilitation of patients). Hence for a disease such as oral cancer, the primordial prevention may involve public health education, oral health promotion and oral cancer awareness. While the primary prevention strategy may involve screening for the disease, and the secondary and tertiary prevention involves treatment and rehabilitation of patients suffering from the disease respectively. Without a doubt, preventing the disease at the primordial or the primary stage is cost effective when compared to the financial, economic and human losses which may occur as a result of the disease.

Furthermore, the significance of creating public awareness as a tool for disease prevention cannot be overemphasised especially for oral cancer; a disease with poor prognosis and mortality (Scully and Porter 2000). The importance of public awareness is even more important; given the fact that oral cancer incidence is increasing among the younger generation (Iype et al 2001; Llewellyn et al 2001; Robinson & Macfarlane 2003; British Dental Health Foundation 2007). This is perhaps because younger people are now taking up some of the habits that have been identified as risk factors for oral cancer (World Health Organisation 2008c) or the fact that the disease is largely unknown as such people who are most at risk because of their life style are not even aware of the disease (Straus, McEwen and Croker 2006), thereby consequently increasing the risk (probability) of being affected by the disease.

1.3 Justification for the study

A national dental survey conducted by the British Dental Health Foundation (BDHF) in 2007 revealed that one in four people in the United Kingdom (UK) have never heard about oral cancers. Similarly, very few people could correctly identify the risk factors of the disease. This is despite the fact that averagely one death due to oral cancer occurs every five hours, and about 1,800 people die annually as a result of mouth cancers in the UK (British Dental Health Foundation 2007). This level of mortality may be attributed to the fact that oral cancer at its earliest stage is often painless such that the individual affected is not aware of the disease therefore present late in the hospitals for treatments (Cancer Research UK 2005b). Alternatively it may be due to a general lack of awareness of the disease. Obviously from the survey by the BDHF (2007), the UK public is not fully aware of oral cancer. Results revealed that 27% and 16% of the people surveyed actually believe that spicy foods and kissing respectively are risk factors of oral cancer.

This research is focused on the University of Bedfordshire students, who are matured, and can make choices and decision about their life styles. They are more likely to be involved in some habits that are risk factors (Khader and Alsader 2008) for oral cancer. Furthermore, University students are from diverse cultural backgrounds and are a representative of different ethic groups/ background in the world (University of Bedfordshire 2007). Therefore, it can be assumed that they are a means of conveying information, especially within a social environment and network and are therefore valuable assets for primary prevention or public health interventions. It is assumed that an educated university student or graduate will make a great difference in the world by transferring knowledge gained from the university to others. Therefore, having an understanding of the level of awareness of the disease among the students is an area worthy of study. This research aims to answer the following questions: Are the university students aware of oral cancer? Can they easily identify the signs and symptoms as well as the risk factors of the disease? Is there a need for an oral cancer awareness programme?

By undertaking this study, it is hoped that while evaluating the level of awareness of the disease among the University students, the results from this study will possibly inform policies on oral cancer and oral health education as a whole thus leading to behavioural changes especially as it relates to habits identified as preventable risk factors for oral cancers.

1.4 AIM

To evaluate the level of knowledge of the University of Bedfordshire students about oral cancer, and to determine if there is any need for oral cancer awareness programme.

However, in order to understand if there is a need for such a programme, it is necessary to gain insight into oral cancers and to establish that the level of awareness is generally low. The following objectives will help to achieve the above mentioned aim.

1.5 OBJECTIVES

To describe oral cancer, its risk factors, signs and symptoms, treatment and prognosis.
To evaluate the literature in relation to current practice on oral cancer awareness
To determine if University students are aware of oral cancers
To establish the need (and make recommendation) for creating oral health campaign, especially as a tool for public health promotion

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter will present the details of the review of the literature methodology. It will outline what databases, search terms, as well as other criteria used for the selection of literature for the review. Furthermore, the review of the literature will give an overview of studies that have been undertaken on oral cancers. It will look at the disease-oral cancers, signs and symptoms and its risk factors. It will evaluate any action taken by Government and relevant Agencies to tackle the disease. The review will explore the public understanding of the disease and will evaluate the level of knowledge and awareness of the disease. Likewise, any barrier or impediment to the awareness of the disease will be identified. By exploring the aforementioned areas of the literature, this review will identify any gap in research which will make significant contribution to this research.

2.1 Literature review methodology:

For a wide range of information and current issues on oral cancers, extensive review of literature relevant to the topic was carried out. This provided information on previous studies, current studies and it identified gaps that needed to be filled through this study. The following databases were accessed; The Cochrane library, Pubmed, Biomed central, Google Scholar, the Cochrane database of systematic reviews. Similarly, organisational sites such as the World Health Organisation (WHO), Centres for Disease Control and Prevention (CDC), Cancers Research UK, Centre for Review and Dissemination, National Institute for Health and Clinical Excellence (NICE), National Institute of Dental and Craniofacial Research, National Cancer Institute were checked to retrieve information relevant to the study. Other sources of information accessed were Government reports, research papers, and articles from the National Medical Library.

2.1.1 THE SEARCH TERMS:

The keywords used for the search for relevant journals were Oral Cancers, Mouth cancers, Awareness, Knowledge, Tobacco, Alcohols, Oral cancers screening, Oral health, and Oral health promotion, oral cancer risk factors, signs and symptoms, students.

The Boolean operators AND, OR, NOT were used to limit the search. The AND operator was used to combine the key words, for example, oral cancer AND awareness. The OR operator was used to search for other synonyms of the key words, for example Mouth OR Oral, Awareness OR Knowledge. While the NOT operator was used to exclude all studies not relevant to this topic. The search was limited to studies or articles in English Language, articles in other languages were not considered if such articles were not translated by the author(s) into English Language. The literature search was limited to studies and articles written or published from 1998 to 2008 for current views on the topic.

2.1.2 SELECTION CRITERIA:

Studies or articles for the review were selected based on the following criteria;

Study type:

All types of studies and study design available were accessed. Studies were selected on their relevance to the topic. The topics and abstracts of the selected studies were used for the preliminary selections, any study with relevance to awareness, or knowledge or any of the key terms were further accessed for further information.

Types of intervention:

The following interventions were also used for the selection of studies for the literature review. Interventions such as awareness of oral cancer, oral health promotions, oral health educations, knowledge of signs and symptoms of oral cancers, awareness of oral cancer risk factors, policies on oral cancers, barriers to the implementation of the policy(if any) and impediments to the public knowledge of the disease.

Types of outcome measures:

Studies were selected based on the types of outcome. The primary outcomes were; knowledge of the risk factors for oral cancers, public awareness or campaign on oral cancers and the secondary outcome is the reduction in the rate of incidence of the disease.

2.1.3 INCLUSION AND EXCLUSION CRITERIA:

Studies for the review were selected and included based on the title and the information obtained from the abstracts, using the keywords. Studies not meeting the stated criteria were excluded from the review.

2.1.4 Extracted themes

A total of 85 citations/studies met the inclusion criteria initially, after reading the abstract and executive summary, 72 were selected for the review. Of the studies/ documents selected for the review; 7 were reviews / commentaries/articles, 24 were surveys, 29 were Government or Organisational publications/ policies, 9 were reports/ letter, 1 newspaper report, 2 case- control studies. The following themes were extracted and will be reviewed in the following order.

Oral cancers in the world (the trends)

Signs and symptoms as well as the risk factors for oral cancers

Action taken by the UK Government and Agencies to tackle the disease

Knowledge and Awareness of oral cancers among the populace, including the awareness of the disease among medical and dental students ,awareness of the disease among health care workers and the awareness of the disease among patients and students.

REVIEW OF LITERATURE:

2.2 Introduction

This literature review will give an overview of studies that have been undertaken on oral cancers, it will look at the disease-oral cancers, its epidemiology, prevalence, signs and symptoms and its risk factors. It will examine the present action (if any) taken by the Government and relevant Agencies to address the issue of the disease. The review will explore the public understanding of the disease and will evaluate the level of knowledge and awareness of the disease. By exploring the aforementioned areas of the literature, this review will identify any gap in research which will make a significant contribution to this research.

2.3 ORAL CANCER IN THE WORLD (the trends)

The incidence and prevalence of oral cancer in the world vary from country to country, although there seems to be a disparity on how frequent the disease is in the world. The reports by the International Agency for Research on Cancer (2002) and Stewart and Kleihues (2003) stated that the disease is the eight most common cancer in the world, while the publication on global data on incidence of oral cancer by the World Health Organisation (2005b) specify it to be the eleventh most common cancer worldwide. On the other hand, the review by Oliver et al (2007) declared it to be the six most common cancers, accounting for about 4% of all malignant tumours. Despite the differences in the ranking of the disease when compared to other cancers, the implication is that the incidence and mortality rates from oral cancer are increasing world wide. Differences in the incidence rates of the disease occur in the different regions of the world. Specifically, the increase in the incidence of the disease is seen in Europe, South Central Asia, and Australia. For example the reports by Stewart and Kleihues (2003) stated that oral cancer is among the three most common types of cancers in Asia and central Asia. In the same way, the summary report on the global cancer statistics 2002 by Parkin et al (2005 p. 98) indicates that the incidence of the disease is high in men in Southern Asia, Western Europe, Southern Europe, and Australia. With the incidence rate of the disease as at 2002 reported to be 274,000; and the highest incidence of the disease in the world occurring in Melanesia.

Even though this world estimates were based on data obtained from regional cancer registries and does not include all countries, especially some developing countries; (probably because of lack of available data) therefore this report may actually underestimate the true picture of the burden of oral cancer in the world! It clearly shows that oral cancer is a burden on health and public health.

Meanwhile the reason for the different variations in the incidence and prevalence rate of the disease in the different continents of the world could be attributed to the different pattern and prevalence of the risk factors for the disease globally. For example, Parkin et al (2005) reported that betel quid chewing is common in south central Asia and Melanesia, tobacco and alcohol use is prevalent in Western Europe and Southern Europe, while lip cancer is common in Australia. Apart from the variations in the rates of the disease seen in the different continents; differences can be observed in the incidence, prevalence and mortality rates when comparing different countries. For instance, the American Cancer society (2007a) documents that the prevalence of oral cancer in the United States of America (USA), when compared to the prevalence seen in other developed countries like Hungary and France is not as high. Although despite this low and stable incidence of the disease in the USA, the American Cancer society (2007a) further published that the estimated incidence of the disease in the USA in 2008 will be about 35, 310 with about 7,590 people dying from the disease. Similarly, the document published by Cancer Research UK (2008a) estimated that about 285,000 cases of cancers occur in the United Kingdom, and about 4750 cases of oral cancers are diagnosed each year, with about 1700 people dying from the disease yearly. This is a significant number of people dying from the disease despite the fact that oral cancer is not as common as breast, lungs, colorectal or prostrate cancers in the UK (Cancer Research UK, 2007c).

Furthermore, there is similar geographical variation in the incidence of the disease in the UK. According to the publication by Cancer Research UK (2007b), Scotland has a higher incident rate of the disease than any other part of UK, when compared to other regions of the country. Similar variations in the occurrence of the disease exist among different ethic groups in the UK. For example, results from the records from the Thames cancer registry examined by Warnakulasuriya et al. (1999) revealed that a higher incidence of the disease occurs among ethnic minorities in the UK; with the incidence of the disease higher among the Asians (40.9%).

On the other hand, results from the review conducted by Silverman (2001) in California, USA indicated that the incidence rate (per 100,000 men) of the disease among black men is 17.3 and 10.6 among Asian men. These variations/differences in rates further supports an earlier evidence from the review on ethnicity and oral cancer by Scully & Bedi (2000), which identify an obvious inter and intra country variations in the incidence, survival and mortality rates of oral cancers. These variations could be due to factors such as dietary factors, access to health care facilities, and possible genetic predispositions and possibly socio –economic status and the prevalence of predisposing risk factors such as tobacco and alcohol use (Scully & Bedi 2000).
The significance of oral cancer as a disease contributing to the global burden of diseases cannot be overlooked. The incidence, prevalence and mortality rates of oral cancer vary significantly from different regions and countries of the world and among different ethnic groups. The disease still remain a major challenge to the global burden of oral diseases (WHO 2008a), probably due to a lack of awareness of the sign and symptoms of the disease

2.3.1 Signs and symptoms of Oral Cancer

The signs and symptoms of oral cancer vary. Patients may present with any or most of the known signs of the disease. These signs and symptoms presented depend on the site of the disease as well as the stage of the disease. For instance, Neville and Day (2002, pp.199) pointed out that "the disease in its earliest form is often painless and without any symptoms, or may be preceded by the presence of pre- malignant lesions such as red and white parches in the mouth (Erythroplakia and Leukoplakia)". On the other hand, the later stage symptoms of the disease may vary. There seems to be a general consensus on the different late stage signs and symptoms of oral cancers. For instance, the review by Neville and Day (2002) and publication by the Cancer Research UK(2005b) both describes the symptoms of the disease as characterised by any of the following signs; bleeding, presence of ulcer which fails to heal, difficulty with swallowing, loosening of teeth, swellings, white patches, red patches and pain and the presence of neck swellings. Nevertheless, any of these signs and symptoms can occur at the late stage of the disease consequently patients often become aware of these signs when the disease has reached an advanced stage or has metastasised to other parts of the body.

Therefore for easy identification of the disease, as well as prompt and adequate treatment; (thus reducing the mortality rate of the disease), it is important to educate the public on the signs and symptoms of oral cancer. Some of the identified signs and symptoms of oral cancer are as follows;

- Swelling, lumps or thickening in any part of the mouth
- Unexplained or persistent bleeding from the mouth
- Difficulty with chewing, swallowing, or speech
- Sores or ulcers in the mouth that fails to heal
- White patches in the mouth
- Red patches in the mouth
- Unexplained changes in the voice, hoarseness of voice
- Persistent and unexplained pain from the mouth.

Knowledge of these signs and symptoms is important. Easy identification of these signs and symptoms often lead to early medical check up and subsequent early treatment and better prognosis from the disease. Therefore, it is important to evaluate the level of awareness of the signs and symptoms of the disease among students and determine if students can easily identify them. Likewise, assessing the level of knowledge of the risk factors of oral cancers is equally important especially since the incidence of the disease is increasing in the UK. This is made more apparent in the publication by Cancer Research UK (2007b) which stated that large increase in the incidence of oral cancer has been noted over the last ten years. This increase is similar to the increase seen in the incidence of other cancers such as malignant melanoma, kidney and uterine cancers (Cancer Research UK 2007b).

2.3.2 Predisposing risk factors for Oral Cancers

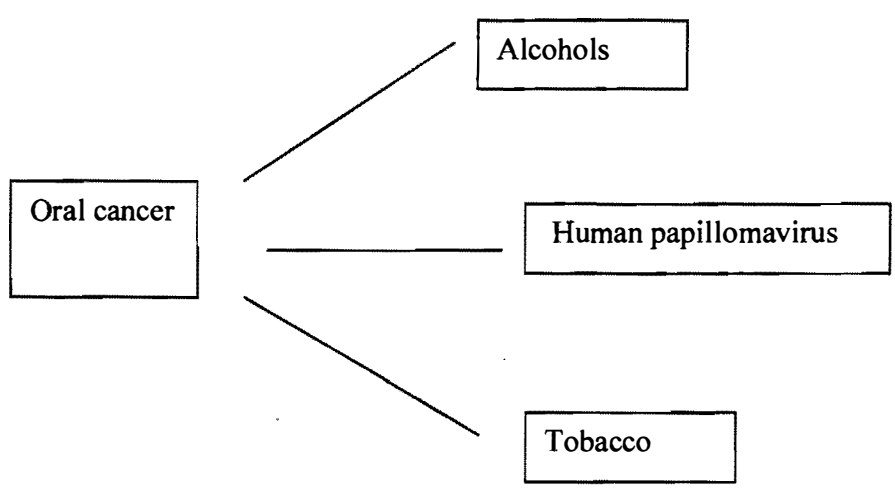
The risk factors for Oral Cancer are multifaceted; and may be classified into modifiable and non modifiable risk factors. The major risk factors are actually modifiable and are due to behavioural activities and choices. For instance, Stewalt and Kleihues (2003) reported that the main risk factor for oral cancer is tobacco which is the main risk factor for about 41% and 11% cases of oro-pharyngeal cancers occurring in men and women respectively.

Likewise, the publication by World Health Organisation (2005b) stated that the combined use of tobacco and alcohols is responsible for about 90% of oral cancers in the world. Meanwhile the knowledge of these risk factors for Cancer is generally low. This is apparent from the study by Wardle, Waller &Brunswick (2001); 3693 adults were interviewed on the established risk factors for major cancers, some of which included smoking and alcohol use. The results revealed that on the average very few people could identify five risk factors out of the fifteen correct risk factors listed by the researchers. Similarly, results of the 584 dentists who responded to the mail survey by Patton el al (2006) showed that only 181 dentists had good knowledge of the risk factor for oral cancers. Meanwhile, various modifiable and non modifiable risk factors have been identified for oral cancer; these are as shown in the figure below.

Figure 1 shows some of the major risk factors for oral cancers;

Non Modifiable risk factors	For example aging, genetic predispositions, gender, race.
Modifiable risk factors	For example, tobacco, alcohols, virus (HPV) , diet low in fruits and vegetables, betel quid,

Some major modifiable risk factors of oral cancer:



Tobacco, alcohol and the human papillomavirus remain the major modifiable risk factors for oral cancer.

2.3.2.1 Tobacco:

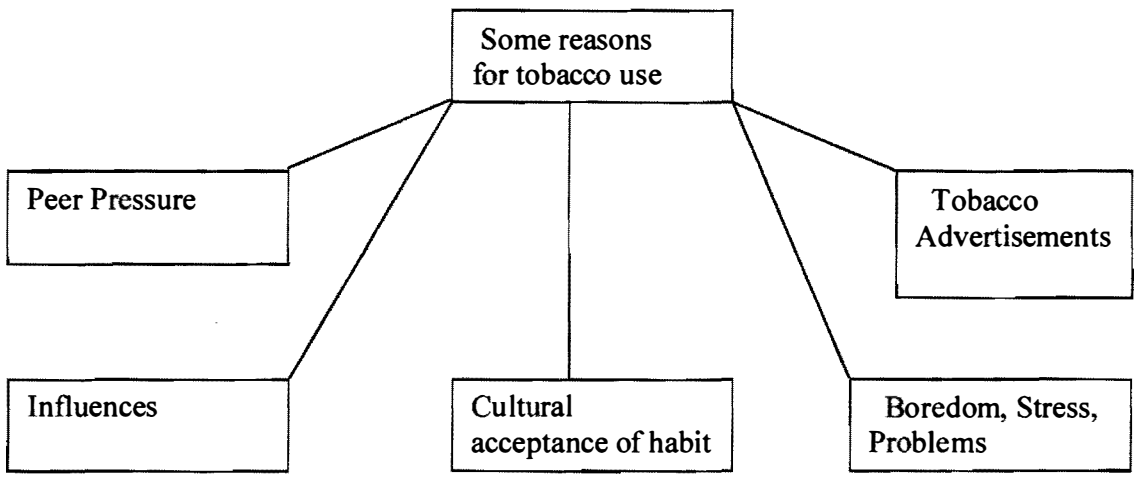
According to the document published by the World Health Organisation (2006) on the burden of tobacco, the number of smoker in the world is about 1.3 billion. Tobacco use remains the number one major risk factor for oral cancer. The use of tobacco in all forms continues to be a major public health problem. Especially since tobacco use cuts across all age groups and gender, and used in different forms. For example, the publication by Cancer research UK (2004b) reports that tobacco is smoked in different forms; which could be as cigars, cigarette, Bidis, pipes or in its smokeless form as snuff, spit tobacco, gutka, pan masala, or quid; (and probably many other names depending on the culture or the country of the user). The implication of this is that the Tobacco plant (which is cultivated for its commercial value) contains nicotine (an addictive substance) as well as other chemicals; which the Cancer Research UK (2004a) published as carbon monoxide, acetone, tar, nitrosamines, ammonia, arsenic, benzene, formaldehyde, in addition to several other substances which are harmful to the body. Consequently, the use of tobacco products has been associated with mal nutrition, premature deaths, poverty, and increased health costs. For instance, it has been shown to reduce life expectancy as revealed in the population based study by Bronnum and Juel (2001) involving adults in Denmark. The life expectancy of a twenty year old heavy smoker was given as 49.5 years and 53.8 years (male and female) respectively, compared to 56.7 years (male) and 60.9 years (female) for non smokers.

Furthermore, other effects of tobacco on the human body are well documented. Petersen (2003, p.310) reports that "it is a major preventable cause of premature death and a common risk factor to several general chronic diseases and oral diseases". For example, tobacco has been associated with cancers affecting the lungs, kidney, stomach, and remains a major risk factor for oral diseases. It has been associated with oral conditions such as periodontal diseases, delayed wound healing, teeth staining, halitosis (bad breath), pre- malignant lesions (leukoplakia) and oral cancer (Petersen 2003).

Likewise, the World Health Organisation (2008b) declared (in its document published to explain why tobacco is a public health priority) that tobacco use remains the second major cause of death globally. It accounts for about five million deaths each year with great impacts on the family and the economy as a result of the loss of human power and labour force. Moreover, the morbidity and mortality rate from these diseases caused by tobacco use is high. For example, the UK Department of Health (2005b) reported that more than 106,000 people die yearly as a result of smoking; with the financial implication of this habit (to the National Health Service) given as an estimated $1.4 and £ 1.7 billion a year! Unfortunately however, people who use tobacco or who smoke do not realise this nor do they know about the danger the habit pose to their health. For example, Straus, McEwen & Croker (2006) conducted a qualitative study among the Somalis in Islington communities in London reported that there was a general lack of knowledge of the effect of smoking on the body among the participants in the focus groups. This is despite a reported use of the substance among the study population.

Meanwhile, different reasons have been given to defend the habit of tobacco use. Some of which were given as based on Choice, on Beliefs and (interestingly) on Myths. For instance, Freiden & Blakeman (2005) reviewed the myths undermining tobacco control, reported that some smokers believe that a few cigarettes will not hurt, or that cigarette made with lighter substances won't hurt as much as the regular type of cigarettes. Another reason for smoking, as stated in the newspaper article by Cohen (2007) was parental or siblings/ family influence. Alternatively, peer pressure, friends, alleviation of stress or boredom, pleasure, and curiosity were reasons given for the habits by University students surveyed in the cross-sectional study conducted by Khader & Alsader (2008). Meanwhile, other reasons might be to improve social status or because the habit is culturally accepted (for example betel quid is predominant among the Asian communities) therefore an individual in such communities might not see anything wrong in taking up the habit; just to be socially accepted.

Figure 2 show some of the several reasons given to tobacco use;



2.3.2.2 Alcohol

The effect of alcohol use on the body is similar to the effects of smoking. Both create similar health problems to the human body. Alcohol use alone increases an individual's risk of developing oral cancers when compared to the risk of the disease to non alcohol users. For instance Corrao et al (2004) conducted a meta-analysis of 99 case- control studies and 57 cohort studies with the aim of determining the association between alcohol drinking and some diseases; revealed that alcohol intake presents a higher risk for oral cancer than other cancers such as stomach cancer (though this risk is dose dependent). The relative risk of the disease while consuming 25g of alcohol per day was given as 1.86 compared to 6.45 when consuming 100g of alcohol per day. Obviously, a higher risk of oral cancer is observed with increased alcohol intake. Similarly , strong evidence that excessive alcohol use (on it own) is an independent risk factor of oral cancer was made apparent from the results of data analysis conducted by Hashibe et al (2007), the analysis of 15 case-control studies of data from 1072 cases and 5755 controls patients who had never used tobacco products and 1598 cases and 4051 control who had never used alcohol showed that the odds ratio was about 2.13 for individual who are smokers and 2.04 for excessive alcohol consumption among those who had never use tobacco.

Results from the study by Hashibe et al (2007) clearly confirm that excessive alcohol intake as well as tobacco use are individual risk factors for oral cancer. Increased risk is dose dependent and observed with increase or excessive use. Meanwhile, this risk is even greater when alcohol intake is combined with smoking (World Health Organisation 2005b).

2.3.2.3 Viruses:

The association between oral cancers and the Human papillomavirus especially type 16 (which is known to be associated with cervical cancer) is not fully established. Few studies have been undertaken to identify the association between Human Papillomavirus (HPV) and oral cancers. For instance, Herrero et al (2003) conducted a multicentered case- control study with participants from nine different countries (Italy, India, Spain, Poland, Cuba, Northern Ireland, Australia, Sudan, and Canada) from 1996 to 1999. Of the 3402 participants, 1670 were patients with oral cancers or oropharyngeal cancers, while 1732 participants were requited as controls. The overall percentage of participation was 88.7% and 87.3% for cases and control respectively. Results from the study strongly indicated an association of the virus and oral cancer. Of importance was the presence of the virus seen to be more common in the specimen results from patients with multiple sexual partners and those who engaged in oral sex. Similarly, D'Souza et al (2007) conducted a case- control hospital based study (to establish the association between HPV and Oral cancer), involving 100 patients diagnosed with oropharyngeal cancer and 200 patients who served as the control. Results from the study indicated a strong association between the Human papillomavirus and cancer of the mouth and pharynx (oropharynx). According to the researchers, this association increases with the number of sexual partners (either oral or vaginal) with the P value for the trends as 0.009 and 0.002 respectively. Incidentally the result from the study revealed that the virus is an independent risk factor for oral cancer. There may not be in any association with or without alcohol and tobacco use.

The trend in the association of oral cancer and HPV is significant. As stated in the article by the Oral Cancer Foundation (2008) this virus tend to be the cause of the increase in the rate of oral cancers seen in younger people with the two most harmful form of the virus being the version 16 and 18, which are both transmitted sexually and are known to the aetiology factor for cervical cancers. These are now being implicated in oral cancer! Meanwhile, Vaccines have been shown to be effective against HPV and cervical cancers (Koutsky 2002) and are now to be made available for young girls in the UK from September 2008 (DOH 2008). In contrast, much research is needed to determine if it can be applied to prevent oral cancers especially the type associated with HPV.

Although the American Cancer Society (2007b) have documented other risk factors of oral cancers as sunlight (Ultraviolet light), Age (older age group,>50 years) and Gender (male), Diet (poor nutrition), diets low in fruits and vegetables, immune system suppression, lichen planus, and other uncertain or controversial risk factors such as mouth washes and irritation from dentures; Tobacco, alcohol, and the Human papillomavirus remain the major risk factors for oral cancers. Meanwhile, these risk factors are modifiable especially since they are as a result of habits and lifestyles made by choice and not compulsion. Hopefully the mortality and morbidity rate of Oral cancer can be reduced if these risk factors are addressed. But then are people aware of these risks? Do students know about these risk factors? What actions/ programmes are in place to combat this disease?

2.4 **Action taken by the Government and various Agencies to combat the disease**:

To reduce the incidence and mortality from the disease, effort needs to be geared toward prevention. This can be achieved by creating massive public awareness and education (Lewis et al, 2005) thus encouraging behavioural changes especially targeted at the youth, women and people who (due to their habits) are mostly at risk of developing the disease. The importance of prevention cannot be overemphasised. As stated in the publication by Cancer Research UK (2005c), because of the addictive nature of nicotine; users of tobacco usually find it difficult to quit.

Alternatively, rather than give up the habit altogether, some are resulting to the use of smokeless tobacco(which could be chewed, sucked or inhaled in form of snuff) based on the erroneous belief than this form of tobacco use is less harmful than smoking. Likewise the World Health Organisation (2008a) reports that the use of tobacco products is now a common habit among women and youth. This is probably because not as much publicity has been given to the health effects of smokeless tobacco, as it has been given smoking, or it could be due to cultural beliefs or myths about tobacco. According to Frieden and Blakeman (2005, p.1500), "many of the myths are the results of a misapplied understanding of what might seem to be common sense'è and "some myths are deliberately promulgated by the tobacco industry to induce people, especially children to start smoking and to keep them smoking as adults". Thus the importance of public health promotion and health education in reducing health inequality and health effect of some preventable diseases cannot be quantified.

Already the UK Government is employing this means to get the message across to the public. This is evident in the Government initiatives to encourage people to make decision and choices about their health and wellbeing. According to the report by Wanless (2004) as well as the Department of Health's policy (2005a) on choosing better oral health, the aim of encouraging choices is to reduce health inequalities and improve healthy living among the populace. These initiatives are steps in the right direction. For example, the target by the Department of Health is to reduce adult smoking to 21% or less by 2010 (DOH 2005b). Although this Government initiatives may possibly be due to several factors; such as the increase financial implication of diseases on the economy, or the increase in the number of preventable diseases caused by habits or lifestyle which can be modified, or the pressure on the National Health Service systems, these are laudable projects and policies. Moreover the UK Government has established various policies to encourage people to stop smoking or not to take up the habit at all. This is evident from recent banning of smoking in public places, restriction of smoking in workplace. Other measure such as increase taxes on tobacco products as stated in the review by the Centre for Review and Dissemination (2008), restriction on advertising tobacco products and placement of health warning labels on tobacco products (though population based interventions on tobacco control) are advantageous and of great benefits to the public in general.

Alternatively, for individual advice and help, the establishment of smoking cessation clinics and outreaches which were set up based on the white paper by the Department of Health (1999), will help individuals who want to stop smoking to do so, through professional encouragement and support of the smoking cessation advisers. Hopefully all this efforts will discourage children from taking up the habits of tobacco use, limit the effects of second hand smoking, reduce the number of smokers and make smoking a vice and not a virtue to be emulated.

Moreover, oral health and diseases that affect the mouth are now being given the much needed global attention. As stated in the report on the resolution passed by the sixtieth World health Assembly on 22 March 2007 "National health programmes that include health promotion and measures at individuals, professionals, and community levels are cost effective in preventing oral diseases" therefore the resolution advice member states to take steps in reducing the burden of oral cancers through integrating oral cancer prevention in a national cancer control programme (WHO 2007b). This is a step in the right direction. Some health agencies/organisations have already started implementing oral cancer awareness campaigns. For instance, The British Dental Health Foundation (2007) has established the mouth cancer awareness week (2nd week in November each year) to create awareness of the disease. Similarly the America Dental Association (2007) has a three year nationwide campaign to boost the awareness of oral cancer in the USA. Although, the effectiveness of these awareness campaigns cannot be enumerated yet, as these are early days, the effect of education cannot be quantified. Incidentally, the National Institute of Dental and Craniofacial Research (2008b) reports that the five year survival rate for oral cancer in the USA is increasing. This may probably be as a result of the steps taken by the American Dental Association to the increase public awareness of the disease.

Furthermore, other actions taken by the UK Government is to tackle the problems and reduce harms cause by alcohol is evident in its publication "Safe, Sensible, Social the next steps in the national alcohol strategy" (Department of Health 2007). Similarly, as earlier stated, HPV vaccination (although aimed at preventing cervical cancer) will now be made available to young girls.

Hopefully, more research will be undertaken to validate the effectiveness of the vaccine against oral cancers caused by HPV so that youth (male and female) can be protected against HPV oral cancers. Despite all these efforts by the Government to reduce the burden of the disease; the disease continues to be a major health problem! Thus, this bears the question- is there an awareness of the disease?

2.5 Knowledge of oral cancer among the public

Few people can correctly identify the signs of oral cancer, and even fewer people have ever heard about it. For instance, the survey conducted by Warnakulasuriya et al (1999) revealed that, of the 1,894 adult surveyed, only 56% were aware of oral cancer. Meanwhile 96%, 97%, 86% could readily identify, skin, lung, and cervical cancers respectively. Similarly, Tomar and Logan(2005) discovered that of the 1773 adults telephoned in the survey conducted by in Florida, 40.3 % had no knowledge of the disease and more than half of the responders did not know that red or white parches in the mouth were associated with oral cancer. This is similar to a household survey conducted by West et al. (2006), only about 33.8% of the three thousand, three hundred and eighty four people questioned were able to identify the presence of white parches in the mouth as a sign of oral cancer and only 19.4% could identify alcohol as a risk factor, although a greater number of the responder 80.1% and 84.7% could identify tobacco chewing and smoking as risk factors respectively. Similarly a pilot study conducted by Cancer Research UK in June 2006 amongst the Bangladeshis in Tower Hamlet, London, showed a lack of knowledge of the disease. Of the 400 adults surveyed, less than half knew that tobacco chewing was a risk factor for oral cancer though about 64% knew that smoking was a risk factor. This is quite alarming especially since the pilot study was conducted among adults who were tobacco users.

On the other hand, the study by Weinstein et al (2005) employed a different method of survey (telephone survey), of 6369 adult, of which 1245 were smokers, though the focus of the study was on lung cancers and not oral cancers, yet the result from the study revealed that smokers underestimate the relative risk that the habit poses to their health.. The study revealed that smokers actually believe that they were at a lower risk of developing diseases.

This result corroborate a previous study by Weinstein et al (2004), where majority of the 776 adults surveyed in the USA, did not have a basic knowledge of the type of diseases that can be caused by smoking. This is despite the fact that it is a known risk factor for major diseases. Hence a need for a public awareness programme on oral cancers.

2.5.1 Awareness of oral cancers among undergraduate medical and dental students.

Alternatively, Health care workers are the first point of call for the patient, and they are better placed to give advice and treatment to the patient. Assessment of the knowledge of health care workers about oral cancers is necessary. Carter and Ogden (2007), administered questionnaire to undergraduate 255 medical and 109 dental student in Dundee, Scotland; to determine the level of awareness of the disease among medical and dental undergraduate students. The results revealed that the level of awareness of the disease differs among the medical and dental students. Of all the students surveyed, dental students had more knowledge of the disease than their medical colleagues, 94% of the dental students could correctly identify alcohol as a risk factor compared to 33% of the medical students. This is despite the fact that the percentage of those who correctly identified smoking as a risk factor was quite high for both groups of students (100% and 93% for dental and medical students respectively). Although not all the students were aware of oral cancers and most of them would not routinely perform an oral cancer screening, majority requested for further information about the disease.

On the other hand, the survey conducted by Uti and Fashina (2006) focused mainly on dental undergraduate in Lagos, Nigeria, who were in their clinical year, revealed a better understanding of the disease. Of the 65 students who responded to the self administered questionnaire, 58.5 % were in their final year of dental school. 89.2% and 69.2% correctly identified tobacco and alcohol use respectively as risk factors for oral cancer. This is probably because the students surveyed were in their clinical year of dental school and must have seen patients being treated for the disease. However the identification of the early stages of the disease was limited among the students and the study did not evaluate the non risk factor for the disease such as hot beverages.

Meanwhile, a similar survey by Cannick et al. (2005) focused mainly on 163 dental undergraduate students in South Carolina, USA, at different levels of their studies (year one through to fourth year), showed a better knowledge of the disease among students, although this greatly depended of the level of the undergraduate study. The result is comparable to the study by Uti and Fashina (2006), where dental student in the clinical classes had a better knowledge of the disease. Although Cannick et al (2005) revealed that the response rate of the students in the senior classes was low with only 40.8 % of the responses. However, most of the students were able to correctly identify the non risk factors for oral cancers such hot beverages, spicy foods, obesity or poor fitting dentures. 55.8% of the student surveyed knew that oral cancer at the earliest stage is asymptomatic. On the other hand, 24.6% of the students questioned in the study by Uti and fashina (2006), believed that the disease is always symptomatic and is associated with pain. Despite the differences in the countries for these studies, the results revealed that there is a general low level of knowledge of the disease among medical and dental student, especially when it comes to identifying other oral cancer risk factors apart from smoking. Hence all the researchers concluded that there was a need for further education on the disease for medical and dental students.

2.5.2 Awareness of oral cancer among health care practitioner

Similarly, the level of awareness of the disease among health care workers varies considerably; this difference is even more pronounced among medical practitioners and their dental colleagues. Dental practitioners tend to have better knowledge of the disease. For example, Greenwood and Lowry (2001) commented that although there was a distinct difference in the level of knowledge and clinical oral cancer examination techniques of the two hundred and ten dentist and equal number of medical practitioners surveyed using questionnaires sent by mail, there was a good level of awareness of oral cancer among the four hundred and twenty clinicians.
Furthermore, recent research studies undertaken by MacPherson et al (2003b); Ashe et al (2006); Patton et al (2006), Ganjera et al (2006) similarly explored the level of awareness of the disease amongst health care workers, hygienists, dentists and doctors and their results indicated that the level of awareness of the diseases among health care workers differs.

Most concluded that there is need for continuous medical education on oral cancer examination and early detection for medical personnel in general. For example, MacPherson et al, (2003) using questionnaire, focus group and interview methods, assessed the role of 357 general medical 25 practitioners and 331 general dental practitioners in oral cancer prevention, revealed that the level of knowledge of the disease among medical personnel was quite low. Another study by Ashe et al (2006) surveyed about 651 dental hygienists in the North Carolina USA and concluded that there was a good knowledge of the diseases among the responders although the level of knowledge was higher among the recent graduate and those who had received continuing medical education. This is despite the fact that about 96% of the responders reported an interest in continuing education. On the other hand, the survey by Ganjera et al (2006), using questionnaires, compared the level of awareness of the disease among 499 dentists and 630 dental hygienists in New York revealed that although dentists had more knowledge of the disease than the hygienists, the level of awareness of the disease was good among these two professionals especially when identifying alcohol (>80%) and tobacco(90%) as risk factors for the disease, but was quite low when identifying other risk factors such as betel quid chewing(52% dentist and 28% hygienists) or low level of consumption of fruits and vegetables(25% dentists and 30% for hygienists). Thus indicating a low level of awareness of the disease among health care workers and revealing that there is need for continuous medical education on oral cancer examination and early detection for medical personnel in general especially since they are the first point of call for any oral cancer patients.

2.5.3 Awareness of oral cancer among dental patients:

Furthermore, the level of awareness of the disease among dental patients, and people who are most at risk of developing the disease (due to their habits), equally showed a lack of understanding and awareness of the disease. Llewellyn et al (2004) studied the reason for the late presentation in the hospital for young cancer patients identified lack of education as a factor associated with the late presentation of these patients in the hospital.

On the other hand, the Study by Ariyawardana and Vithanaarachchi (2005), revealed an increase awareness of the disease among patients attending a dental hospital. Most of the 410 patients surveyed was aware of the disease and could readily identify betel nut chewing as a risk factor for oral cancer (80.7%), yet the knowledge of tobacco smoking and alcohols as risk factors for oral cancer was low (47% and 17% respectively). However, Saini et al (2006) studies revealed a higher level of knowledge of the disease. Of the 108 patients surveyed, 95.3% were able to identify smoking, betel nut chewing (75.9%), and alcohols (68.5%) as risk factors for oral cancer. The difference in the results could be due to the fact that majority of the responders in the study by Saini et al (2006) were educated (96.7%). There is probably a possibility of the association of the knowledge of oral cancers and the level of education of the responders.

2.5.4 Awareness of oral cancer among students:

However, few studies have assessed the level of awareness of the disease among students. Shetty and Brown (2007) conducted a survey using self administered questionnaires among one thousand six hundred and sixty seven students aged 14-18 years revealed that of the level of awareness of the disease is low among this age groups. 55% of the students were not aware of the disease. Although the population in this study are adolescents and may be excused for having poor knowledge of the disease, on the other hand, the low level of awareness of the disease in this age group further laid emphasis on the lack of public awareness of the disease.

2.6 SUMMARY

The review of relevant literature on oral cancer revealed the fact that the disease is of relevance to public health and contributing to the global burden of diseases. The incidence and prevalence of oral cancer in the world reflects the magnitude of the disease. The facts as shown from the review indicated that the disease continues to have very poor prognosis and high mortality rate. Similarly, the five year survival rate for the disease remains low and largely unchanged globally. Although the UK Government has put in place many policies to address some of the known risk factors for the disease, the disease itself has not been fully addressed. Consequently it has not been given as much attentions as other forms of cancers. Furthermore, the review of the literature identified the low level of awareness of the disease among the public, medical and dental students, health care workers and even among patients affected by the disease.

A common conclusion by the researchers was the lack of public awareness of the disease, thus emphasising the need for a public health promotion or awareness programme on oral cancers. Although there were researches with focus on some of the risk factors for oral cancers, and on different study population, however, none of the researches have assessed the level of awareness of the disease among University students, hence the need for this research.

CHAPTER THREE

METHODOLOGY AND METHODS:

3.0 Introduction

This chapter will present the details of the research approach, the population, site and sample. As well as the means of data collection and data analysis used for assessing the level of knowledge of the University students about oral cancers. Furthermore, it will also state the ethical issues involved and considered during the research.

3.1 RESEARCH APPROACH

To determine the level of awareness of oral cancers among the students, an appropriate research approach has to be employed. For this study, the research approach to be adopted will be one that can be used to assess a representative sample of a population and still give a reliable result which can then be applied to the whole University community and the general public as a whole. Various research approaches are available, as stated by Bowling& Ebrahim (2005, p. 7) the methods used for health and health care research are diverse. But the commonly used methods are qualitative, quantitative or mixed method approach (Creswell, 2003).

Qualitative research as stated by Denzin & Lincoln, (2005, p.3) "is a situated activity that locates the observer in the world. Qualitative research involves an interpretative, naturalistic approach to the world. This means that the researcher study things in their natural setting, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them". In other words, qualitative research methods can provide insights into the experiences of an individual, the meaning, and interpretation of those experiences and the relationships between different factors (Bowling & Ebrahim 2005, p.7). This method is very useful in formulating new hypothesis. Similarly, Creswell (2003, p.37) stated that "qualitative research begins with assumptions, a worldview, the possible use of a theoretical lens, and the study of research problems inquiring into the meaning individuals or groups ascribe to a social or human problem" The limitations with this method are the possibility of replication, it is expensive, and the fact that it is time consuming, data takes time to acquire and to analyse (Bowling, 2002).

On the other hand, a quantitative research as stated by Bowling & Ebrahim (2005, p. 191) is based on measuring quantities and relationships between variables, it usually follows scientific procedures. The researcher makes use of data collected to deduce the answers to a theory or a hypothesis. Unlike the qualitative approach (which is useful for formulating hypothesis) a quantitative approach tests the hypothesis using data collected. Thus this method is very useful in measuring attitude, perceptions, and behaviours (Bowling, 2002). There are various methods of conducting a quantitative research. It could be in form of experimental studies such as randomised control trials, case- control studies, or in form of surveys (Bowling& Ebrahim, 2005). Meanwhile, in an experimental study, the researcher actively makes a change to see the cause and effect of the situation under study (Driver, 2008a); in other words an experimental study is based on causal relationships, and in some cases require a controlled environment (for example, Randomised Clinical Controlled trials). Hence, for this study, an experimental research method is not suitable. Likewise, study methods such as case- control or a cohort study will not be feasible for this study since the objective of this study is not based on an experiment but on an assessment of a situation and measuring perception. Therefore, a survey method will be ideal for this study.

3.2 Study method:

Bowling & Ebrahim (2005) defined a survey as a method of collecting information from a sample of the population of interest. Surveys (unlike census) are used to describe the population of interest. It allows assumption to be made about the characteristics, behaviour or attitude of the population (Bowling, 2002). It is useful for the study of different variables and can be used to establish a trend. The advantages of a survey method are numerous; according to Bowling (2002) this method can be used for a small sample of the study population and can also be used to study large samples of people. A survey can be carried out in natural settings (Bowling, 2002; Bowling & Ebrahim, 2005). Similarly, surveys can be used to present numerical description of the opinions of a population being studied (Creswell, 2003). The method is very economical, it saves time and money. Likewise, the respondent can remain anonymous.

Moreover, surveys can be carried out within a limited time and the results are not affected by factors such as loss of follow ups or experimental bias which may occur in case-control studies, cohort studies or other experimental studies (Driver, 2008a). Finally, with surveys, Data can be easily collected and there can be rapid turn around (Bowling, 2002).

3.2.1 Cross sectional surveys

Meanwhile, a survey method can be descriptive (cross-sectional) or it could be analytical (longitudinal). For a longitudinal survey, the study is conducted over a period of time and is useful for exploring the cause and effect relationships. Longitudinal surveys take time and may be very expensive to conduct. Moreover, errors in form of participant dropouts may occur in longitudinal studies. On the other hand, cross-sectional surveys are carried out at one point in time and the data can be collected once. Cross-sectional surveys are useful for establishing or exploring variables (Bowling& Ebrahim, 2005).

For this research which involves studying a large group of people within a limited time, the study method that will be ideal is a cross-sectional survey where a sample of the student population can be accessed and data can be collected once. Hence a descriptive cross-sectional survey method was chosen for this research so that a generalisation of the population can be made from a sample of the population.

3.3 Population:

3.3.1 Description of the study area:

The University of Bedfordshire which was established in 2006, following the merger between the Bedford campus of the DeMontfort University and the University of Luton (UOB, 2008) is the home to about sixteen thousand students from more than one hundred countries, with 45 % of these students on postgraduate studies (University of Bedfordshire, 2007). Most of the students in the University of Bedfordshire are enrolled in the undergraduate programmes in the various faculties of the University. According to the University of Bedfordshire Student Union (UBSU) student hand book (2007/08), the University has three main campuses based in the two towns Luton and Bedford, although there are other smaller sites in Aylesbury, High Wycombe and Butterfield Park. The Bedford campus is home to about three thousand students and is the location for the Faculty of Education and Sport.

The Luton campus consists of two sites; the town centre site which is located in Park Square and Putteridge Bury site. The Putteridge Bury site is the place for The University of Bedfordshire Business School while the Park Square campus is the location for the Faculty of Creative Arts, Technologies and Science as well as the Faculty of Health and Social Sciences. The Luton (Park Square) campus where a large population of the students of the University are located is the site for this study.

3.3.2 Study population

The people or individuals to be studied are the study population. The study population or Target population is the population to which the results will be extrapolated (Martin, 2005). Thus for this research, the population are University students specifically the University of Bedfordshire students. For the 2007/ 2008 session the estimated number of students of the University was sixteen thousand students (UOB, 2007), comprising both undergraduates and post graduate students. These students represent about one hundred countries world wide (UOB, 2007). Therefore assumptions can be made that they are a representative sample of the different ethic groups in the world and the public as a whole.

3.3.3. Sampling frame:

The sampling frame is the population from which the sample is selected (Martin, 2005). This study is primarily focused on the students of the University of Bedfordshire (Undergraduate, Post graduate). The Participants for this study were selected from only the students of the University based in the Luton Park Square campus. Hence the sampling frame for this study is students based in the Park Square campus. The estimated number of students based in the Park Square campus was about 6388 with 42.1% Male and 57.9% female students.

3.3.4 Access:

The survey was conducted during the 2007/2008 academic sessions, specifically in May 2008, before the semester examinations; when most students were available on campus. Access to the students was during the morning hours from ten in the morning till the lunch hour when it was likely that most students will be on campus for lectures, personal study or group studies/discussions. A sample representative of the University student were approached in three locations of the campus (the library, the reception area and the IT suites) were most of the students were likely to be at that time. It is assumed that students access these venues a lot.

3.4 Sample:

The sample of the population is a representative of that population. It is important to access and survey a sample of the study population. As explained by Martin (2005, p. 122) "a sample of a population is usually selected for study, as collecting data on every individual in the population would be logistically and financially prohibitive". Therefore, to study a large population, sampling has to be made. This has the advantageous because sampling allows a representation of the whole population to be made. Furthermore, since the result obtained from the sample can further be used to generalise the larger public, Driver (2008b), advised that it is important when sampling to ensure that certain type or people of the population to be studied are not excluded from the sample to reduce bias. The students' population of the University of Bedfordshire is large, thus to guarantee that a representation of the students' population is made, sampling was used in this study. This will allow a generalisation of the results to the larger population.

3.4.1 Selection:

Selection of participants for sampling can either be by probability sampling or non probability sampling. Non probability sampling also known as convenience sampling involves selection of participants based on convenience or availability. In Probability sampling each individual should have a known probability of appearing or not appearing in the sample; this probability must be based on chance and not choice (Driver, 2008b).

Probability sampling can be in various forms but as stated by Driver (2008b), the four basic types (methods) are; systematic sampling, stratified random sampling, cluster sampling and simple random sampling. Systematic sampling- used when subjects are available in a defined sequence, for example using every nth person on a list (Martin 2005). Alternatively, Stratified random sampling is used where the population can be divided into groups (strata) based on characteristic / criteria similar within the group. It is used to achieve an even distribution of people in different groups. It allows specific characteristics of the population to be represented in the sample. On the other hand, Cluster sampling involves dividing the population into groups which are then further divided into smaller groups or clusters. These clusters are then randomly selected; every body in the selected cluster is sampled. Meanwhile, simple random sampling is based on the premise that each individual has an equal probability of appearing in the sample though this is a matter of chance rather than choice (Creswell 2003; Driver 2008b). It ensures that each person has equal chances of being chosen or selected for the study (Creswell 2003). Likewise, randomisation allows the ability to generalise the population from the representative sample (Creswell 2003). Simple random sampling was used for the selection of the participants for the study.

3.4.2 Inclusion criteria:

As stated by Driver (2008b), in any study it is important to clearly and carefully define the characteristics of the target population. Therefore, to be included in this study, the responder must be a student of the University, male or female, on either a full time or a part time study and on either undergraduate or post graduate study.

3.4.3 Exclusion criteria:

To achieve the study aim and objective, all lecturers, visitors, academic and non academic staff of the University were excluded from the study. All students not meeting the above inclusion criteria were excluded from the study. Students who do not have a valid student identity card were excluded; this is to ensure that only true students of the University were included in the study.

3.5 Sample size determination:

As at May/June 2008, figures obtained from the University's registry show that the estimated number of students based in the Park square campus was about 6388 students. Consisting of 2688 Male, and 3700 female. This numbers fluctuate based on new students and withdrawals and the presence or absence of nursing students. However, it is thought that a sample size of 100 students will be ideal for this study. According to Driver (2008b, p.5) ''the power of a study depends on the sample size, not on the sampling fraction. A random sample size of 100 is equally useful (other things being equal) whether the population size is 1000 or 100,000''. Therefore, for this study, it is estimated that a sample size of 100 will allow an estimate of the student population to be made giving a 95% confidence with error which will be no more than 10 % and 80% significant power at the two sided 0.5 level. Moreover, this study is a descriptive survey. As stated by Bowling (2002, p.196) ''descriptive studies literally describe the phenomenon of interest and observed association'' unlike analytical studies where the cause and the effect of an association has to be determined. Consequently it is assumed that a sample size of 100 will be ideal to describe the level of awareness of oral cancers among the students.

3.6 Data collection method:

For the purpose of description and analysis to achieve the research aims and objective Data has to be collected from the responders.

3.6.1 Instrument used

Although the methods of data collection for research vary and depend on the type of research. It is important to give details of how the data was collected. As pointed out by Bowling (2002) irrespective of the type of study, the method of collecting the data needs to be addressed. For quantitative research; tools for data collection may be in form of interviews, records (health records, statistical records) or questionnaires. Interviews entail using a trained interviewer, collecting data by talking to the study participants directly and recording the responses given. Interview can be expensive, time consuming and requires trained personnel to implement. Likewise, a good rapport between responders and interviewer is necessary (Bowling 2002). 35.

On the other hand, questionnaires are instruments used to collect information, with the aim of answering the research question or hypothesis. According to Bowling & Ebrahim (2005), questionnaires can either be in printed or electronic form. The questions can either be structured (the questions are set and responses are pre-coded) or semi- structured (these are no pre- coded responses). Questionnaires have several advantages. For example, questionnaires are useful for obtaining answers to sensitive questions; the responder can remain anonymous. Likewise, questions can be asked without bias and responses can be obtained easily. Moreover, questionnaire does not require the researcher to be present to administer the questions at all times, nor does it require trained personnel to administer. Furthermore, questions are usually easy to answer and easy to analyse; questionnaire are economical.

For this study, a self administered questionnaire was used. The questionnaire consisted of open ended questions and closed questions. Open questions allowed the responders to answer the question in their own words thus more detailed answers were obtained, while with the closed questions, the possible answers were provided and responders answered by indicating what they felt were the right answers. The type of scale used to measure the items on the questionnaire was categorical scale with options such as yes/ no/ don't know. The questionnaire was divided into different sections; the covering letter, section A, section B, and section C. Section A of the questionnaire was based on dental habits and dental visit. Section B was on knowledge of oral cancer risk factors, signs and symptoms, and oral cancer screening awareness. Finally, the last section of the questionnaire was on socio-demographic characteristics which included age, gender and ethnicity. Also included were questions on the type of study (full or part time) and the level of study (undergraduate, postgraduate). All questions were short, unambiguous, straight to the point and written in English language. In total the questionnaire had 32 questions which took the students an average of seven minutes to complete (See appendix A).

3.6.2 Data collection

Data was collected on site. A total number of 120 questionnaires were distributed to make allowance for non responders. 100 were answered and returned to the researcher, while 7 were returned unanswered, 13 were not returned. All the questionnaires that were returned answered were included for the data analysis.

Table 1 showing the number and percentages of responders and non responders;

Number of responders and non- responders	Details
1. 100 questionnaires = 83.33%	Return, completed
2. 13 questionnaires = 10.83%	Not Returned
3. 7 questionnaires = 5.83%	Returned unfilled

3.7 Data Analysis:

SPSS version 12 for Windows software was used for the data analysis. Descriptive statistics of the socio-demographic data, dental behaviour, awareness of oral cancer screening, knowledge of the risk factors as well as the sign and symptoms of oral cancer were obtained. Frequency tables were created. Cross tabulation where possible was performed. The significant test of association between the predictive and the outcome variables was analysed using chi- square test was performed where possible. A *P*- valuee< 0.5 was considered statistically significant.

3.8 Reliability and validity:

Reliability is concerned with determining if the instrument will produce the same result if used over and over again. As stated by Driver (2008c), a reliable measurement instrument is reproducible, consistent and free from true error. It involves internal consistency, test and re- test to confirm that the measure has not changed between tests.

While validity is concerned with testing the instrument to determine if it is actually measuring what it ought to measure. Consequently, prior to the actual study, the questionnaire was piloted; to test for its validity and reliability. Piloting helped to determine if the questionnaire can be used to achieve the research objective. It helped to identify any flaws with the questionnaire and adequate corrections to be made before the actual study. About ten students participated in this stage of the research.

3.9 Ethical issues:

Undertaking a research often times involves a lot of processes and planning which usually entail people's participation directly or indirectly and is most times important and necessary for research. This view is supported in the Department of Health (2001) publication on research governance framework for health and social care; it encourages public participation and involvement in research. Involving the public in research is important for several reasons one of which Entwistle (2005, p. 539) rightly comments that "involving the public in a study may prove the acceptability of the research process". Consequently when undertaking any type of research (especially those involving human participants), the researcher has to take into consideration various ethical issues particularly in compliance with the World Medical Association's declaration in Helsinki (2004) on the Ethical principles for medical research involving human subjects. Thus, as advised by Creswell (2003 p. 62) "in addition to conceptualising the writing process for a proposal, researchers need to anticipate the ethical issues that may arise during their studies". Therefore, various issues were considered in the course of this study and these are:

3.9.1 Ethical consideration in the research design and proposal development

Approval:

Prior to the commencement of the study, a proposal detailing the description, aim and objectives of the research was developed and submitted to the ethics committee for approval in January 2008. The approval for the study was obtained from the University of Bedfordshire Ethics Committee. The letter for the approval was given in the month of April 2008 (see appendix E).

Access to the site of study:

Access to the study site was obtained through a letter detailing and explaining the aim of the study, the type of the study, the impact and the plans for the dissemination of the outcome of the study (See appendix C). Although, the study was covered by the indemnity letter obtained from the University solicitor (Appendix B), the study sites was not disrupted in any way neither were students disturbed from going about their normal duties as a result of this research. The study was timed to the period when there will be little or no disturbances and intrusion to the activities of the responders and the site as a whole.

3.9.2 Ethical considerations in recruiting responders and sampling:

Ethical issues considered while recruiting and sampling the responders was based on four principles of ethics. These principles as stated by Barrett & Coleman (2005) are:

- Autonomy- the researcher has an obligation to respect the decision making capacity of the responders. Each responder had the right to make informed judgement and their decision was independently made without any form of coercion.
- Beneficence- the research should be of benefit to the responders/participants, and the researcher has the obligation to ensure that there is a balance of the benefit of the research against the risks (if any) to the participants.
- Non maleficience – the researcher has the obligation to avoid causing any form of harm to the responders/participants.
- Justice –the researcher has the obligation to be fair in the distribution of benefits and risks to the participants.

With these principles in mind, this researcher made sure that each of the participants was approached at a time when they were well relaxed and able to give audience to the researcher. After an initial greeting and introduction, full information about the purpose, and objectives of the study were explained to the responders. The entire participants sampled were adults, who had the right to consent to the study. Informed consent was obtained by the participants independently reading and signing the informed consent form (see Appendix D). The questionnaire was then administered to the responder.

The study was totally non invasive, or harmful to the responder. No treatment was administered to any of the responder, and none of the participants was exposed to any form of risk as a result of this study. Furthermore, the responder's autonomy was respected. Nobody was coerced or forced into participating in the study, neither was any incentive to participate given.
The right to participate was respected; it was fully voluntary and autonomous. Responders had the right to ask questions, and to withdraw from the study at any point in time.

Confidentiality: This researcher was aware of the possibilities of harmful or confidential information being disclosed (Creswell 2003). Consequently, all the responders were assured of their privacy and the issue of confidentiality was explained and maintained. The responses were all treated in confidence and the privacy of the participant was protected.

Anonymity: Personal details of the responders such as names, and addresses or other details which are personal and can identify the responder were left out of the questionnaire so that the responders will remain anonymous and largely unknown.

3.9.3 Ethical considerations during data collection:

For ease of understanding, all Medical terms were avoided in the questionnaire. Questions were easy, straight forward and unambiguous. In cases where the participant required clarification, the researcher was on hand to provide full explanations. To ensure that the participant fully understood the questions, the questions were asked in English language, which is the language used for teaching and communication in the University.
Data was collected on site. Data collection was not stressful in anyway to the responders. It took the responders about seven minutes on the average to complete the tool for data collection.

3.9.4 Ethical considerations during data analysis and management

The data was collected on site. The data was analysed accurately, only the true analysis were reported. To ensure the safety of the data, Sieber (1998) cited by Creswell (2003, p.66) recommended that data should be stored for a period of five to ten years. Consequently, to protect the data obtained in this study from falling into the wrong hands; data (after the final analysis) will be stored in a safe place for at least a period of five year when it will then be destroyed.

3.9.5 Ethical considerations during reporting and feedback

There was no suppression or falsification of results in this study. This study is for research purpose only and will not be used in any way for commercial purposes. Results from this study will be published in the schools journal and in peer reviewed journals.

3.10 Costing and Time scale:

This research took approximately five months to complete. Following the approval for this study which was obtained in April 2008, a pilot study to test the reliability and validity of the questionnaire was undertaken. The actual survey and collection of data was in May 2008. The summary of the project time scale is given below. The full costing and time scale are detailed in appendices F,G, H

Project activity	Duration months/2008
Data collection	May
Data analysis	June-July
Write up/typing	August- September
Proof reading	September
submission	October

CHAPTER FOUR

RESULTS, ANALYSIS AND DISCUSSION

4.0 Introduction:

This chapter reveals the detailed results of the survey described in chapter three, as well as the analysis and discussion of the result. Furthermore, it includes recommendation made based on the result and then conclusion is made.

The following tables and charts show the detailed results from the survey.

Table 2: showing the distribution of responders by gender.

Gender

		Frequency	Percent
Valid	male	43	43.0
	female	56	56.0
	Total	99	99.0
Missing	System	1	1.0
Total		100	100.0

Table 3: Age distribution of responders

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	16-25	64	64.0	66.0	66.0
	26-35	24	24.0	24.7	90.7
	36-44	6	6.0	6.2	96.9
	>45	3	3.0	3.1	100.0
	Total	97	97.0	100.0	
Missing	System	3	3.0		
Total		100	100.0		

Figure 3. Pie chart of age responders

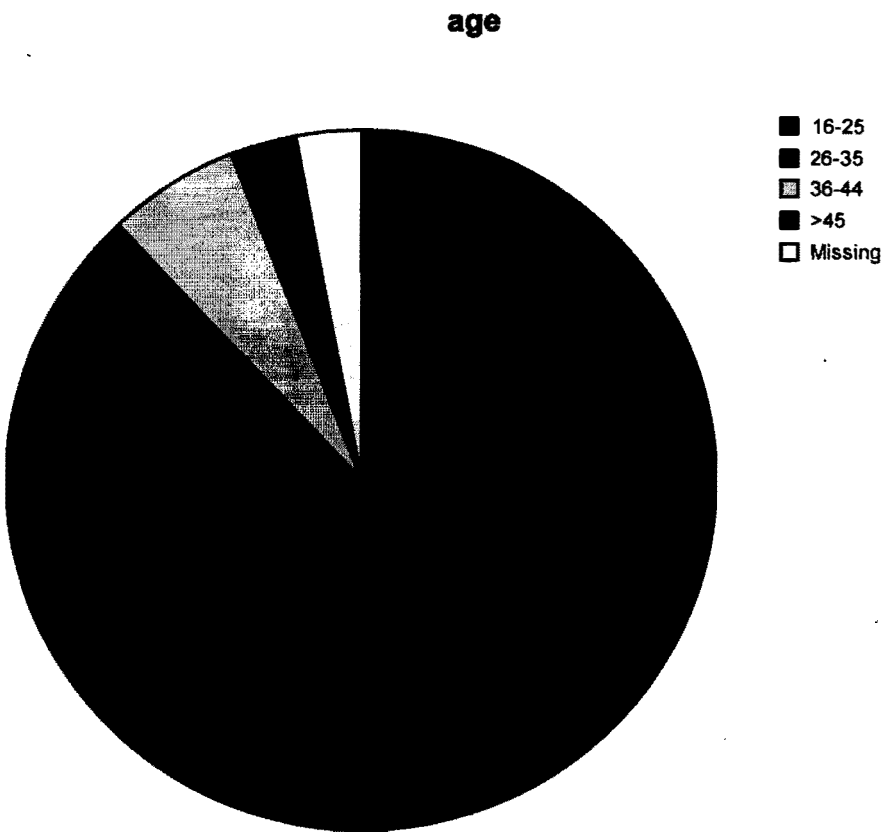


TABLE 4: showing ethnic distribution of responders

Ethnic group

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	White	17	17.0	17.5	17.5
	Black	45	45.0	46.4	63.9
	Asian	30	30.0	30.9	94.8
	Chinese	4	4.0	4.1	99.0
	Japanese	1	1.0	1.0	100.0
	Total	97	97.0	100.0	
Missing	System	3	3.0		
Total		100	100.0		

Figure 4: bar chart of ethnic distribution ofresponders

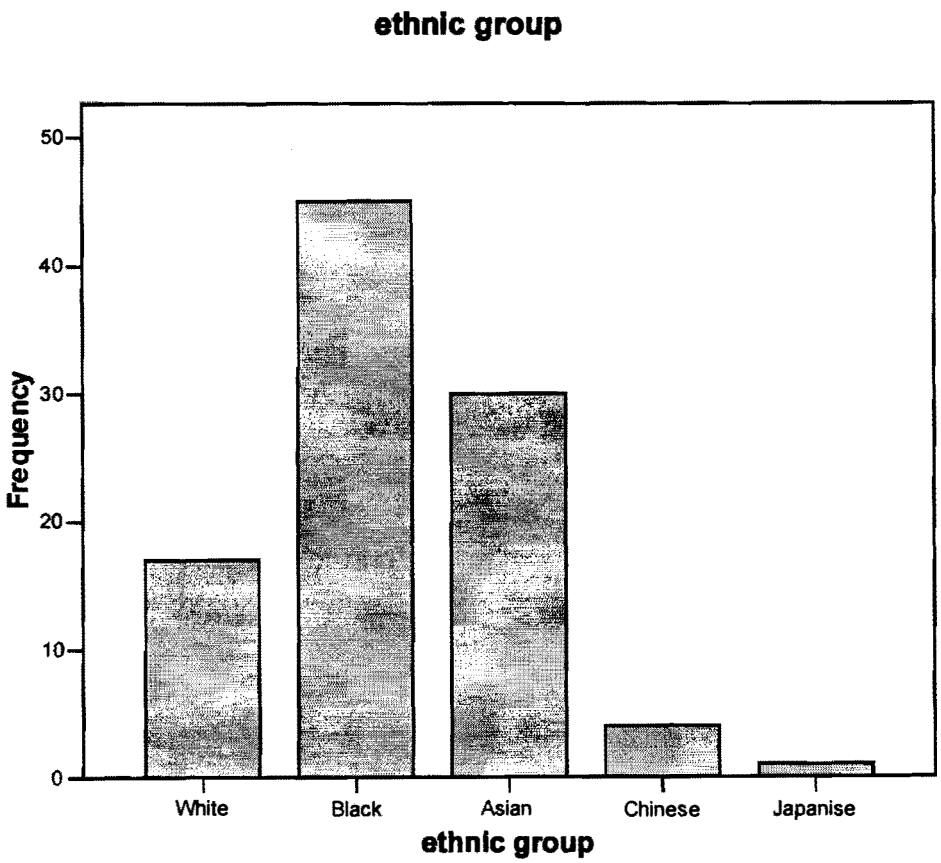


Table 5: distribution of level of studies of responders

Level of study

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	undergrad	74	74.0	74.7	74.7
	post grad	25	25.0	25.3	100.0
	Total	99	99.0	100.0	
Missing	System	1	1.0		
Total		100	100.0		

Table 6: Type of program

Type of program

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	full	91	91.0	91.9	91.9
	part term	8	8.0	8.1	100.0
	Total	99	99.0	100.0	
Missing	System	1	1.0		
Total		100	100.0		

Table 7 **showing dental behavior of responders**

Frequency /reason for dental visit in the last one year.		Frequency	Percentage	Valid Percent	Cumulative Percent
Valid	once	22	22.0	34.9	34.9
	twice	11	11.0	17.5	52.4
	>twice	10	10.0	15.9	68.3
	pain	19	19.0	30.2	98.4
	other reasons	1	1.0	1.6	100.0
	Total	63	63.0	100.0	
Missing	System	37	37.0		
Total		100	100.0		
Medical personnel visited for dental pains					
Valid	GP	33	33.0	34.0	34.0
	dentists	62	62.0	63.9	97.9
	pharmacist	2	2.0	2.1	100.0
	Total	97	97.0	100.0	
Missing	System	3	3.0		
Total		100	100.0		
Dental visit in last one year					
Valid	yes	42	42.0	42.9	42.9
	no	56	56.0	57.1	100.0
	Total	98	98.0	100.0	
Missing	System	2	2.0		
Total		100	100.0		

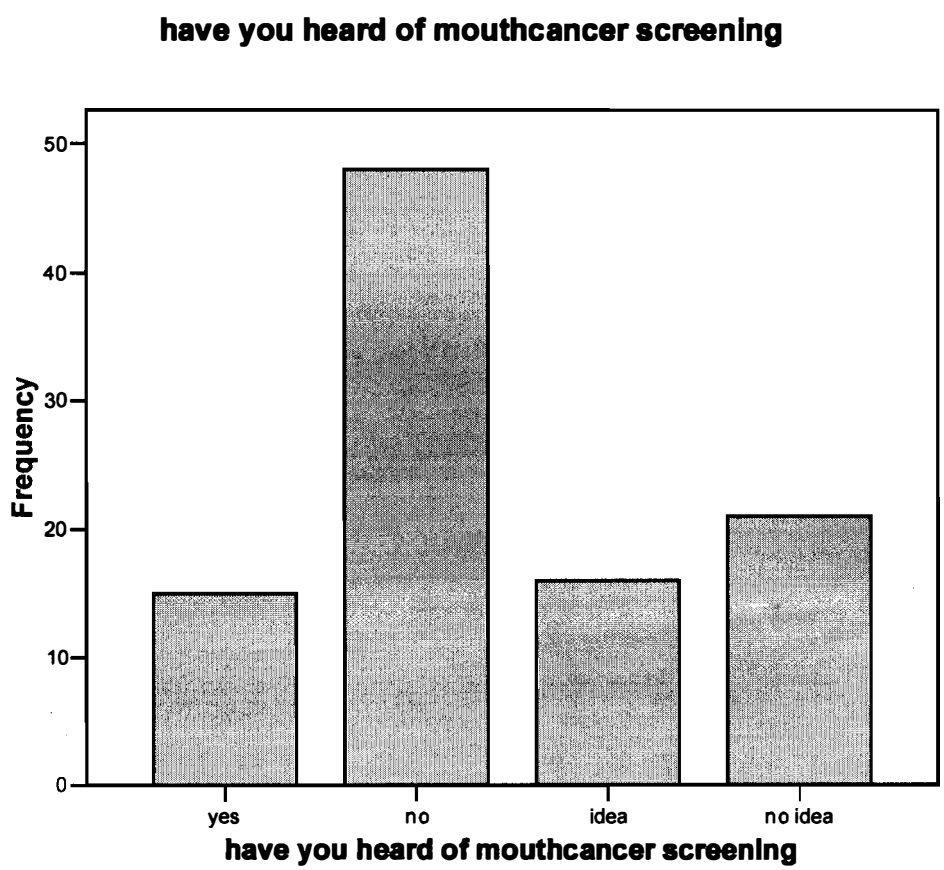
Students' awareness and knowledge of oral cancer screening

Table 8

Have you heard of mouth cancer screening?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	15	15.0	15.0	15.0
	no	48	48.0	48.0	63.0
	Have an idea	16	16.0	16.0	79.0
	no idea	21	21.0	21.0	100.0
	Total	100	100.0	100.0	

Figure 5 Bar chart showing responders awareness of oral cancer screening



Students' knowledge of oral cancer risk factors

Table 9 *showing responses to Knowledge of Oral cancer risk factor*

Alcohol		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	33	33.0	33.3	33.3
	no	32	32.0	32.3	65.7
	don't know	34	34.0	34.3	100.0
	Total	99	99.0	100.0	
Missing	System	1	1.0		
Total		100	100.0		
cigarette					
Valid	yes	80	80.0	80.0	80.0
	no	10	10.0	10.0	90.0
	don't know	10	10.0	10.0	100.0
	Total	100	100.0	100.0	
Tobacco					
Valid	yes	67	67.0	67.0	67.0
	no	13	13.0	13.0	80.0
	don't know	20	20.0	20.0	100.0
	Total	100	100.0	100.0	
Poor oral hygiene					
Valid	yes	68	68.0	68.0	68.0
	no	20	20.0	20.0	88.0
	don't know	12	12.0	12.0	100.0
	Total	100	100.0	100.0	
UV light					
Valid	yes	32	32.0	32.3	32.3
	no	21	21.0	21.2	53.5
	don't know	46	46.0	46.5	100.0
	Total	99	99.0	100.0	
Missing	System	1	1.0		
Total		100	100.0		

Viruses					
Valid	yes	57	57.0	57.0	57.0
	no	14	14.0	14.0	71.0
	don't know	29	29.0	29.0	100.0
	Total	100	100.0	100.0	
Spicy food/hot food		frequency	percent	Valid percent	Cumulative percent
valid	yes	12	12.0	12.0	12.0
	no	65	65.0	65.0	77.0
	Don't know	23	23.0	23.0	100.0
	Total	100	100.0	100.0	
Coffee, tea, beverages					
Valid	yes	13	13.0	13.0	13.0
	no	67	67.0	67.0	80.0
	don't know	20	20.0	20.0	100.0
	Total	100	100.0	100.0	
Betel					
Valid	yes	19	19.0	19.2	19.2
	no	34	34.0	34.3	53.5
	don't know	46	46.0	46.5	100.0
	Total	99	99.0	100.0	
Missing	System	1	1.0		
Total		100	100.0		
Chocolate					
Valid	yes	16	16.0	18.8	18.8
	no	53	53.0	62.4	81.2
	don't know	16	16.0	18.8	100.0
	Total	85	85.0	100.0	
Missing	System	15	15.0		
Total		100	100.0		

Figure 6 **Bar chart showing responder's reply to the question on betel quid as a risk factor to oral cancer**

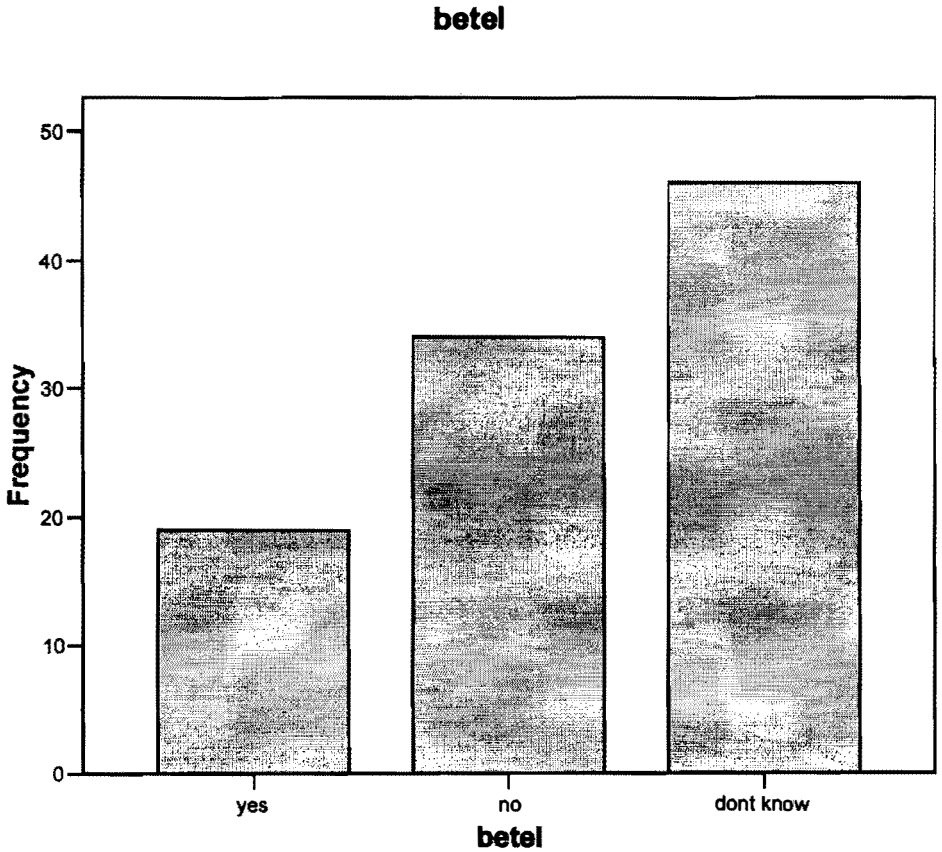
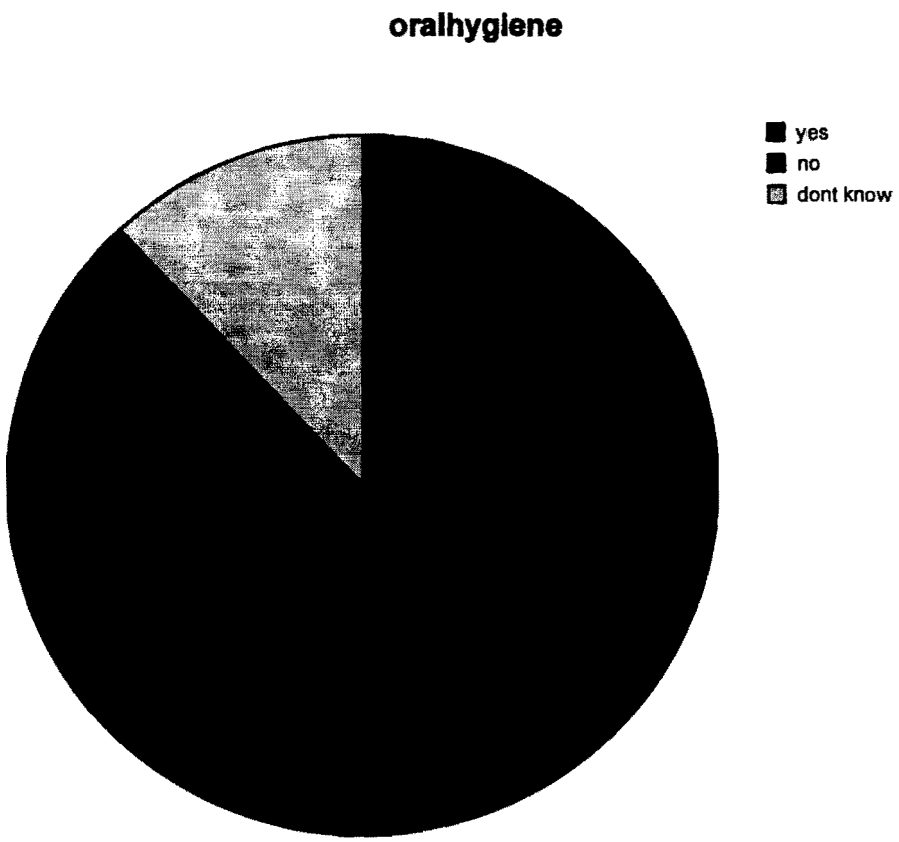


Figure 7 **Pie chart showing responses to the question on poor oral hygiene as a risk factor for oral cancer**



Students' awareness of the signs and symptoms of oral cancer

Table 10 ***showing responses to signs and symptoms of oral cancer***

		Frequency	Percent	Valid Percent	Cumulative Percent
Wound					
Valid	yes	66	66.0	66.0	66.0
	no	9	9.0	9.0	75.0
	don't know	25	25.0	25.0	100.0
	Total	100	100.0	100.0	
Bleeding					
Valid	yes	59	59.0	59.0	59.0
	no	15	15.0	15.0	74.0
	don't know	26	26.00	26.0	100.0
	Total	100	100.0	100.0	
Red or white patches					
Valid	yes	500	50.0	50.5	50.5
	no	12	12.0	12.1	62.6
	Don't know	37	37.0	37.4	100.0
	Total	99	99.0	100.0	
Missing	System	1	1.0		
Total		100	100.0		
Swelling					
Valid	yes	64	64.0	64.0	64.0
	no	7	7.0	7.0	71.0
	Don't know	29	29.0	29.0	100.0
	Total	100	100.0	100.0	
Loss of feeling/ numbness					
Valid	yes	44	44.0	44.4	44.4
	no	15	15.0	15.2	59.6
	Don't know	40	40.0	40.4	100.0
	Total	99	99.0	100.0	
Missing	System	1	1.0		
Total		100	100.0		
Bad breadth					
Valid	yes	27	27.0	27.0	27.0
	no	44	44.0	44.0	71.0
	Don't know	29	29.0	29.0	100.0
	Total	100	100.00	100.0	

Table: *showing Responses to signs and symptoms of oral cancer (cont)*

		Frequency	Percent	Valid Percent	Cumulative Percent
Persistent pain					
Valid	yes	45	45.0	45.0	45.0
	no	20	20.0	20.0	65.0
	Don't know	35	35.0	35.0	100.0
	Total	100	100.0	100.0	
Difficulty chewing/swallowing					
Valid	yes	36	36.0	36.4	36.4
	no	20	20.00	20.2	56.6
	Don't know	43	43.0	43.4	100.0
	Total	99	99.0	100.0	
Missing	System	1	1.0		
Total		100	100.0		
Loosening of teeth					
Valid	yes	350	35.0	35.4	35.4
	no	290	29.0	29.3	64.6
	Don't know	350	35.0	35.4	100.0
	Total	990	99.0	100.0	
Missing	System	1	1.0		
Total		1000	100.0		
Change in voice/hoarseness					
Valid	yes	29	29.0	29.3	29.3
	no	36	36.0	36.4	65.7
	Don't know	34	34.0	34.3	100.0
	Total	99	99.0	100.0	
Missing	System	1	1.0		
Total		100	100.0		
Hole/cavity in the teeth					
Valid	yes	18	18.0	18.2	18.2
	no	49	49.0	49.5	67.7
	Don't know	32	32.0	32.3	100.0
	Total	99	99.0	100.0	
Missing	System	1	1.0		
Total		100	100.0		

ANALYSIS OF RESULT

4.1 Response rate:

A total number of 120 questionnaires were distributed, 100 were returned with valid responses, giving a response rate of 83.33%. 13 of the questionnaires representing about 10.8% were not returned by the responders while 5.8% of the questionnaires which were returned unfilled or partly answered were not included in the analysis. (See table 1)

4.2 Characteristics of responders

The study included 43 male and 56 female students, 1 responder did not indicate the gender (table 2). The age of the responders ranged from 16 years to above 45 years. About 64% of the responders were between the ages 16- 25 years while about 24% were aged between 26-35 years; only about 3% were above 45 years (See table 3). 74% were undergraduate students and 25% were postgraduate students. Majority of the responders (91 %) were in full time studies (See table 6). The responders were racially different. For the purpose of analysis, the different ethnic groups and race were collapsed into five; White, Black, Asian, Chinese, and Japanese. 17% identified themselves as White, 45% as Black, 30% as Asian, 4% as Chinese, and 1% as Japanese (see table 4).

4.3 Awareness of oral cancer screening:

Question about awareness of oral cancer screening revealed that 48% of the responders had never heard of oral cancer screening, in addition to about 21% who had no idea what the screening was all about; meant that about 69% of the responders do not know about oral cancers screening (See table 8)

4.4 Dental behaviour:

Questions on dental behaviour showed varied range of responses, result as seen in Table 7, reveal that majority of the participant (22%), visited the dentist only once a year. When asked who the responder would rather see if they had any concern about their mouth; 62% reported they would rather see a dentist, 33% would see a general practitioner while 2% would prefer to see the pharmacist. Question about dental visit in the last one year revealed that 56% of the responders have not been to the dentist in the last one year, on the other hand 42% reported they had visited the dentist. Meanwhile pain was the main reasons given for dental visit.

4.5 Awareness of oral cancer risk factor:

Awareness of oral cancer risk factors varied greatly. Question 5 of the questionnaire (See appendix A) was on oral cancer risk factors. Participant were asked what they thought could cause oral cancer. Only 35% of the responders correctly identified alcohol as a risk factor, while 32% and 34% replied that it was not a risk factor or had no idea respectively. Meanwhile, most of the responders could correctly identify tobacco and cigarette smoking as a risk factor (67% and 80%) respectively. On the other hand majority (68%) believed that poor oral hygiene is a risk factor. While 46% reported not knowing if Ultra Violent light or Betel quid chewing was a risk factor for the disease. Only 32% and 19% correctly identified UV light and Betel quid respectively. Incidentally, 16% reported that consuming chocolate and other sweet food causes oral cancer whereas, 23% reported not knowing if spicy foods were risk factors for the disease. On the other hand, 67% stated correctly that hot coffee and beverages are not risk factor for the disease. Despite this, 13 % believed it to be a risk factor. Interestingly, 57% identified HPV as a risk factor, although 29% admitted not knowing if it was a risk factor (See table 9).

4.6 Signs and symptoms of oral cancer:

On the other hand, results as shown in table 10 revealed a better knowledge of the signs and symptoms of the disease. Participants were asked what changes in the mouth they considered to be associated with mouth cancer (Question 6-see appendix A); majority correctly identified wound/ulcer that fails to heal- 66%, persistent bleeding-59%, red or white patches (pre-malignant lesion)-50%, swelling-67%, pain 45%, and loss of facial feeling or numbness-44% as signs and symptoms of the disease.

While 34% and 43% did not know that changes in sound of voice / hoarseness and difficulty with chewing or swallowing are associated with oral cancers. 49% correctly responded that tooth cavity/carious lesion is not a sign of oral cancer (Table 10). Despite this, given the percentage of those who admitted not knowing about these signs and symptoms, it is rational to believe that there is a need for an oral cancer awareness programme.

4.7 DISCUSSION

The publicity and Government initiative focused on oral cancer is not as much as those given to other forms of cancers such as breast, lungs, prostrate cancer and other types of cancers. More people will readily associate smoking with lung cancer than they would with oral cancer (Binnie et al, 2007). The incidence of oral cancer is gradually rising; large increase has been noted over the last ten years. This increase is similar to the increase seen in the incidence rate of other cancers such as malignant melanoma, kidney and uterine cancers (Cancer Research UK, 2007b). Yet oral cancer remains largely unknown. Most people would readily identify other forms of cancers than they would oral cancer (Wanakulasuriya et al, 1999; Binnie et al, 2007). This may be due to the massive media attention that has been given to these other cancers. For instance, a walk into a GP's surgery in the UK will reveal varied leaflets and brochures on lung cancer, breast cancers, and more recently cervical cancer. Similarly Government campaigns and publicities on tobacco and alcohol are focussed on the harmful effects of these products on different organs of the human body, but not on the effects on the oral cavity.

It is therefore not surprising that findings from the result of this study revealed that the level of awareness of the University of Bedfordshire students on oral cancer is low. Equally revealing is the lack of knowledge of the disease as reflected from the number of the incorrect and don't know responses especially when considering oral cancer risk factors. The knowledge of tobacco and smoking as a risk factor for oral cancer is quite good (67% and 80%) respectively. This is comparable to results previous studies (West et al, 2006; Saini et al, 2006; BDHF, 2007; Carter & Ogden, 2007). Apparently most people know about the harmful effect of smoking and tobacco use.

This confirms the effectiveness of the aggressive campaigns and Government initiatives in recent times to educate the public on the harmful effects of tobacco and smoking. On the other hand, only very few responders- 33% could correctly identify alcohol use as a risk factor, while 34% of the responders admitted not knowing that alcohol is a risk factor and 32% believe that alcohol is not a risk factor. Apparently, not much is known about the association between alcohol and oral cancers. Results from previous studies similarly indicate low level of awareness of this risk factor (Ariyawardana & Vithanaarachchi, 2005; BDHF 2007; Carter &Ogden, 2007). Likewise, the awareness of betel quid as a risk factor for oral cancer is equally low. Only 19% of the responders correctly identified this risk factor. Majority of the responders 46% admitted having no idea of this risk factor. This is despite the fact that about 30% of the responders admitted to be Asian. The use of betel quid is prevalent among this ethnic group and has been identified as the main risk factor for oral cancers among this ethnic group (Scully & Bedi, 2000; Silverman, 2001; Stewart & Kleihues, 2003; Parkin et al, 2005; Ariyawardana & Vithanaarachchi, 2005).

Meanwhile, analysing the dental behaviour of responders reveal that majority of the student reported not going to the dentist within a year. This is a considerable number, considering the fact that people are advised that dental visits should be at least twice a year; this has the added advantage that frequent dental visit will aid early detection of any oral disease and especially oral cancers. Furthermore, most of the responders (68%) in this study are aged less than 45 years; indicating that most are youths and are within the age groups identified in the study by Llewellyn et al (2001). The Human papillomavirus, a virus originally transmitted sexually; has been identified to be the main risk factor for oral cancer among this age group (Oral Cancer Foundations 2008; BDHF 2007) also (See Appendix I). Meanwhile, the fact that the disease at the earliest stage is symptom less means that the individual affected by the disease might not be aware of the disease until it is too late. Oral cancer becomes painful only at the late stage (Scully and Porter, 2000; Scuibba, 2001; Neville &Day, 2002; Uti and Fashina, 2006). Most of the responders in this study admitted visiting the dentist only when in pain. Therefore, it can be assumed that most of the responders might not be aware of oral cancer unless it becomes painful; at which stage it becomes difficult to treat and prognosis and survival rate becomes poor (Scuibba, 2001; Neville& Day 2002).

Meanwhile, like all other forms of cancers, the aetiology of oral cancer is not fully known, but the major risk factors or factors that predispose an individual to having the disease have been identified as tobacco, alcohol and the Human papillomavirus (Petersen, 2003; Herrero et al, 2003; D'Souza et al, 2007; Oliver et al, 2007). Interestingly, these major risk factors are dependent on lifestyle and choices. Therefore they are modifiable! Unfortunately, not every member of the public is aware of this, likewise, very little consideration has been given to oral cancers, especially about educating the public about the disease. Particularly since the awareness of the risk factors and the signs and symptoms of the disease can be used as indications of an individuals' knowledge of the disease. The need for oral cancer awareness cannot be overemphasised. The general low level of awareness of the disease calls for policies to address this issue. There is a general conclusion on the need for the dissemination of knowledge on oral cancer (Tomar & Logan, 2005; Ashe et al, 2006; West et al, 2006; BDHF 2007).

Although the UK Government's efforts have been focused on reducing the effects of some of the known risk factors of cancers with particular emphasis on smoking and alcohol, it has not been effective in reducing the incidence rate of the oral cancer (see Appendix J). Oral cancer continues to have a high incidence and mortality rate (see appendix K). This may be due to various constrains. A major constrain to the national action is culture and belief. For instance tobacco used in form of smokeless tobacco, betel quid, paan masala is common and culturally acceptable among the Pakistanis, Bangladeshi, and Indian / Asian communities in the UK (Warnakulasuriya et al, 1999; West, McNeill and Raw, 2004; Cancer Research UK, 2005) meanwhile awareness of oral cancer is low among these communities. Alternatively, a constrain to the awareness of oral cancer may be due to the fact that Government's effort has been focussed on the modifiable risk factors for oral cancer (tobacco, alcohol, human papillomavirus and other identified risk factors) and not on the disease –Oral cancer! This may explain the lack of public knowledge of the disease. On the other hand, a general lack of public awareness of the disease is another constrain to Government initiatives. The low level of awareness of the disease among these responders is of great significance, in view of the fact that the participants represent the educated sector of the population. This study further emphasises the importance of the need for adequate public health educational approaches and publicity to tackle the disease.

4.8 Recommendations:

The most important way to reduce the mortality rate of oral cancer is to promote early detection of the disease. This can be achieved by creating massive public health awareness programmes; with emphasis on education, counselling or advice specially geared towards oral cancers.
For a disease with such poor prognosis, prevention rather than cure should be the aim of any public health approach aimed at oral cancer, especially given the fact that treatment for the disease is most times difficult, debilitating as well as disfiguring. Individual have to be discouraged from taking up the habits or the known risk factors for the disease. This can be through the dissemination of information in form of media outreaches, use posters and fliers or counselling and cessation advice services for individuals who want to modify their habits as it relates to the known risk factors of oral cancers. Likewise information on oral cancer, the risk factors, the sign and symptoms to look out for should be made available to the public easily. The public should be aware of what oral cancer is, how deadly and the importance of early identification of the disease. Furthermore medical personnel especially the dental team should be educated on the importance of the disease, especially screening for the disease among those who are at risk either due to age or social habits. Involvements of the black and minority ethnic groups in policy making and implementation should be encouraged. This is important given the fact that the use of some of the identified risk factors (smokeless tobacco, cigarette, betel quid, paan) is prevalent and sometimes culturally accepted in the group. These approaches will promote early detection of the disease and invariably early treatment and better prognosis. Extensive public health awareness campaign on oral cancer is therefore recommended.

4.9 Conclusions

This research was undertaken with the main aim of evaluating the level knowledge of the University of Bedfordshire students about oral cancer, and to determine if there was any need for oral cancer awareness programme. To achieve this, the research objectives were; to describe oral cancer, its risk factors, signs and symptoms, treatment and prognosis. As well as to evaluate the literature in relation to current practice on oral cancer awareness; to determine if the University of Bedfordshire students are aware of oral cancers and to make recommendation for creating oral cancer campaign. The literature findings reveal that oral cancer is a disease contributing greatly to the global burden of diseases. It remains one of the top ten malignancies in the world with very high incidence and prevalence rates. The disease has a high mortality rate and treatment often involves radical measures. Incidentally, the major risk factors for the disease are modifiable and are greatly dependent on the individual choices and actions. Tobacco and alcohol use, either separately or jointly; remain the major risk factors. Of interest is the association of the Human papillomavirus in the aetiology of oral cancer especially as the main risk factor for the disease amongst the youths. Despite these facts, the knowledge of the disease is generally low. Most people are not aware that such a disease exist and as such; are not even aware of the risk factors or the signs and symptoms of the disease. Interestingly, this lack of awareness of the disease equally exists among health care practitioners. It is therefore not surprising that results from this study indicate that there is a low level of awareness of the disease among the University of Bedfordshire students. This study further reinforces the survey by the (BDHF 2007) that the public are not aware of oral cancer, especially the risk factors. The need for a public health awareness programme specifically aimed at increasing the awareness of oral cancer is imperative and hence recommended. Although results from this study may be limited by possible recall bias on the part of the responders; the importance of the findings to public health promotion cannot be overemphasised.

CHAPTER FIVE

.INTRODUCTION

This section will include the plans for the dissemination of findings, as well as the reflection on learning.

5.4 Dissemination of findings

The value of a study cannot be appreciated unless it reaches the intended audience. A plan for the dissemination of the findings has to be identified. Consequently, results from this study will be published in the University of Bedfordshire students' Journals. These Journals are published periodically and are provided free for students and staff of the University. Publishing the findings from this study will ensure that the responders and the entire study population have access to the results. Similarly, this study will be made available for free access to students in the University libraries. Likewise for easy access by a wider audience and the general public; results will be published in peer reviewed Journals.

5.2 Reflection on learning

Biggam (2008 p.156), rightly commented that throughout the life-cycle of the dissertation, a wide range of conflicting emotions; varying from excitement, delights, confusion, frustration, satisfaction, and pain is experienced. For this researcher, undertaking this study has been an eye opener in so many ways. Firstly, arriving at a research topic was a task in itself. The initial idea was to undertake a study focused on 'tobacco'' or smoking as a public health issue. As a dentist, the choice of a suitable topic that will highlight tobacco as a problem from a dental perspective was a good idea, but finding the right topic was quite daunting and overwhelming. It involved a lot of reading and at the same time staying focus. This research topic was finally thought to be ideal after several considerations. Secondly as a new student undertaking a research at this level for the first time, doing a thorough literature search and critiquing other studies was a new, intimidating, (but thanks to my supervisor) rewarding experience; although there were periods of confusion about choosing the relevant literature and periods of frustrations whenever a citation/ literature was considered irrelevant and a new search had to be undertaken. Despite this, a lot has been learnt from the literature and from the different types of studies available. Much is still left to be learnt (There is a wealth of knowledge out there). Moreover, database searching skill has been greatly increased and improved. Furthermore, much has been gained from undertaking this study, and a lot of hidden potentials have been recognised. For instance approaching the University students, to request for their participation in this study was initially a process this researcher thought was going to be intimidating, but this fear was eventually found to be baseless. Most of the students approached were very pleasant and willing to participate in the study. Those that declined to participate were very polite about it. Likewise, the use of different computer software and applications, such as SPSS, excel were all new to the researcher, a lot had to be learnt in order to be proficient with these IT skills. Finally, there was a feeling of self-satisfaction and pride at completing this study. The knowledge gained by undertaking this research cannot be quantified.

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APPENDICES

APPENDIX A- QUESTIONNIARE:

UNIVERSITY OF BEDFORDSHIRE

FACULTY OF HEALTH AND SOCIAL SCIENCES

MASTERS IN PUBLIC HEALTH

My name is Abayomi-Ojumu, Olayinka. I am a Masters in Public Health student of The University of Bedfordshire, currently undertaking my dissertation on **Awareness of Oral Cancers, its risk factors, signs and symptom: amongst the University of Bedfordshire students.**

I will be very grateful if you could kindly answer the following questions to the best of your knowledge.

Oral cancer is a disease that affects the mouth. Any part of the mouth can be affected. The rate of survival from the disease is very low especially if the person affected does not seek medical attention on time.

The fact that the early onset of the disease is often painless, coupled with the fact that most people cannot readily identify the signs of the disease has been attributed to be the reasons for the late medical attention and referrals. Unlike other forms of cancers much attention has not been given to mouth cancers.

The aim and objectives of this study is to determine if there is enough knowledge and awareness of the disease amongst University students. To determine if students can identify the risk factors, signs and symptoms of the disease. To determine if there is a need for oral health education and mouth cancer awareness programme.

The questionnaire is completely anonymous and information is confidential. Response is for research purpose only.

The approval for the study has been granted by the University of Bedfordshire Research Ethics Committee.

The result from the study will be published in the schools journals and also in peer reviewed journals.

Thank you for taking the time to complete this questionnaire.

SECTION A: Dental behaviour

1. Have you been to the dentist in the last one year?

Yes [ ] No [ ] (if no please go to question 4)

2. In a year, how often do you see the dentist?

Once a year [ ] Twice a year [ ] More than twice a year [ ]

Only when in pain [ ] Others_____ (please specify)

3. What was your reason for the last visit to the dentist?

_____ (please state)

4. If you have concern about your mouth, who would you rather see first?

The GP [ ] The dentist [ ] The hygienist [ ]

Otherso_____ (please specify)

SECTION B: Please answer this section by putting an x or a tick in the relevant boxes.

5. What do you think can cause cancer of the mouth (oral) cancer?

	Yes	No	Don't know
Alcohol intake	[ ]	[ ]	[ ]
Cigarette Smoking	[ ]	[ ]	[ ]
Tobacco chewing/smokeless tobacco use	[ ]	[ ]	[ ]
Exposure to ultra violent light	[ ]	[ ]	[ ]
Poor oral hygiene	[ ]	[ ]	[ ]
Viruses (e.g. Human Papilloma Virus)	[ ]	[ ]	[ ]
Eating Spicy or hot food	[ ]	[ ]	[ ]
Hot Coffee, beverages or tea	[ ]	[ ]	[ ]
Betel quid, Paan or Areca nut chewing	[ ]	[ ]	[ ]
Sweets, chocolate, sweetened foods	[ ]	[ ]	[ ]

6. What changes in the mouth do you consider to be associated with cancer of the mouth?

	Yes	Don't know	No
Sore/wound in the mouth that fails to heal	[ ]	[ ]	[ ]
Unexplained bleeding from any part of the mouth	[ ]	[ ]	[ ] Red or
White patches in the mouth [ ]	[ ]	[ ]	
Swelling or lump in the mouth	[ ]	[ ]	[ ]
Loss of feeling/Numbness in any part of the mouth	[ ]	[ ]	[ ]
Bad breath	[ ]	[ ]	[ ]
Persistent pain in any part of the mouth	[ ]	[ ]	[ ]
Difficulty with chewing and swallowing	[ ]	[ ]	[ ]
Loosening of teeth	[ ]	[ ]	[ ]
Change in the voice /hoarseness	[ ]	[ ]	[ ]
Hole/cavity in the teeth	[ ]	[ ]	[ ]

7. Have you ever heard about mouth/oral cancers screening?
Yes definitely [ ] Yes I have an idea [ ] No [ ] Never heard of it [ ]
If no please go to section c

8. Have you ever had a mouth cancer screening done before?
Yes [ ] No [ ]

SECTION: C General Questions (please tick as appropriate)

9. **Gender** Male [ ] Female [ ]

10. **Age** 16-25[ ] 26-35[ ] 36-44[ ] 45years and above [ ]

11. **Ethnic group**
---------- (please indicate)

12. **Level of study**
Undergraduate [ ] Postgraduate certificate [ ]
Post graduate diploma [ ] Postgraduate masters [ ]
PHD [ ] Others ---------- ----------

13. **Your programme** is; full time [ ] part time [ ]

Answer the following question by ringing/deleting **yes** or **no** as appropriate:

1. Does the study involve vulnerable participants or those unable to give informed consent (e.g. children, people with learning disabilities, your own students)? **No**
2. Will the study require permission of a gatekeeper for access to participants (e.g. schools, self-help groups, residential homes)? **Yes**
3. Will it be necessary for participants to be involved without consent (e.g. covert observation in non-public places)? **No**
4. Will the study involve sensitive topics (e.g. sexual activity, substance abuse)? **No**
5. Will blood or tissue samples be taken from participants? **No**
6. Will the research involve intrusive interventions (e.g. drugs, hypnosis, physical exercise)? **No**
7. Will financial or other inducements be offered to participants (except reasonable expenses)? **No**
8. Will the research investigate any aspect of illegal activity? **No**
9. Will participants be stressed beyond what is normal for them? **No**
10. Will the study involve participants from the NHS (e.g. patients or staff)? **No**

Signature of Applicant Abayomi-Ojumu, Olayinka Date 21-1-08

Signature of Director of Studies ...s.s.ss.s..... Date .....s.

SECTION B Consideration by Research Institute

B(i)
If the answers to Questions 1 to 8 are no and the Director of the Research Institute considers that:

There are no significant ethical issues

Signature of Director of Research Institute ..... Date...s...s.....

This form should then be filed with the RS1 form

B(ii)
If the answer to any of the questions 1 to 8 is yes or if there are other significant ethical issues then further ethical consideration is required. This further ethical consideration will involve scrutiny by local ethics research committees as appropriate. Once this has been undertaken this form, together with the research proposal and the recommendations from the further ethical consideration should be submitted to the University Research Ethics Committee for approval.

Please note if the answer to Question 6 is yes then the proposal should be submitted through **NHS procedures** to the appropriate **COREC**. The University Research Ethics Committee should be informed of the outcome.)

There are significant ethical issues see recommendation attached

Director of Research Institute .....o.. Date..8/4/07

This form together with the recommendation and a copy of the research proposal should then be submitted to the University Research Ethics Committee

SECTION C Consideration by University Research Ethics Committee

The University Research Ethics Committee has

Approved / not approved

This application for ethical approval

Chair University Research Ethics Committee .....o....o.....Date.....

If successful a copy of this approval should be included with the RS1 Form in the student's file. If the application is unsuccessful formal feedback will be provided.

APPENDIXsF

Time Table and Resourcess

Task	Time
• Research proposal formulation and writing and submission	November 2007 to January 2008
• Approval from ethics committee	April 2008
• Literature review	March to July 2008
• Pilot study /piloting of questionnaire	April 2008
• Handing out questionnaire	May 2008
• Data collation and analysis	June to July 2008
• Write up/ typing	August to September 2008
• Proof reading	September 2008
• Complete dissertation writing and submission.	October 2008

APPENDIXsG

Gantt chart showing dissertation timescale

Activity	March	April	May	June	July	August	Sept.	October
Literature review								
Pilot study								
survey / Data collection								
Result analysis								
Write up and typing								
Proof reading submission								
Submission								

Appendix H

Budget

Item	Amount £	Total £
Equipments:		
Questionnaires (typing & printing)	450	450
• Use of computers (broadband)	25x 4month	100
• Use of printers	50	50
• Scanning and photocopying	50	50
• Flash drive	15x 2	30
• Computer disc (CD)		5
Communication:		
• Telephone bill (BT and mobile)	15x4 month	60
Travel:		
• Within London/library		150
• London-Luton- London		200
Personnel:		
• Assistance/ typing		250
• Personnel		350
• Stationery		100
• Miscellaneous		150
Grand Total		1945

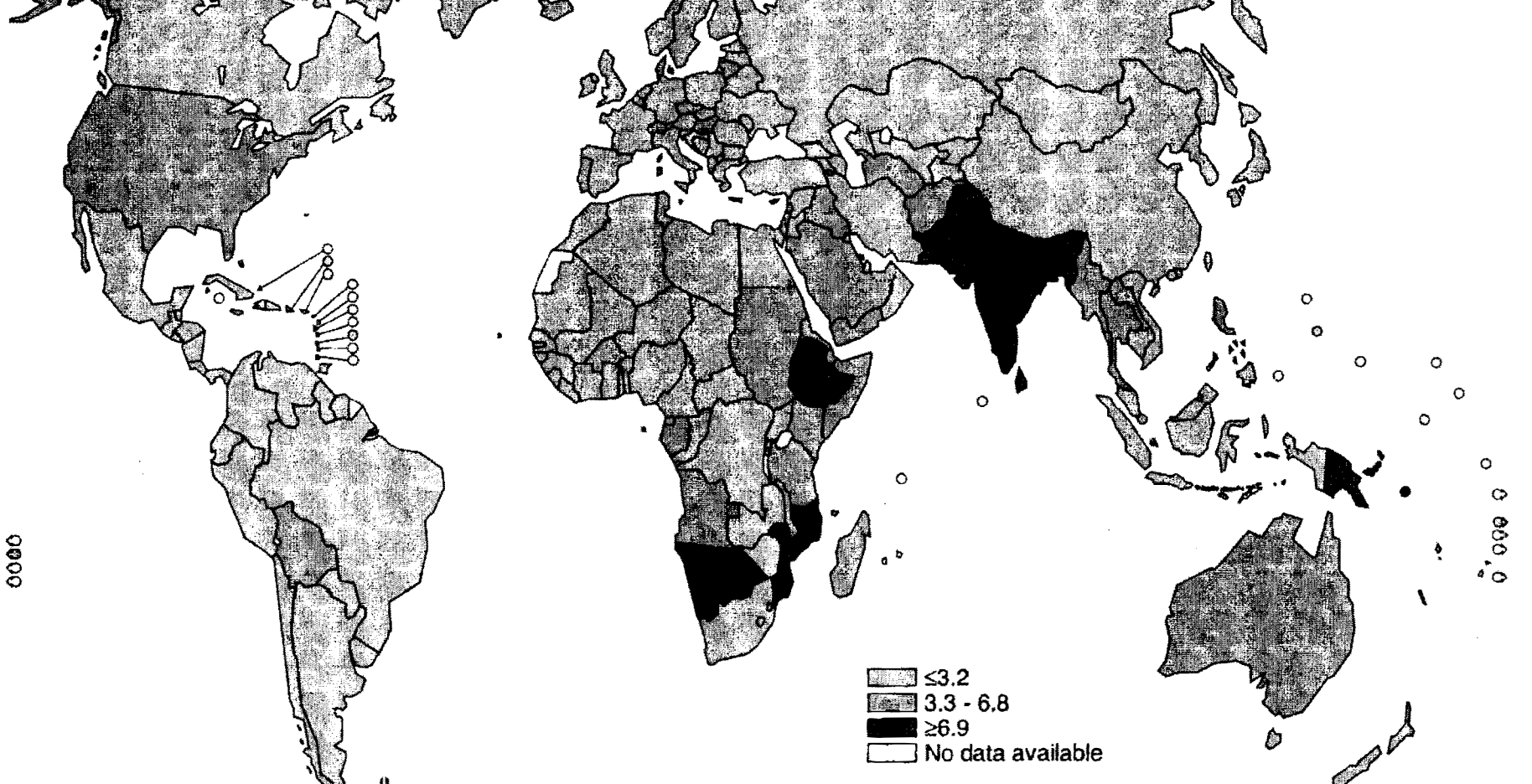
Incidence and Mortality
Of mouth cancer in the UK
@ 01/08/07

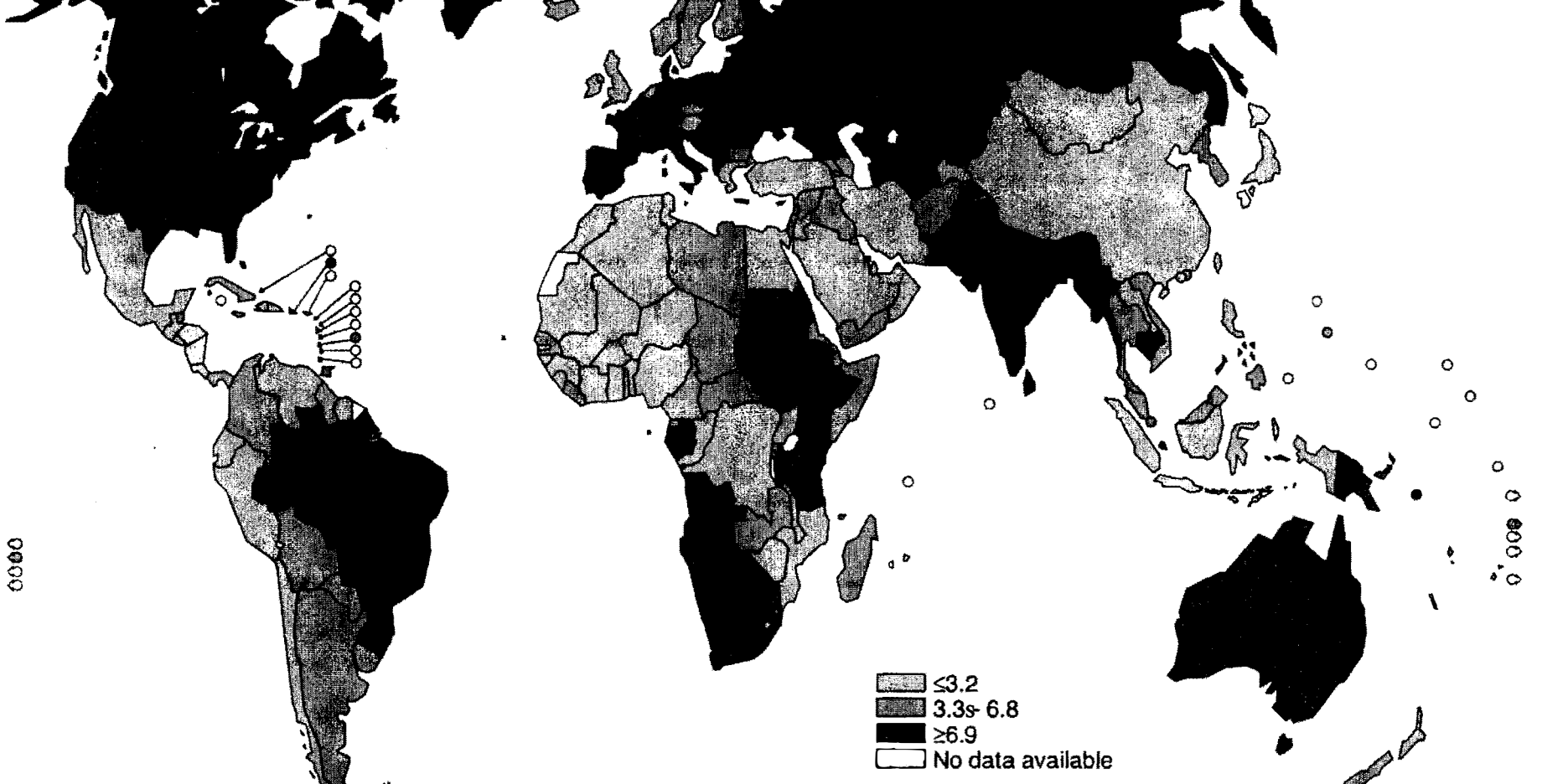
(ICD 140-149 excl. 142 and 147)

Year	Incidence	Mortality
2005		1772
2004	4769	1679
2003	4660	1592
2002	4405	1703
2001	4400	1662
2000	4374	1649
1999	4304	1648
1998	4081	1689
1997	3968	1644
1996	3771	1638
1995	3673	1586

Source: **Cancer Research UK / Scottish Cancer Registry**

01/08/07


≤3.2
3.3 - 6.8
≥6.9
No data available


≤3.2
3.3s- 6.8
≥6.9
No data available