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The knowledge, attitude and practice among primary health care nurse practitioners regarding oral health and oral HIV lesions in QE II and Roma health service areas in Maseru, Lesotho

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THE KNOWLEDGE, ATTITUDE AND PRACTICE AMONG PRIMARY HEALTH CARE NURSE PRACTITIONERS REGARDING ORAL HEALTH AND ORAL HIV LESIONS IN QE II AND ROMA HEALTH SERVICE AREAS IN MASERU, LESOTHO

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A DISSERTATION SUBMITTED TO THE FACULTY OF HEALTH SCIENCES, UNIVERSITY OF WITWATERSRAND, IN FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER IN PUBLIC HEALTH (MPH)

THE KNOWLEDGE, ATTITUDE AND PRACTICE AMONG PRIMARY HEALTH CARE NURSE PRACTITIONERS REGARDING ORAL HEALTH AND ORAL HIV LESIONS IN QE II AND ROMA HEALTH SERVICE AREAS IN MASERU, LESOTHO

KEY WORDS:

Primary health care nurse practitioners (PHCNPs)

Oral mucosal lesions

Oral HIV

AIDS

Prevalence

Abbreviations used:

AC – Angular Cheilitis

ANUG – Acute Necrotizing Ulcerative Gingivitis.

AIDS – Acquired Immune Deficiency Syndrome

ART – Anti Retroviral Therapy

CD 4 – T –Cell type

CDC – Centre for Disease Control

CHAL- Christian Health Association of Lesotho

CHW – Community Health Worker

DHS - Demographic and Health Survey

HBV- Hepatitis B Virus

HSA – Health Service Area

HSR – Health Sector Reform

HCW – Health Care Worker

HLA-DR5- Human Lymphocyte Antigen –DR5

HAART – Highly Active Anti Retroviral Therapy

HLA DR5 – Human Leukocyte Antigen-DR5

HIV – Human Immuno-deficiency Virus

HSR – Health Sector Reform

KAP- Knowledge- Attitude-Practice

KS –Kaposi's' Sarcoma

LFDS- Lesotho Flying Doctor Service

MOHSW- Ministry of Health and Social Welfare

NUG – Necrotizing Ulcerative Gingivitis

NUP – Necrotizing Ulcerative Periodontitis

OC – Oral Candidiasis

OH – Oral Health

OHCW – Oral Health Care Workers

OHL- Oral Hairy Leukoplakia

OHP- Oral Health Personnel

PHC – Primary Health Care

PHCNPs- Primary Health Care Nurse Practitioners.

PLWHA- People Living With HIV and AIDS

PPCPs – Paediatric Primary Care Providers

QE II – Queen Elizabeth II

RAS – Recurrent Apthous Stomatitis

TBA – Traditional Birth Attendants

THP- Traditional Health Practitioners

VHW- Village Health Workers

WHO – World Health Organisation

Abstract

Although the nursing sector has not been spared the effects of human resource shortages and Human Immune-deficiency Virus/Acquired Immune Deficiency Syndrome (HIV/AIDS) crisis in Lesotho, it still remains the backbone of the primary health care delivery. There is a well-established linkage between oral health and HIV/AIDS with many of the early symptoms of HIV manifesting in the oro-facial region. However, the lack of oral health personnel at primary health care levels in Lesotho makes Primary Health Care Nurse Practitioners (PHCNPs) often the first health care providers to consult, manage and refer patients with such oral lesions. **Aim:** To assess the "knowledge, attitude and practice" (KAP) of the PHCNPs regarding oral health and oral HIV lesions in Queen Elizabeth II (QE II) and Roma health service areas (HSA) of Maseru district in Lesotho.

Objectives: To assess the demographic profile of PHCNPs in the target health facilities, their knowledge, attitude and practice regarding oral health and oral HIV lesions.

Methods and Materials: The research was a descriptive cross-sectional survey. A convenience sample of 57 primary health care nurse practitioners (PHCNPs) from QE II and Roma health service areas were identified. During their monthly PHC meeting, a questionnaire was administered to assess the knowledge, attitude and practice regarding oral health and oral HIV lesions. The information gathered was both quantitative and qualitative. Data was entered and analysed using the SPSS statistical package.

Results: The response rate was 87.7%. There was 100% consensus regarding the importance of oral health to the total well being of individuals. The majority of the PHCNPs recognised oral candidiasis (OC) (94.7%), bleeding gums (87.7%), herpes lesions (71.9%) and dental caries (75.4%). Lesions such as acute necrotizing ulcerative gingivitis (ANUG) (40.3%), angular cheilitis (AC) (56.1%) and apthous ulcerations (24.6%) were also recognised but to a lesser extent. The respondents associated OC (84%), herpes (61%), AC (54%), Oral Hairy Leukoplakia (OHL) (49%), Kaposi's' sarcoma (KS) (49%) with HIV/AIDS. OC was the most common lesion associated with HIV. Some lesions commonly seen in the clinics such as apthous ulceration and ANUG were not significantly associated with HIV (18% and 33%, respectively)**.** The majority of PHCNPs (81%) indicated that they had knowledge about oral HIV lesions. Twenty nine

respondents (50.8 %) reported having received this knowledge through training institutions. Mass media (Radio (53%), TV (40%), and newspapers/magazines (49%)) was one of the major sources of information. Forty-four PHCNPs (77.2%) saw only Zero or one (0-1) HIV patients with oral lesions. Similarly, 15.8 % and 7% of the PHCNPs saw 11 to 20 and more than 20 (21+) HIV patients with oral lesions, respectively. The two thirds of the PHCNPs (67%) said they would not advise patients to seek care from Traditional Health Practitioners (THP) due to their lack of trust and confidence in the practices, knowledge and the patient management of the THPs. However, 16% of them reported that they would refer because they thought traditional medicine boosts the immune system. Only seven respondents (12.3%) routinely washed their hands with antiseptics. However, 44 of respondents (77.2 %) cleaned their instruments with bleach and disinfectants. The majority (89.5%) washed their hands with water and soap. Forty three respondents (75.4%) wore gloves during examination. Routine use of facemasks was limited to only 12 respondents (21.1 %). Ninety eight percent of the PHCNPs stated that they would like to learn to manage oral lesions at health centres. The majority (79%) of the respondents said that they would like to receive more training on the management of oral lesions through workshops.

Conclusions: There was an observable correlation between PHCNPs self-assessment of oral health knowledge and the objective knowledge as assessed by ability to identify the oral lesions on a chart (2 –sided Fischer's test-0.000-0.261).This needs to be confirmed by undertaking a study with a larger sample size. OC was the most common lesion associated with HIV as reported by the PHCNPs. The majority of the participants (94.7%) identified OC and associated it (84%) with HIV infection. The finding indicated that with training and/or mentoring, PHCNPs are likely to confidently diagnose oral HIV lesions. PHCNPs showed a positive attitude towards learning more about the oral manifestations of HIV/AIDS. PHCNPs should be utilised more effectively in the diagnosis and management of HIV/AIDS.

DECLARATION

I declare that this research is my own work. It has not been submitted before for any degree or examination in any other University. All the sources I have used or quoted have been acknowledged by complete references.

Dr T.G. Prithiviraj

Signed …….

2011

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CHAPTER 1: RESEARCH CONTEXT AND BACKGROUND OF THE STUDY

1.1 Introduction

Lesotho is faced with the triple challenge of poverty, food insecurity and a Human Immune Deficiency Virus/Acquired Immune Deficiency Syndrome (HIV/AIDS) crisis[1]. The HIV/AIDS crisis in Lesotho is compounded by a severe limitation in health sector human resources. Although the nursing sector has not been spared the effects of human resource shortages, it still remains the backbone of the primary health care system in a country which has the third highest adult HIV prevalence in the world at 23.2%[2].

The HIV/AIDS crisis is a principal concern for the health sector in Lesotho. There is a well-established link between oral health and HIV/AIDS with many of the early symptoms of the disease manifesting in the oro-facial region[3-5]. However, the lack of oral health personnel at primary health care level in Lesotho makes primary health care nurse practitioners (PHCNPs) often the first health care providers to see and manage patients with such oral manifestations. The knowledge, attitudes and practices they have regarding these conditions could determine the type and quality of healthcare the patient/client may receive. This section of the study describes the Lesotho health context and provides some background with respect to HIV/AIDS and its oro-facial manifestations.

1.2 Research context and background of the study

1.2.1 Country Profile:



Lesotho is a landlocked country completely surrounded by the Republic of South Africa. It consists of 25% lowland and 75% highland area and is divided into ten administrative districts. These areas differ in size, topography, climate and stage of development. The country covers an estimated area of 30 335 km^2 with a population of 1.8 million. Maseru district is the seat of government and houses the capital city Maseru. The district is also the most developed with an estimated population of 429 823 people[6].

Lesotho adopted the Primary Health Care (PHC) strategy in 1979. For the purpose of health care delivery, the ten districts are divided into 18 Health Service Areas (HSAs). Each HSA comprises of a hospital as the pinnacle of care with several health centres/clinics. There are 18 HSAs and about 158 health centres. Queen Elizabeth II (QEII) and Roma HSAs in the Maseru district are the focus of this study.

At the community level, services are delivered through community owned village health posts. According to the Community Health Worker (CHW) inventory of 2004, Lesotho has 5 639 Village Health Workers (VHWs) and 1 423 Traditional Birth Attendants (TBAs). While traditional healers are not formally included, they are integral to the system with a co-ordinating office aligned to the Director of PHC[7].

In terms of ownership, Lesotho health facilities are almost equally divided between government (Nine district hospitals and about 50% of the health centres serving 52% of the population) and the Christian Health Association of Lesotho (CHAL). CHAL oversees a conglomerate of health facilities (Eight district hospitals and health centres) owned by churches, serving 48% of predominantly rural populations. Each district hospital has about six to eight satellite clinics and health centres. Lesotho Flying Doctors Service (LFDS) is considered a health service area although it has no affiliated hospital. It provides services to 12 remote clinics only accessible by air. There are three referral hospitals in Maseru: which are QE II Hospital, Mohlomi Mental Hospital and Botsabelo Leprosy Hospital[8].

Lesotho operates under a system of health districts, which caters for specific geographic regions and populations. This system consists of four levels[8]:

- Village level with a network of over 5 000 volunteer community health workers.
- Clinics/health centres with health teams serving 6 000- 10 000 people.
- Referral and district hospitals
- LFDS

Each district hospital supervises all health centres in its area including the implementation of PHC, and serving as the first referral level. The QEII and Roma HSAs have 32 and six health centres, respectively[9]. Health centres are the main providers of PHC under the management of nurse clinicians who are expected to have been trained in all aspects of public health. Nurses comprise the largest cadre within the health sector in Lesotho. The 1, 123 nurses employed throughout the health sector account for approximately 33% of the total labour supply and 90% of all personnel directly engaged in health service production[10]. By virtue of their location, satellite clinics and health centres are more accessible to patients who live in rural areas.

There are three nursing institutions in Lesotho, which train about 60-70 nurses per year[11]. This number falls far short of the demand, making available, adequate and appropriate personnel a

major barrier to access of health services[12]. Although the minimum coverage standards suggest that each health centre should have a minimum of one nurse clinician, one general nurse, and one nurse assistant, some busy health centres need as many as three nurse clinicians, two general nurses and one nurse assistant[10]. At the end of the 2006/07 financial year, only seven of the health centres had the minimum staff complement of at least one nurse clinician, one other professional nurse and one nursing assistant[12].

Dental services in Lesotho are provided through eleven dental clinics at government hospitals with three of the clinics in Maseru. A dentist and dental assistant constitute the staff working in each clinic, except in the QE II Hospital where there is more than one dentist together with an oral hygienist, dental assistants and dental technicians. The total number of dentists currently employed in the public service is fifteen. Presently there are no trained dental therapists in Lesotho with only one oral hygienist in Maseru[13]. The dentist/population ratio in Lesotho is 1:113, 998, while the general nurse/population ratio is 1:2, 971[14]. The lack of oral health personnel (OHP) at health centre levels in Lesotho makes PHCNPs often the first health care providers to see and manage patients with oral lesions and oral diseases. It is, therefore, necessary to assess their knowledge-attitude-practice (KAP) regarding oral HIV lesions and other oral conditions.

1.2.2 HIV prevalence in Lesotho

Lesotho lies within Sub-Saharan Africa, where HIV/AIDS continues to be a major public health and developmental problem. The evidence of its impact is undeniable in Lesotho, which is already struggling with increasing levels of poverty and a shortage of human resources especially in the health sector[12]. The first AIDS patient in Lesotho was reported in 1986. Since then an estimated 330 000 adults and 270 000 children (Zero to 14 years old) have been infected with HIV[15].

The 2004 Lesotho Demographic and Health Survey (DHS)[16], which was the first population-based HIV prevalence survey, estimated the adult (15-49 years) HIV prevalence at 24%. The prevalence among adult women was significantly higher at 26% compared to 19% among men. The survey also revealed that one in nine people between 15 and 24 years were HIV positive.

According to the latest Lesotho HIV/AIDS Directorate Lesotho report[17], the adult HIV prevalence is currently estimated at 23.2%. The report also indicated that there were 42 640 individuals in

need of antiretroviral therapy (ART). Since June 2006 there were 12 884 patients on ART of which 726 were children between Zero to 14 years. The orphan burden is equally high with 96 900 orphans and vulnerable children between Zero to 17 years, as a result of HIV/AIDS. In addition, HIV/AIDS is the leading cause of morbidity and mortality in the country, accounting for more than half of all hospital admissions[18]. Moreover, studies[19] indicate that between 70% and 90% of people with HIV infection will have at least one oral manifestation at some time during the course of their disease.

The burden of HIV/AIDS has undoubtedly taken an enormous toll on Lesotho in general and has substantially eroded past gains made in improving the health of its people. The burden is compounded by increased economic hardships, increasingly constrained public finances and scarce human resources. This requires fundamental reforms and commitment to allocate available resources in ways that will have the greatest impact on reducing the overall burden of disease in the most cost- effective and equitable manner[10].

It is against this background that partnerships with PHCNPs need to be sought in order to offer an efficient oral health service at grass root levels. The Health Sector Reform (HSR) process, which was initiated in the Ministry of Health and Social Welfare (MOHSW), offers a window of opportunity to achieve such effective partnerships and coordination in health service delivery[20]. The Government of Lesotho is committed to an integrated PHC system, which makes the best use of the scarce resources. This can be achieved by avoiding duplication and multiple health care systems, which function independently of each other[21]. In the light of this contextual background it is relevant to assess the knowledge, attitude and practices of PHCNPs in Lesotho regarding oro-facial manifestations of HIV/AIDS.

1.2.3 Oral manifestations of HIV infection

Since HIV was first described in 1981, a variety of oral lesions associated with the infection have been documented. Previous studies show that 70% to 90% of people with HIV will develop at least one oral manifestation during the course of the disease[3-5,19]. A literature review suggests that oro-facial HIV lesions have been perceived in various ways:

- As clinical indicators of HIV infection in otherwise healthy and undiagnosed individuals [22,23].
- As early clinical manifestations of HIV such as oral candidiasis [24,25].

- As clinical markers for classification and staging of disease progression[24].
- As predictors of HIV disease progression [26,27].

CD4 counts and HIV viral load are used in developed countries, as key laboratory markers to monitor progression of HIV infection. However, these tests are not readily available in resource-limited countries like Lesotho. In such settings, the presence of oro-facial HIV lesions may be used as clinical markers of advanced disease progression to guide clinicians to evaluate, monitor and treat HIV infected patients.

The availability and accessibility of ART has resulted in reduction of many HIV associated opportunistic infections, including oro-facial HIV lesions [28, 29]. However access to such treatment is limited.

1.3 Problem statement and justification of the study

Lesotho has the third highest adult HIV prevalence in the world estimated at 23.2%. Each day there are an estimated 62 new infections and about 80 deaths due to AIDS[15]. In 2007 there were approximately 270 273 people living with HIV and AIDS (PLWHAs) with more infections among women. It is now estimated that more than 80 000 people are in need of ART [15].

Some of the clinical manifestations of HIV infection in early and late stages, as seen in dental and medical clinics, are oral lesions related to the syndrome[30]. Oral manifestations of HIV/AIDS are well recognized and some of these manifestations are indicator conditions for the World Health Organisation (WHO) clinical staging of the HIV/AIDS disease. Angular cheilitis (AC) and recurrent oral ulceration for instance, are indicative of WHO clinical stage II of HIV/AIDS; oral candidiasis (OC), oral hairy leukoplakia (OHL), acute necrotizing ulcerative stomatitis (ANUG), gingivitis or periodontitis are categorized within WHO clinical stage III disease; and oro-labial herpes simplex and Kaposi's sarcoma (KS) fall under the WHO clinical stage IV Disease[31]. Despite the crucial importance of oral manifestations in HIV/AIDS, the results of field supervision of oral health services at Mafeteng District Hospital indicate that a large number of health centre staff misdiagnose these lesions and therefore inadequately treat the conditions, although they occur in a relatively large numbers of patients[32].

Oral HIV lesions may lead to discomfort, dysfunction or disability. They affect the patient's quality of life; are useful markers of disease progression and immuno suppression; and their importance has been demonstrated in many studies [33,34]. Early detection of oral HIV lesions can be used to diagnose HIV infection, elucidate progression of the disease, predict immune status and provide timely therapeutic intervention[35]. A study in Japan indicated that dental expertise is necessary for appropriate management of oral HIV lesions among HIV/AIDS patients, but many patients do not receive adequate dental care[36]. In Lesotho where the coverage of the population by dental personnel is hugely inadequate[12] it is imperative that other health care providers such as PHCNPs, who have more contact with a larger number of patients, have a good understanding of oral lesions of HIV infection to assist in the early detection and referral of patients. Although these facts provide sufficient motivation for this study, the KAP of PHCNPs in Lesotho, in terms of oral health and oral HIV lesions has not been previously assessed before. Therefore, there is a need to assess the ability of the PHCNPs to recognise, manage and/or refer these patients for further investigation and appropriate management is crucial for the well-being of HIV/AIDS patients.

CHAPTER 2: LITERATURE REVIEW

This chapter reviews literature related to the problem of knowledge, attitude and practice among health care workers (HCWs) in general and oral health care workers/ PHCNPs in particular. It also discusses gaps or flaws in some of the research work done in the area. The chapter then concludes with the summary of the reviewed literature.

2.1 Literature related to the problem of oral health (OH) and HIV/AIDS

Dentistry is central to early detection of HIV infected individuals since in most cases, early manifestations of HIV infection occur in the oral cavity. The oral manifestations often signal progressive failure of the patient's immune system. Prevention and treatment of oral lesions, particularly opportunistic infections, are especially important in patients with HIV in order to maintain quality of life and possibly to prevent more serious complications[37- 39].

In the absence of ART and when the absolute CD4 count falls to less than 200 cells/µl, the extent of immune deterioration becomes more significant, and the likelihood of HIV related illnesses including oral lesions increase significantly. More than 90% of people with HIV infection will have at least one oral manifestation at some time during the course of their disease and the early recognition and treatment of such lesions may reduce morbidity. The morbidity and mortality of patients receiving highly active antiretroviral therapy (HAART) has been markedly reduced due to the effect of HAART on oral care [4,40,41].

A Tanzanian study[42] done among 532 HIV infected participants (51 children and 481 adults) reported that adult patients receiving HAART had a significantly lower prevalence of oral lesions particularly oral candidiasis (OC) and oral hairy leukoplakia (OHL). The same study revealed no significant change in occurrence of oral lesions in children receiving HAART, perhaps due to the small sample size of the children in the study.

The presence of oral lesions is an indication of immune-deficiency making such lesions important for staging HIV disease[43]. The oral cavity is particularly susceptible to infection since it harbours numerous micro-organisms that thrive in conditions of immune-suppression and cause characteristic fungal, viral, bacterial and neoplastic lesions[44].

Although oral lesions have been well documented in developed countries very few of the reports are from developing countries. A comprehensive review of various studies (cross- sectional,

descriptive, cohort and prospective)[45] analyzed reports of oral HIV lesions from developing countries over a period of 14 years (1990-2004) involving both adult and paediatric cases. The reports were sub-grouped into four geographical regions namely, India; Thailand; Africa; and Latin America. The review indicated that OC was the commonest opportunistic infection seen in both adult and paediatric populations in the different regions. In the African region, the occurrence of OC ranged from 12% in Tanzania[46] to approximately 94% in Zaire[47]; the prevalence was around 40% in reports from Latin America; ranged from 21%-81% in reports from India[48]; and 25%-66% in reports from Thailand[49]. OC in the paediatric population ranged from 11% in an Ugandan cohort [50] to 63% in a South African cohort[51].

Kaposi's sarcoma (KS) was only reported in Africa (19% from Zimbabwe) [52] and Latin America (52% from Mexico) [53] while histoplasmosis and penicilliosis were reported in patients with advanced diseases in Thailand[45]. Similarly, acute necrotizing ulcerative gingivitis (ANUG) was reported only from Africa and Argentina. HIV associated salivary gland disease had a high prevalence in Africa (47%) [46]. The occurrence of salivary gland disease was 7% in Ugandan children [50] under 18 months of age and 50% in a South African cohort of children[51].

Although the reason for high prevalence of oral lesions among Africans is not known, it has been suggested that this could be due to the presence of Human lymphocyte antigen-DR5 (HLA-DR5) and untreated advanced stage of disease [54]. HLA-DR5 is a broad antigen serotype genetic marker and DR5 is associated with generalized lymphadenopathy and KS in AIDS patients[55]. In the studies from Thailand, all the patients were in an advanced stage of the disease with severe immune suppression. The presence of reported lesions such as histoplasmosis and penicilliosis in these studies can be explained by the fact that they are caused by *penicillium marneffi* which are endemic to countries like Thailand in South East Asia and are also associated with severe immuno-suppression [48]. It is worth noting that reports based on studies conducted among hospitalized patients with advanced HIV/AIDS may not be generalized to entire populations. The results of a Lim et al. study[56] showed that oral HIV lesions in patients from Singapore appear to occur less frequently than in patients from Africa and Europe. They also observed the notable absence of oral KS and a low prevalence of non-Hodgkin's lymphoma and OHL.

The Ranganathan's comprehensive review[45] also showed that there are considerable regional variations depending on the populations studied and on the clinical expertise available. There are many other possible factors, which need to be considered while investigating the regional variations of oral HIV lesions. The sample sizes of the majority of these studies were relatively

small, ranging from 15-150. This review also did not take into consideration variations that exist within each region. Projecting regional variations based on small sample sizes and applying the variations to entire regions can therefore be misleading.

The variation reported in prevalence studies could be due to various factors that include race, age, risk behaviours, geographical location, socio-economic and immune status, duration of HIV infection, medication, and methods of subject selection, sample size, diagnostic criteria used and timing of evaluation of subjects[57]. As there was much variation in the diagnostic criteria used in various studies, there is a need for standardization of diagnostic criteria. Larger population based studies are needed to validate some of the findings.

Studies that focused on children were a lot fewer compared to adults. Given the fact that there are around two million children younger than 15 years, living with HIV infection more studies are required for this particular population since there are indications that the distribution of lesions in children may vary from that in adults[45]. Future studies should focus on the more frequent opportunistic infections, such as candidiasis and address lesions with unique geographical distribution such as KS to understand the underlying factors for such variations of the oral HIV lesions based on regions/age /ethnic groups etc.

More studies are therefore needed across all population sections to understand the prevalence of the types of oral HIV lesions and the regional variations linked to them.

OC and OHL were the two most common oral HIV lesions seen in Thailand[58]. A South African Study[59] also reported combined OC lesions (37.8%) and OHL (19.7%) as the two most common lesions seen. These two lesions are indicators of HIV infection and can be used as clinical markers of progression to AIDS. The revised definition by WHO suggested that in resource limited settings where laboratory tests such as HIV serology or CD4 counts are not available, the above mentioned two lesions might be considered as signs of HIV infection[60]. This suggestion is highly significant in resource-constrained countries like Lesotho, especially at primary health care levels. Although prevalence of these lesions has decreased in the developed world due to (HAART) [61] the prevalence of these two lesions remains high among the HIV infected subjects in developing countries [62]. At present, the classification of oral HIV lesions still follows a category designed by the EC-Clearinghouse on oral problems related to HIV infection published in 1993 [63]. Given emerging patterns in the face of increasing HAART accessibility, a more current classification might be required.

A Nigerian study of Agbelusi and Wright [64] highlighted the importance to investigate the variations that occur within the more frequent opportunistic infections, such as candidiasis This study showed OC (43%) as the commonest lesion seen and the second commonest being herpes zoster (23%). Unlike most other studies where pseudo membranous candidiasis is reportedly the commonest type of candida lesion, this study population had erythematous candidiasis as the most prevalent. Erythematous candidiasis with AC accounted for 53% of all the cases seen. However, one has to note the relatively small sample size (n=35) that tested HIV positive. They constituted 5% of the 700 patients seen at the dental clinic where the study was conducted. Further studies with larger sample size should be undertaken to increase the validity of such studies.

A Lesotho hospital-based study [65] among 270 patients on the prevalence of oral manifestations of HIV/AIDS found that 73% of the patients had at least one oral manifestation of HIV. The most common type of lesion (54%) found was OC (Peseudomembranous 27% and Erythematous 26%). This was followed by AC (14%), OHL (12%), ulcerations (12%), necrotizing gingivitis (5%) and KS and non-Hodgkin's lymphoma at less than 1%. Results based on the 270 study participants cannot therefore be generalised to the entire population of HIV infected patients. The study also recommended improvement in the diagnostic ability of oral health workers with regard to oral lesions. Another study in Lesotho[66] found little impact of professional education on the knowledge of the nursing staff in identification of the oral lesions of HIV/AIDS. The study therefore recommended emphasis on oral health education to the nursing staff. At the community level, Community Health workers who are the backbone of the health promotion component of PHC receive no training in oral health[67].

A study[68] on the oral health status of pregnant mothers attending antenatal clinics in Lesotho found that 15.7% of the subjects were HIV positive. Of the 15.7%, 2.6% had oral mucosal ulcerations and 2.2% had OC. Of note was the lower prevalence of OC (2.2%) compared to the previous hospital based Lesotho study (54%). This can be due to the fact that this study focused on pregnant mothers attending antenatal clinic. The findings of this study contrast with the hospital based study on hospitalized patients who were probably admitted in late stages of HIV infection. It is expected to see higher prevalence of OC among hospitalised patients who tend to represent one extreme end of HIV related morbidity.

Treatment of HIV infected patients is a team effort. As such many different clinical disciplines are involved in the patient care and all should be able to screen for oral abnormalities[69]. It can be

deduced from the reviewed literature that the presence of oral HIV lesions in people living with HIV is significant. It also suggests that the most common type of oral lesion found was OC.

2.2 Literature related to knowledge of oral health and oral HIV

In a study done in USA[70] among all paediatrics caregivers, 71% of paediatric clinics reported, neither providing oral health education, nor oral screening. Among physicians, 3% considered their oral health knowledge to be excellent, while 32% good, 55% fair and 10% poor. In addition, 59% reported not having received information about preventive oral health during their medical training, while 51% reported not having similar information during their specialty training. In another study[71], Paediatric Primary Care Providers (PPCPs) achieved an adequate level of accuracy in identifying children with dental caries lesions after two hours of training in infant oral health. Even though the study focused mainly on dental caries in children, the results suggest that dental screenings in general can be incorporated into busy paediatric practices and that PPCPs can significantly contribute to the overall oral health of young children by the identification of those children who need to be seen by a dentist. It is important to note that, with the introduction of successful ART, Oral Health Care Providers are now likely to see children and adolescents who live longer with HIV/AIDS. Although some of these children may appear healthy, others may have past or present indicators of HIV infection. Early detection of HIV infection at primary care level can result in timely access to health care for the child and supportive therapy for the family or care giver.

Unlike dentists, Primary Care Practitioners see a large percentage of children during their infant and toddler years. A study done by Dela Cruz[72] supported this finding. It investigated characteristics of medical providers that influence their referral of children who are at risk for dental disease. It shows that Paediatric PHC providers can provide oral health promotion and disease prevention thereby eliminating or delaying dental disease and the need for treatment at a very young age. However, the study suggests that effective and appropriate involvement of primary care practitioners can be expected only after they receive the appropriate training on oral care. This underscores the importance of training PHCNPs who encounter more oral HIV lesions in the context of increasing HIV disease burden in Lesotho[73].

Oral lesions are common in women and children with HIV/AIDS and may decrease the overall quality of life in these patients because of pain, dry mouth and difficulty in eating. A study done by Gennaro et al[74] suggests that oral cavity screening is an easy, non invasive, quick and inexpensive procedure that provides nurses with invaluable information about the need for referral, treatment and health education. Patton[75] emphasizes this in her article by referring to the United States (US) Department of Health Services Clinical Practice Guidelines for evaluation and management of early HIV infection which includes recommendations that an oral examination, emphasizing oral mucosal surfaces, be conducted by the primary care provider at each visit. Patients should be informed of the importance of oral care and be educated about common HIV-related oral lesions and associated symptoms.

In another study done in United States of America (USA)[76] primary care nursing centres were surveyed to determine the extent at which they provide OH screening, education and referral services for clients and to identify factors that discourage or encourage the integration of these services. Almost half of the responding nurses stated that they "almost always" or "always" screened their clients for gum infection (49%) and oral lesions (48%).Thirty eight percentage of nurses taught their clients on the benefit of fluorides. Only a small percentage (20%, 19 % respectively) of nurses instructed their clients on how to do oral cancer self-examination and educated clients regarding the effects of xerostomia. This highlighted the need to empower nurses with knowledge and skills on relatively uncommon oral diseases and conditions. The majority of the nurses reported that they always refer clients in need of treatment for dental decay (55%), gum infections (67%), oral pain (64%) and oral trauma (65%). Lack of referral systems (64%) and unavailability of oral health professionals to provide on site basic oral health services (63%) were the leading factors that discouraged integration of oral health services in the centres. An appreciation for the benefits of oral health (73%) and a knowledgeable clinician to perform OH services (68%) were the leading factors that encouraged integration of OH services into primary care nursing centres. The oral health sector should take the lead to promote the integration of OH within the relevant health care disciplines such as nursing care at all levels of health care delivery.

Another study done among district nurses[77] to determine their perception of oral health of elderly patients showed that although the nurses were aware of the impact of oral health in old age but their attitude was that this was a matter for dentists only. There is limited literature to critically assess specific factors that promote or prevent integration of oral health services into the existing primary health care. A great deal of exploratory research is required in this area. A survey among

children[78] showed that tooth decay was becoming concentrated in the poorer and deprived sections of the population. It recommended that dental health advice for families with young children delivered by community health nurses including midwives might be the key to tackling inequalities in oral health among children. The above-mentioned studies support the importance of integrating various health related services within HIV primary care. This approach is appropriate especially in the context of serious human resource crisis in developing world.

Similar studies have also been carried out on the awareness of health care providers on recurrent oral apthous ulcers. A study on primary care management of recurrent apthous stomatitis (RAS)[79] suggested that an awareness of aetiologies, precipitating and predisposing factors can assist the primary care practitioners and patients in managing RAS episodes. RAS, often referred to as "Canker Sore", is frequently seen in primary care settings. Another study titled "A review of Ludwig's angina for nurse practitioners"[80] revealed that although nurse practitioners had a limited role in the treatment of Ludwig's angina, their ability to recognize the signs and symptoms would promote emergency care and treatment and facilitate better outcomes for their clients. These studies show that nurses can play an active role in the promotion of health including oral health, particularly in the rural underserved communities.

A South African study[81] conducted on KAP of oral health care workers in public clinics towards HIV/AIDS reported that 25% percent of these workers admitted their inability to make tentative diagnosis of the early oral manifestations of HIV/AIDS infections. About 86% indicated they would like to attend a course on HIV/AIDS. If Oral Health Care Workers (OHCW) have indicated their need for such training, it certainly supports the need to train non-oral health personnel to recognize and manage common oral lesion of HIV/AIDS in their primary health care clinic settings.

It should be mentioned that the study had a low response rate of 38%, out of the 727 questionnaires sent to all OHCW (dentists, dental therapists, oral hygienists, dental nurses and dental assistants) in the public dental clinics covering all nine provinces. The low response rate was attributed to several factors: The study time schedule did not provide for further follow up; communication via telephones, faxes and postage was very difficult; and the questionnaire was administered only in English, which posed a barrier to oral health workers whose first language was not English. It would be useful to consider the levels of training, access to information, expertise and daily responsibilities of study target groups while designing such studies. This will

lead to better appreciation of the level of understanding among different cadres within OH discipline.

A KAP study on HIV/AIDS /Sexually Transmitted Infections (STI)/Tuberculosis(TB) among lay health workers and primary care nurses in KwaZulu–Natal South Africa[82] indicated that health workers showed good knowledge of HIV/AIDS symptoms and modes of HIV transmission but there were weaknesses on cultural HIV risk practices and knowledge about TB. More than half (53%) of the CHWs and nurses felt at great risk for HIV infection at work when treating patients. Already most of them were found to be involved in HIV/STI risk assessment, counselling, referral and condom distribution within three months preceding the study. Only a few CHWs (20%) and nurses (7%) had referred a patient to a traditional health practitioner (THP) during the reference period, while 40% of CHWs and 30% of nurses said that they had received referrals from THPs during the same period.

A South African study[83] described a four-day module on OH promotion developed and delivered to 36 nurses as part of a 12 month PHC nursing training course. The evaluation yielded (and the experience of facilitating this module showed) that an OH promotion module of short duration can sensitize nurses to the importance of OH and increase OH knowledge and skills. This study also recognized a paucity of OH education in nursing curricula.

In terms of Lesotho, no study has been done to assess the KAP of PHCNPs in oral health and oral HIV lesions and as a result very limited literature on oral health knowledge or practices of PHCNPs.

In conclusion, the literature review reveals that the knowledge of nurses and other health providers regarding oral lesions related to HIV/AIDS is inadequate and insufficient for purposes of identification, management and appropriate referral of patients with such lesions. It also reveals the need for a structured integration of oral health assessment at different health care delivery points. More research should be carried out to identify factors, which promote or discourage such integrated oral health services.

2.3 Literature related to Health Workers' source of information on HIV

In a study among the 174 Japanese dental care workers[84], all respondents claimed that their major source of AIDS knowledge was derived from media. More than 90% of them requested additional education on HIV/AIDS. A recent cross sectional study[85] conducted among dental students (n=642) in Sudan reported lectures (61%), media (44%) and health care workers (39%) as the most frequently reported sources of HIV information among public and private dental students. The sources of HIV/AIDS information reported in this study are similar to those identified previously among OH care workers from Europe, USA, Japan and Iran as well as in medical students from Iran and Pakistan[86,87]. The results are however in contrast to the Japanese study among OH care workers where television (TV) and newspapers were cited as the commonest source of HIV/AIDS related knowledge[84]. The Sudanese dental students' rating of TV and radio as less common AIDS informational sources can partly be explained by the fact that Sudanese media is not yet in favour of playing its role as a tool for public educational campaigns on sensitive sexually- related issues such as HIV/AIDS[85].

In general, there is paucity of literature on the impact of the media regarding dissemination of information on oral health and especially oral HIV lesions. That media have a role to play in disseminating knowledge on HIV/AIDS is not debatable but more research is required to explore, which forms of media are more effective to inform and educate clinicians in general and PHCNPs in particular.

2.4 Literature related to attitude towards HIV infection

A Swedish study[88] conducted to investigate the difference between attitudes of nurses, assistant nurses and nursing students towards HIV infected patients revealed that both the nursing staff and the nursing students expressed empathic attitudes towards the patients as well as a low degree of fear of contracting HIV. However, the same study showed that 36% would refrain from caring for HIV-infected patients if that possibility existed. It must be mentioned that the sample size for this particular study was small (n=67). The results can therefore not be generalised.

A similar study done in Northern Ireland[89] (n= 45) on qualified nurses indicated that many nurses, particularly those who work in a hospital or a community settings held negative beliefs and had inadequate knowledge and misguided perceptions regarding their risk of contracting HIV through routine nursing care of patients. In comparison, nurses who worked in hospice settings were more

knowledgeable and exhibited more positive attitudes towards AIDS patients. They were also less fearful than the nurses in the hospital and community settings. The study findings underscore the fact that the stigma associated with HIV/AIDS is largely attributable to the perception of imminent death. For nurses working in a hospice where majority of patients tend to be terminally ill from different diseases, HIV/AIDS is viewed as any other condition. In contrast, hospital and community based nurses are likely to view HIV/AIDS as the killer disease and hence the stigma.

In a Tanzanian study[90] 96% of nurses were deemed satisfactorily knowledgeable about HIV/AIDS. However, the same nurses treated people living with AIDS (PLWA) with too much caution and negative attitude despite their knowledge and two to ten years experience of working with AIDS patients. Such negative attitudes can be a barrier to provision of quality health care including screening and examining the oral cavity for oral HIV lesions.

Researchers in Nigeria[91] reported that a significant percentage of HCWs exhibited discriminatory attitudes towards PLWAs. Negative attitudes are not limited to patients but can be a barrier to various cadres of health care providers working as a team. In general, formal health workers do have negative attitudes towards traditional health practitioners but a Zambian study revealed that there are exceptions to this tendency[92]. This study involved traditional healers and formal health workers to determine their knowledge and practices in the field of HIV/AIDS and to examine their training needs and attitudes to collaboration. The results indicated that there was willingness amongst Zambian traditional healers and formal health workers to collaborate in training and patient care in the field of HIV/AIDS. It is important to recognize that about 80% of Africans consult traditional healers at some point of their lives making such collaboration an absolute necessity particularly in the context of PHC delivery[93]. Lesotho has an organised group of traditional healers who should be engaged in workable collaborations with their formal health care provider counterparts.

2.5 Literature related to practice in HIV/AIDS settings

The dental professions rely on the guidelines developed by the American and British Dental Associations and similar bodies. There are, however specific international protocols and recommendations related Oral HIV lesions: protective clothing and barrier techniques; hand

washing and care of hands; the use and care of sharp instruments and needles; sterilization or disinfection of instruments, disposal of waste material etc[94-96].

In a survey done in Egypt [97],71% of health care workers perceived themselves to be at a risk of occupational exposure to HIV/AIDS. Admittedly, HIV/AIDS is one of the most significant challenges facing dentistry and many other health care disciplines today and so the importance of observing universal precautions cannot be over-emphasised. A study to assess KAP among nurses, clinical officers and laboratory technologists[98] and among auxiliary dental workers[99] in Kenya found many lacking awareness of HIV/AIDS. Ninety per cent did not know the incubation period for HIV; 40% recommended cold sterilization and 17% recommended boiling water as preferred methods of sterilization. A high percentage (87.7%) regarded dentistry as a dangerous occupation as far as transmission of HIV/AIDS is concerned primarily because of improper sterilization of instruments.

A study of general dental practitioners from South Africa[100] found that 25% of the respondents discarded their used sharps in the rubbish bin despite the fact that there were many facilities available for the safe disposal of sharps and infected waste. This finding is not peculiar to South Africa only as studies conducted in the USA during first decade of HIV/AIDS epidemic indicated that in general, Dentists had sub-optimal levels of compliance with standard infection control practices, including work related practices designed to reduce exposure to blood borne pathogens[101]. A Japanese survey, involving 747 participants from several Dental Associations, was conducted [102] to identify potential risk factors for HIV transmission through dental practice. This study revealed that although most dentists used gloves, masks and other protective garments, they did not use them all the time. Usage was limited to treating patients in the "high risk group" and surgical procedures.

Though some of these studies were conducted in 1990's, they do help us to understand the importance of adhering the universally accepted infection control practices at all settings including PHC facilities. Often working in resource-limited settings poses challenges with regards to maintaining such standards. However, that should not justify the poor quality of infection control practices that may exist in most of the resource-limited facilities, including health centres. The tendencies to assess risk may be more significant in resource limited settings where many PHCNPs can be tempted to justify failure to observe universal precautions against HIV transmission. The new millennium has brought change of attitudes among HCWs regarding infection control practises. The infection control policies are in place and OHWs and other HCWs

are expected to adhere to these policies at all times in their work place settings. However, further follow-up studies are needed to monitor and evaluate the existing infection control practices especially in resource limited settings. More relevant and current information on the importance of standard infection control practices should be given to encourage right attitude among health care providers at all health care facilities especially in PHC facilities such as health centres. The right attitude of the HCWs will ensure correct infection control practices.

2.6. Conclusion

The reviewed literature reveals discordance between knowledge and practice as well as a lingering stigma towards HIV-infected patients. A significant proportion of the studies recommended greater educational emphasis in nursing curricula, in service training, and continuing educational programmes for nurses regarding oral health and oral HIV lesions. The gaps in the KAP among primary health care nurse practitioners and nurses in general, have to be addressed. The need for integration of oral health assessment at general health care delivery level was highlighted. It was against this background that the current study was undertaken to assess KAP among PHCNPs in the management of oral health and oral HIV lesions in QE II and Roma health service areas of Maseru district in Lesotho.

CHAPTER 3: STUDY DESIGN AND RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the approach used in the design of this study and the techniques for data collection and analysis. The study population and the sampling technique are also described and explained under the methodology section.

Aim of the study

The study aim was to assess the Knowledge, attitude and practice (KAP) of the PHCNPs regarding oral health and oral HIV lesions in QEII and Roma HSAs of Maseru District in Lesotho.

Objectives of the study

The objectives of this study were to assess:

- The demographic profile of PHCNPs in the target health facilities
- The knowledge of PHCNPs regarding oral health and oral HIV lesions.
- The attitude of PHCNPS regarding oral health and oral HIV lesions.
- The practices of PHCNPs regarding oral health and oral HIV lesions.

3.2 Study Design

This research was a descriptive cross-sectional survey. Data was collected using a structured questionnaire with closed and open-ended questions. The information gathered was both quantitative and qualitative. The questionnaire comprised of four parts. The first part (Section A) was on demographic characteristics; followed by assessment of KAP (Section B) among the target group. Section-A elicited information on gender, age, residence, educational status, category of service provider and the number of years of practice. Section-B comprised questions relating to knowledge of the target group on the following aspects: Importance of oral hygiene; recognition of oral lesions using posters; knowledge on oral lesions; source of knowledge on oral HIV lesions; management provided to HIV-infected patients; referral preferences; management of oral lesions; use of infection control measures; and suggestions on how to facilitate effective learning about oral lesions.

The questionnaire was translated into Sesotho in order to facilitate better understanding. It was back translated into English to ensure that correct translation was achieved (**See Appendix 2 and 3**)

3.3 Research Methodology

Study Population: All PHCNPs in QE II and Roma health service areas were targeted. All PHCNPs who attended the monthly PHC meeting were recruited to be part of the study. The term PHCNPs collectively referred to nurse clinicians, registered nurses and nurse assistants.

3.3.1 Sample size

No sampling method was necessary as all PHCNPs (n=65) were invited to participate in the study. All 65 PHCNPs were invited but only 57 consented. A total of 57 out of 65 registered PHCNPs working full time in 38 health centres were recruited[103].

3.3.2 Study instrument and Data collection

The data were collected between November 2007 and February 2008 over a period of 12 weeks using a self and investigator administered questionnaire. The study questionnaire (**Appendix 2 and 3**) was given to each PHCNP during their regular monthly PHC meetings in Queen II hospital and St. Joseph's hospital in Roma, which they completed individually. The principal investigator administered Section B, Questions 3 and 5 on recognition of oral clinical manifestations of HIV/AIDS, by showing the poster (pictures of lesions with no diagnosis or clinical details) to individual PHCNP. The individual's ability to recognize and/or associate the lesions with HIV/AIDS was assessed and recorded as 'recognized' or 'not recognized'**.**

Visual reference (in the form of Charts) for health care workers, produced by the University of Stellenbosch- Republic of South Africa, was the tool used for recognition and identification of oral lesions associated with HIV/AIDS. The purpose of the study was explained to each participant at the beginning before requesting for their consent to participate in the study. The questionnaire was coded in order to ensure anonymity and confidentiality. The principal investigator facilitated the process of PHCNPs who opted to complete the forms in English.

After completion of the questionnaire, the researcher discussed oral HIV-related clinical manifestations with the PHCNPs with the view to enhancing their knowledge. Data on knowledge was collected through responses to the structured study questionnaire and their ability to recognize the oral manifestations on a standard poster. The research instruments are appended. (**See Appendix 2 and 3**).

A statistician and an internal supervisor were consulted in the development and refining of the questionnaires. To ensure that the quality of techniques used for data collection and analysis were reliable and valid, some measures were instituted as discussed below:

Internal validity

To ensure that the questionnaire actually measured what it was intended to measure, the questionnaire was translated into Sesotho and the respondents were shown examples of clinical manifestations with the help of posters. The designed questionnaire was evaluated and coded with the expert assistance of a statistician, and professionals conversant with Sesotho translations.

External validity

A significant proportion of the study population (87.7%) consented to participate in the study. The study findings can therefore be generalized to the target population in Maseru district. The demographics of the non-respondents were not significantly different to that of the respondents.

Reliability

The questionnaire was pretested among five PHCNPs. Comments from the pre- test respondents were used in the final questionnaire to ensure reliability of data collection tools. The principal investigator was trained and supervised by two supervisors from the Division of Public Oral Health at the School of Public Health University of Witwatersrand. Further continuous advice was sought from a public health specialist and other medical colleagues from Lesotho.

3.3.3 Pre testing of the questionnaire

Following approval of the study protocol, the questionnaire was pre tested among nurse clinicians from outside Maseru area. Data collected during pre testing were not included in the results.

3.3.4 Data Analysis

The data were entered into statistical software using codes developed with the assistance of a statistician. Analysis was done using the SPSS statistical software package. Descriptive statistics such as frequency distributions and cross tabulations were generated. The results were summarized in tables, figures and graphs. Statistical comparisons and associations were done using Fischer's exact test as it was expected that cells within tables would comprise of low numbers of respondents (n=<5).The significance was set at p=< 0.05.

3.4 Ethical consideration

The study protocol was presented to MOH/SW Lesotho and to ethics committees of both Witwatersrand (Ethics clearance no: M050110) and Lesotho Ministry of Health and Social Welfare for approval. Informed consent was sought from all study participants after having explained the aim and the purpose of the study. Confidentiality was ensured for all study participants by using codes rather than names on data entry.

3.5 Study Limitations

Being a Maseru HSA study, there was bias in that the results do not represent the total population of the PHCNPs in Lesotho. Excluded by virtue of the recruitment method were PHCNPs who did not participate due to lack of finances to travel, bad weather, poor health, lack of interest and/or time constraints.

CHAPTER 4: RESULTS

4.1 Introduction

This chapter presents the results from the analysis of the data obtained from the 57 PHCNPs from QE II and Roma Health Service Areas (HSAs) of Maseru district. The response rate was 87.7% (57 out of 65 eligible for participation). The results are presented following the broad divisions in questionnaire sections A and B namely, demographic characteristics and KAP of PHCNPs regarding oral health and oral HIV lesions, respectively.

4.2 SECTION A : Demographic Characteristics

Table 4.2.1: Percentage distribution of PHCNPs by gender

Gender	Male	Female	Total
Number of PHCNPs	5	52	57
% Of PHCNPs	8.77%	91.23%	100%

The sample had a female preponderance with 52 (91 %) of the participants being female and only 5 (9 %) being male.

Table 4.2.2: Percentage distribution of PHCNPs by age group categories

Age groups	Number of PHCNPs	Percentage
21- 30 yrs	10	17.5%
31- 40 yrs	20	35.2%
41- 50 yrs	17	29.8%
> 50 yrs	10	17.5%
Total	**57**	**100%**

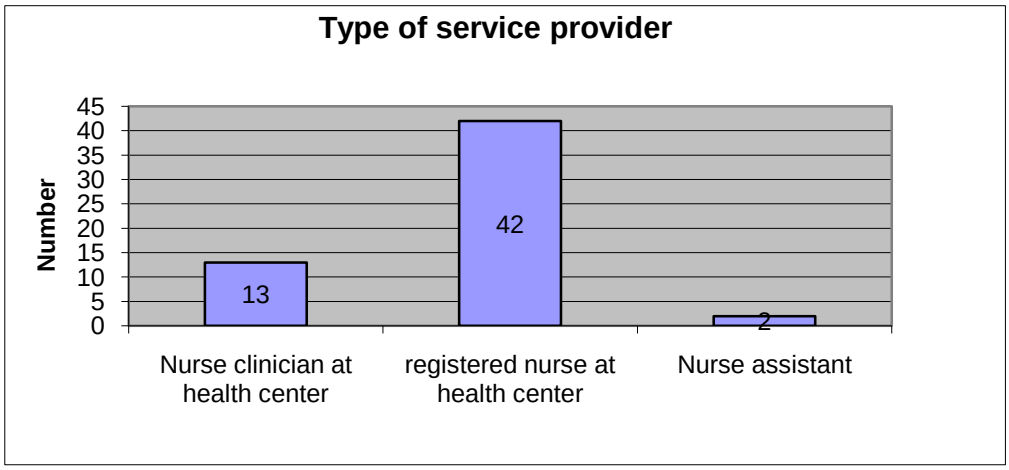
The majority of PHCNPs (35.2%) fell within the age group of 31-40 years. The age categories (21-30 yrs and >50 yrs), each formed about 18% of the total PHCNPs in this study.

Table 4.2.3: Percentage distribution of PHCNPs by Educational level

Educational level	Number of PHCNPs	Percentage
> High school level	55	96.5%
Secondary level	2	3.5%
Total	**57**	**100%**

The majority of respondents (96.5%) had attained an educational level of high school (Form D-E) or above with only 2 (3.5%) of respondents (nurse assistants) having attained only a secondary level of education (Form A-C).

Figure 4.2.1: Percentage distribution of PHCNPs by Type of service provider



Forty-two (74%) of the respondents were registered nurses; 13 (23%) were nurse clinicians; and the rest were nurse assistants.

Table 4.2.4: Percentage distribution of PHCNPs by Years of Practice

Years of practice	<= 20 year	20 – 40 years
Frequency	44	13
Percentage (%)	77%	23%

Over one third (77%) of the respondents had less than 20 years of practice while the rest of the respondents had worked for more than 20 years.

4.3 SECTION B : KAP regarding oral health and oral HIV Lesions

Knowledge of importance of oral health

All the 57 respondents indicated that they thought oral health was important to the wellbeing of individuals.

Figure 4.3.1 Percentage distribution of PHCNPs by reasons given for good oral hygiene

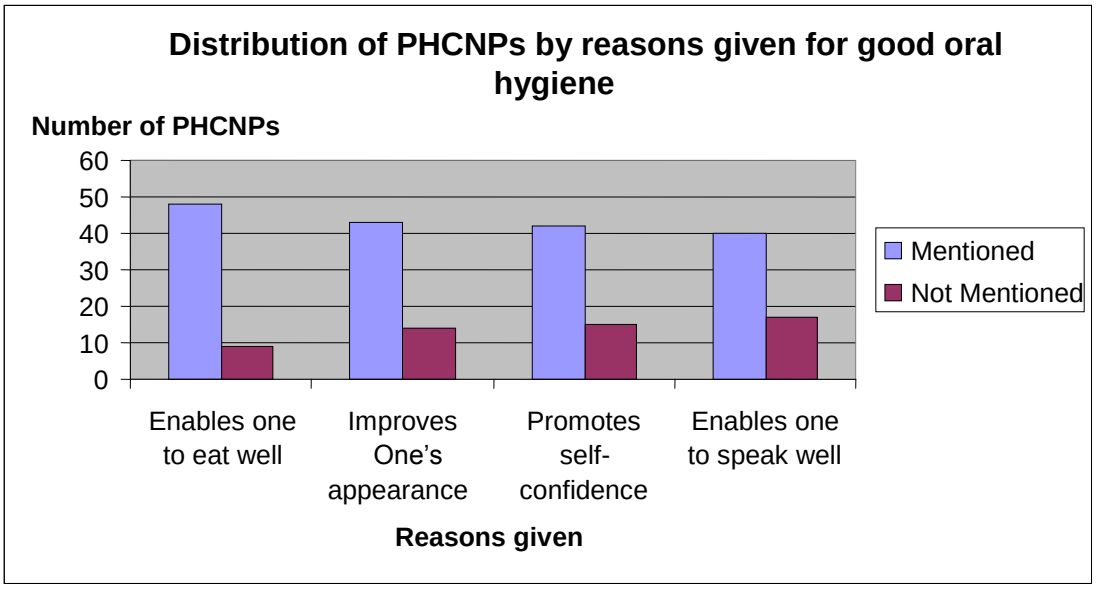


Figure 4.3.1 shows the reasons why the respondents thought oral hygiene was important. Enabling one to eat well was stated as the main reason for good oral hygiene. Good oral hygiene was believed to improve one's appearance, promote self-confidence as well as enabling one to speak well.

The table 4.3.1 represents the number and percentage of PHCNPs by type of oral lesions correctly recognized.

Table 4.3.1: Percentage distribution of PHCNPs by type of oral lesions correctly recognized

Oral Lesion	Recognized	Not recognized
OC	54 (94.7%)	3 (5.3%)
ANUG	23 (40.4%)	34 (59.6%)
AC	32 (56.1%)	25 (43.9%)
Apthous Ulceration(AU)	14 (24.6%)	43 (73.4%)
Dental Caries	43 (75.4%)	14 (24.6)
OHL	17 (29.9%)	40 (70.1)
KS	19 (33.3%)	38 (66.7%)
Fluorosis (brown teeth)	32 (56.1%)	25 (43.9%)
Bleeding gums	50 (87.7%)	7 (12.3%)
Herpes oral lesion	41 (71.9%)	16 (28.1%)
Noma (Cancrum Oris)	10 (17.5%)	47 (82.5%)

The majority of the PHCNPs correctly recognized oral candidiasis (95%), bleeding gums (88%), dental caries (75%) and herpes oral lesions (72%). More than half (56.1%) recognised both angular cheilitis and fluorosis. The rest of the lesions were recognized by a smaller number of participants.

The perceived knowledge of PHCNPS on oral HIV lesions was also determined.

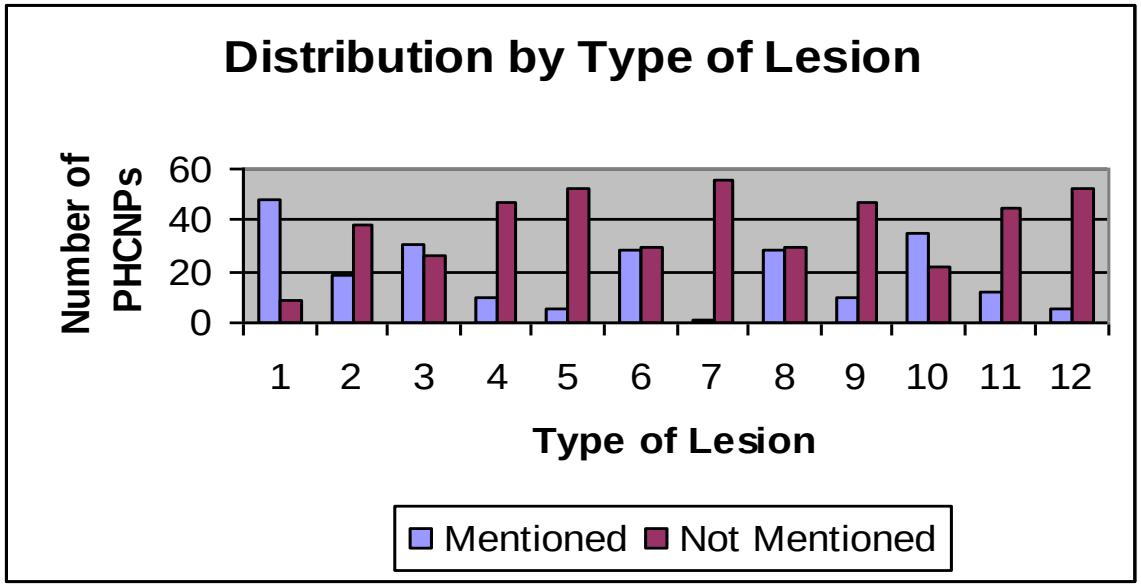
Perceived Knowledge on oral HIV Lesions

The results on perceived knowledge of oral lesions of PHCNPs revealed that the majority n=46 (81%) felt that they had adequate knowledge about oral HIV lesions. The investigator was further interested in the participants' actual knowledge in associating oral lesions with HIV results of which are summarised in the following table:

Table: 4.3.2 Percentage distribution of PHCNPs by type of oral lesions associated with HIV

Type of oral Lesions	**Correctly associated n (%)**
OC	48 (84.2%)
ANUG	19 (33.3%)
AC	31 (54.4%)
Apthous ulceration (AU)	10 (17.5%)
Dental caries	5 (8.8%)
OHL	28 (49.1%)
Fluorosis (brown teeth)	1 (1.8%)
KS	28 (49.1%)
Bleeding gums	10 (17.5%)
Herpetic oral lesion	35 (61.4%)
Noma	12 (21.1%)
Other mouth lesions	5 (8.8%)

Figure 4.3.2: Distribution of PHCNPs by type of oral lesions associated with HIV



Keys: 1 = OC; 2 = ANUG; 3 = AC; 4 = AU; 5 = Dental caries; 6 = OHL;
7 = Fluorosis; 8 = KS; 9 = Bleeding gums; 10 = Oral herpes lesions; 11 = Noma;
12 = Other oral lesions

Table 4.3.3 and Figure 4.3.2, show how the respondents associated oral lesions with HIV/AIDS. The majority of the respondents associated oral candidiasis (84%), oral herpes lesions (61%), angular cheilitis (54%), hairy leukoplakia (49%), Kaposi's' sarcoma (49%) with HIV/AIDS. Commonly seen lesions at health facilities such as aphthous ulceration (18%), ANUG (33%) were not strongly associated with HIV. Eighteen percent associated bleeding gums with HIV even though this condition is commonly seen at the Primary Health Care (PHC) facilities even among Non-HIV/AIDS patients as well. Only 5(9%) recorded parotid enlargement as "other oral lesions" associated with HIV/AIDS.

Table 4.3.3: Cross-Tabulation of Selected Variables

Reference Variable	Other Variable	Fisher's exact test	
		2-Sided	1-Sided
Grouped Years of Experience	Ability to identify oral lesions	0.037-1.00	0.037-0.761
	Practice of infection control	0.205-1.00	0.127-0.593
	Number of patients seen	1.000	0.514
Perceived Knowledge of Oral Lesions	Practice of infection control	0.326-1.00	0.293-0.648
	Objective knowledge of oral lesions	0.000-0.261	0.000-0.117
	Experience with HIV-infected patients	0.426	0.306

The researcher regrouped and further aggregated variables and did cross tabulations to determine if there was any significant difference between reference variables in relation to other variables as used in table 4.3.3.The Fischer's exact statistical test was used and significance was set at p= 0.05 (**See Table 4.3.4 - Table 4.3.9**)

Cross tabulations of Tables 4.3.4 – 4.3.9

Table 4.3.4: Grouped years of experience by ability to identify oral HIV lesions

Oral Lesions Mentioned	Total respondents saying "yes" to knowledge of oral lesion	Grouped Years of experience		Total no. of those who recognized oral lesions	Fisher's Exact test p- value	
		<=20 yrs	21-40 yrs		2-sided	1-sided
OC	46	34(76%)	11(24%)	45	**1.000**	0.761
ANUG	46	13(72%)	5(18%)	18	**0.728**	0.440
Angular Cheilitis(AC)	46	23(74%)	8(26%)	31	**1.000**	0.484
Apthous Ulcerati.(AU)	46	8(80%)	2(20%)	10	**1.000**	0.553

Dental Caries(DC)	46	1(25%)	3(75%)	4	**0.037**	0.037
OHL	46	22(79%)	6(21%)	28	**0.728**	0.440
Fluorosis	46	0(0%)	1(100%)	1	**0.239**	0.239
KS	46	21(75%)	7(25%)	28	**1.000**	0.560
Bleeding gums	46	5(56%)	4(44%)	9	**0.186**	0.122
Herpes oral lesion	46	24(73%)	9(27%)	33	**0.473**	0.330
Noma	46	8(67%)	4(33%)	12	**0.441**	0.302

The respondents were placed in two categories of grouped years of experience (<=20 years and 21-40 years) and their grouped years of experience was compared with their ability to identify oral HIV lesions. This Table appears to indicate that more practitioners with less than 20 years of experience indicated to have knowledge of mentioned oral HIV lesion than those colleagues with more than 20 years. However, the Fischer's exact test (2-sided) reveals that, except for Dental caries (<0.05) the rest of the differences between the variables in relation to other variables are not statistically significant.

Table 4.3.5: Grouped years of experience by practice of infection control

Practice of Infection Control	Total respondents	Grouped Years of experience		Fisher's Exact test p-value	
		<=20	21-40	2-sided	1-sided
Wash hands – water only	57	44(77%)	13(23%)	**0.205**	**0.127**
Yes		17**(39%)**	8**(62%)**		
No		27**(61%)**	5**(38%)**		
Wash hands – water & soap	57	44	13	**0.753**	**0.395**
Yes		23**(52%)**	8**(62%)**		
No		21**(48%)**	5**(38%)**		
Wash hands - antiseptics	57	44	13	**1.000**	**0.593**
Yes		42**(95%)**	13**(100%)**		
No		2**(5%)**	0**(0%)**		

Wear Gloves	57	44	13	**0.611**	**0.416**
Yes		40**(91%)**	11**(85%)**		
No		4**(9%)**	2**(15%)**		
Clean Instruments – bleach	57	44	13	**1.000**	**0.591**
Yes		36**(82%)**	11**(85%)**		
No		8**(18%)**	2**(15%)**		
Wear - Face mask	57	44	13	**1.000**	**0.569**
Yes		28**(64%)**	8**(62%)**		
No		16**(36%)**	5**(38%)**		

The Table 4.3.5 compares the grouped years of experience with the standard infection control practices by the respondents. It reveals that the difference between the two variables (Years of experience and infection control practices) are not statistically significant. That means the infection control practices by the PHCNPS could have happened just by chance than by the years of experience.

Table 4.3.6: Grouped years of experience by number of HIV/AIDS patients with oral lesions seen

HIV + patients with oral HIV lesions seen	Years of experience		Fisher's Exact test p-value	
	<=20 yrs	21 – 40 yrs	2-sided	1-sided
<= 9 patients	16 (80%)	4(20%)		
10 patients or more	12 (75%)	4(25%)		
Total	28 (78%)	8(22%)	**1.000**	**0.514**

The Table 4.3.6 compares the grouped years of experience of the respondents with the number of HIV/AIDS patients with oral HIV lesions seen.

Out of the 57 respondents 36 have seen patients with oral HIV lesions. Table 4.3.6 shows that of these PHCNPs, 78% of them with less than 20 years of experience reported to have seen more

patients with oral HIV lesions and 75% of them have seen more than 10 patients with oral HIV lesions. The table further tends to reveal that nurses with more than 20 years have seen fewer patients with this condition. However, the Fischer's exact test shows no significant difference between years of experience and the number of patients seen.

Table 4.3.7: Perceived knowledge of oral HIV lesions by practice of infection control

Practice of Infection Control	Knowledge on oral/mouth lesion		Fisher's Exact test p-value	
	Yes	No	2-sided	1-sided
Wash hands – water only	46	11	**0.739**	**0.417**
Yes	21**(46%)**	4**(36%)**		
No	25**(54%)**	7**(64%)**		
Wash hands – water & soap	46	11	**0.524**	**0.371**
Yes	26**(57%)**	5**(45%)**		
No	20**(43%)**	6**(55%)**		
Wash hands - antiseptics	46	11	**1.000**	**0.648**
Yes	44**(96%)**	11**(100%**)		
No	2**(4%)**	0**(0%)**		
Wear Gloves	46	11	**0.326**	**0.326**
Yes	42**(91%)**	9**(82%)**		
No	4(9%)	2(18%)		
Clean Instruments - bleach	46	11	**0.387**	**0.293**
Yes	39**(85%)**	8**(73%)**		
No	7**(15%)**	3**(23%)**		
Wear - Face mask	46	11	**1.000**	**0.628**
Yes	29**(63%)**	7**(64%)**		
No	17**(37%)**	4**(36%)**		

The Table 4.3.7 gives information on the observable differences between perceived knowledge and the standard infection control practices by the PHCNPs. It also reveals that there is not much difference between PHCNPs with knowledge of oral HIV Lesion compared to those without knowledge of oral HIV lesions in terms of adopting standard infection control practices such as wearing face masks, wash hands with antiseptics, wear gloves etc, and the 2-sided Fisher's exact test also reveals that the difference between the variables are not statistically significant.

Table 4.3.8: Perceived knowledge of oral HIV lesions by objective knowledge of oral HIV lesions

Oral Lesions Mentioned	Knowledge on Oral/mouth lesions		Total	Fischer's exact test p-value	
				2 sided	1 sided
	Knowledge	No knowledge			
OC	**54 (95%)**	**3(5%)**	**57**	**0.092**	0.092
Yes	45 (83%)	1(33%)	46		
No	9 (17%)	2(67%)	11		
ANUG	**23 (40%)**	**34(60%)**	**57**	**0.170**	0.090
Yes	21(91%)	25(74%)	46		
No	2 (9%)	9(26%)	11		
AC	**32(56%)**	**25(44%)**	**57**	**0.000**	0.000
Yes	32 (100%)	14 (56%)	46		
No	0 (0%)	11 (44%)	11		
AU	**14(25%)**	**43(75%)**	**57**	**0.261**	0.117
Yes	13(93%)	33(77%)	46		
No	1(7%)	10(23%)	11		
DC	**43(75%)**	**14(25%)**	**57**	**0.115**	0.084
Yes	37(86%)	9(64%)	46		
No	6(14%)	5(36%)	11		
OHL	**17(30%)**	**40(70%)**	**57**	**0.024**	0.013
Yes	17(100%)	29(73%)	46		
No	0(0%)	11(27%)	11		
KS	**19(33%)**	**38(67%)**	**57**	**0.079**	0.055
Yes	18(95%)	28(74%)	46		
No	1(5%)	10(26%)	11		
Bleeding Gums	**50(88%)**	**7(12%)**	**57**	**0.002**	0.002
Yes	44(88%)	2(29%)	46		
No	6(12%)	5(71%)	11		

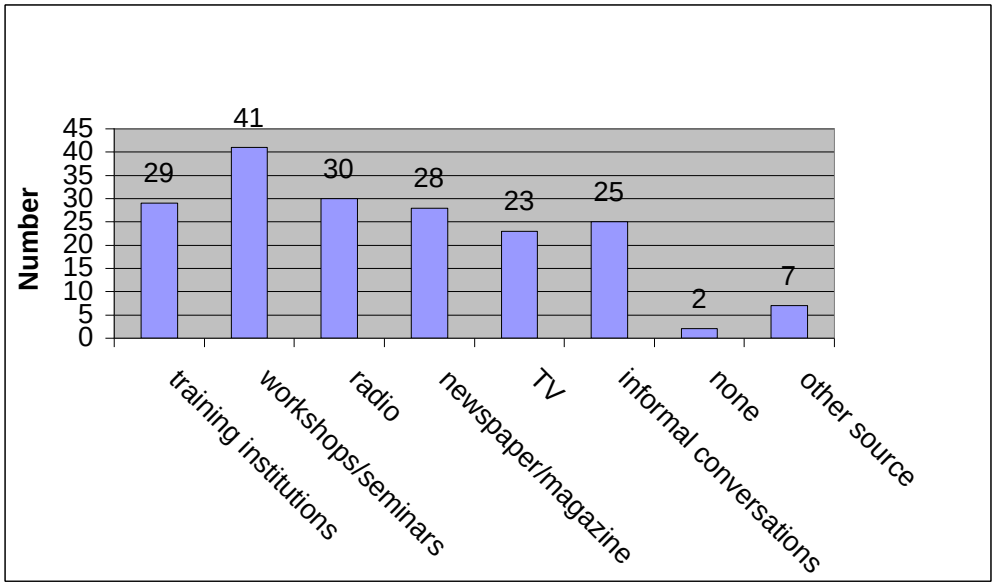
The Table 4.3.8 provides information on the significant/non-significant differences between the variables of perceived knowledge of oral HIV lesions and the actual recognition of such lesions . It can be easily seen that in three out of the eight oral lesion categories (AC, OHL, Bleeding gums), there is statistically significant difference between the variables of knowledge on oral lesions and oral lesions recognized. The rest of the findings could have happened by chance. Fischer's exact test results confirm that.

Table 4.3.9: Perceived knowledge of oral HIV lesions by HIV patients seen

Knowledge of Oral HIV Lesions	Yes to Treatment to HIV Positive Patients	HIV positive patients Treated		Fisher's Exact test p-value	
		<=9 patients	>=10 patients	2-sided	1-sided
Yes	29(81%)	15(52%)	14(48%)		
No	7(19%)	5(71%)	2(29%)		
Total	36	20	16	**0.426**	**0.306**

The Table 4.3.9 provides information on the number of HIV/AIDS patients with oral HIV lesions with regards to the perceived knowledge of oral HIV lesions mentioned by the PHCNPs. The data further reveals that there is no statistically significant difference between the variables of perceived knowledge and the number of HIV patients seen.

Figure 4.3.3: Distribution of PHCNPs by source of knowledge on oral HIV lesions



Forty one (72%) of respondents reported having received information through workshops and seminars. Half of the respondents n=29(51%) reported having received knowledge through training institutions. Public media (Radio-n=30(53%); TV-n=23(40%); and newspapers/ magazines- n=28(49%) were among the other major sources of information. Twenty five (44%) of respondents received knowledge through informal conversation.

Table 4.3.10: Percentage distribution of PHCNPs by preferred source of knowledge

Preferred source	n & Percentage %
Workshops/Seminars	n=39(68.4%)
Media (Radio/TV)	n=5(8.7%)
Training institutions	n=2(3.6%)
Oral personnel such as Dentist	n=2(3.6%)

A majority of respondents (68%) preferred workshops and seminars as a source of information although public media seemed to have been the most accessible form of communicating information.

Table 4.3.11: Percentage distribution of PHCNPs by HIV patients treated

Variable	Treated HIV Patient?		
	Yes	No	Total
Number of PHCNPs	55	2	57
% of PHCNPs	96%	4%	100%

An overwhelming majority of the respondents (96%) reported having treated HIV infected patients in their health facilities.

Figure 4.3.4: Distribution of PHCNPS by estimated number of patients with oral lesions seen at the health centre within the last month

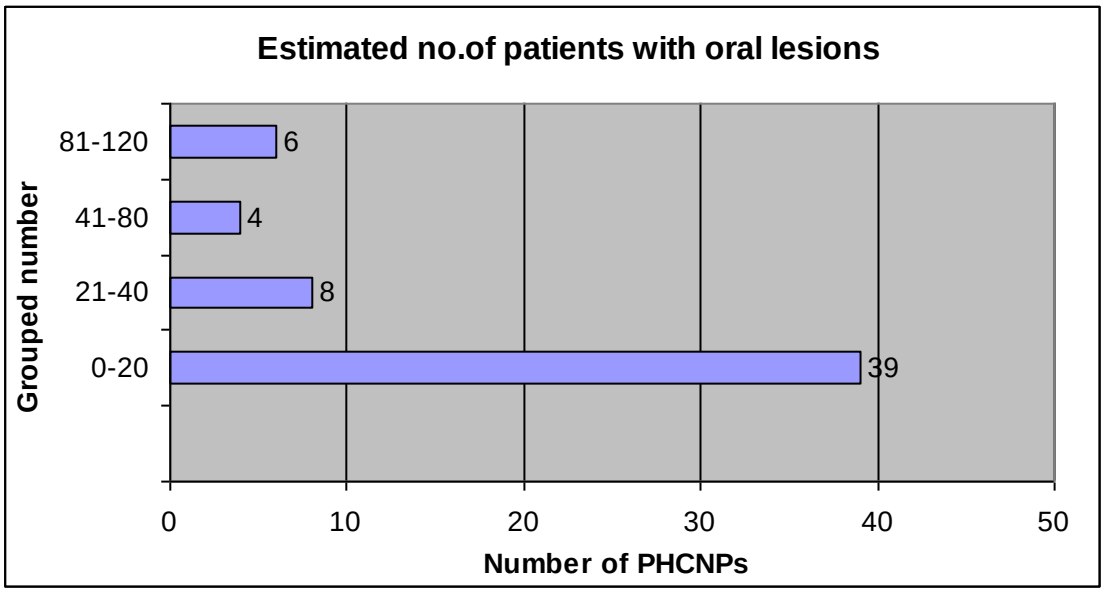
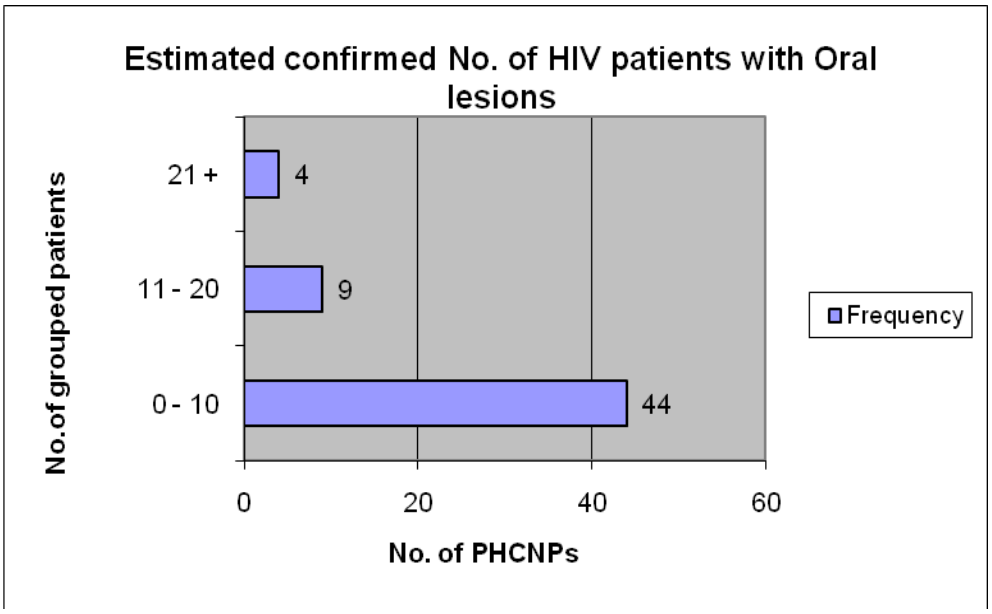


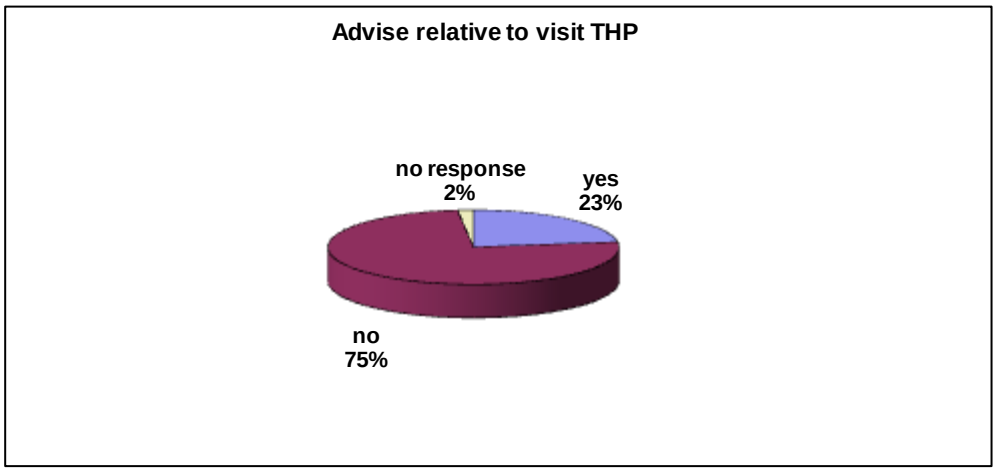
Figure 4.3.4 shows the estimated number of patients with oral lesions seen within a period of one month. Thirty nine of the respondents reported seeing between 1-20 patients with oral lesions and six of the respondents estimated to have seen between 81-120 patients with oral lesions.

Figure 4.3.5: Estimated number of confirmed HIV patients with oral lesions within past one month period



All PHCNPs had seen confirmed HIV patients with oral lesions in the previous one month. Forty-four PHCNPs (77.2%) had seen one to ten (0-10) confirmed HIV patients with oral lesions. Similarly n=9(15.8 %) and n=4(7%) of the PHCNPs had seen (11-20) and (21+) confirmed HIV patients with oral lesions, respectively.

Figure 4.3.6: Advice patient to visit THPs



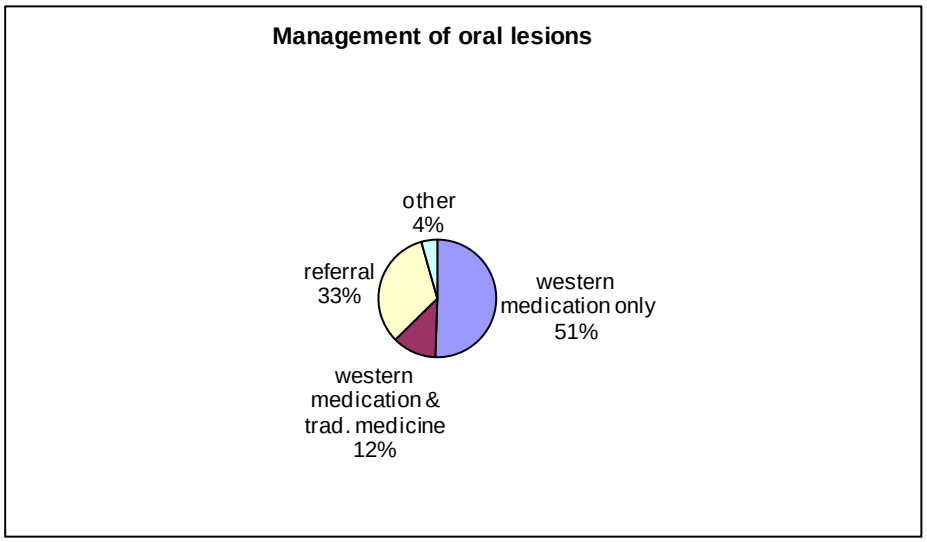
Nearly a quarter of the respondents (23%) said that they would advise a patient to visit THPs to seek help should they have such as oral lesion.

Table 4.3.12: Reasons for referral/Non referral to THPs

Reasons for Non-referral to THPs	Frequency (n)
Not sure of the care provided	6
Do not trust them	16
No antiseptic- poor infection control systems	1
Mismanagement	1
Oral thrush treated only with Western medicine	1
Not interested	1
Constraints in testing/managing HIV	3
Not effective	3
Do not know any THP	1
Needs training/more training	4
Inhibits good eating	1
Reasons for referral to THPs	
Traditional medicine boosts immune system	9
Rectifies some problems	1
Quick service	1
Timely treatment	1

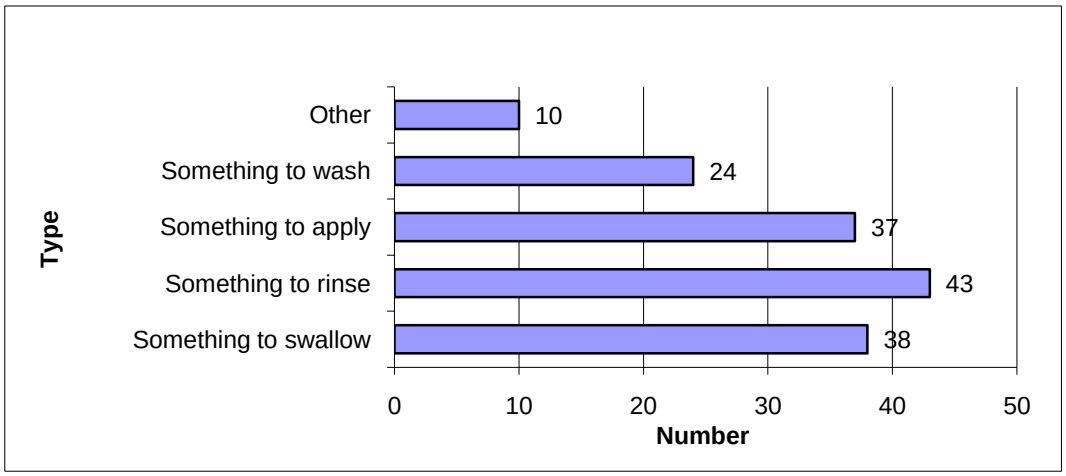
The majority of the PHCNPs n=43 (75%) reported that they would not refer because of lack of trust/confidence in the practices, knowledge and management of the THPs. Twenty-three percent said that they would refer mainly because they thought that traditional medicine boosts the immune system.

Figure 4.3.7: Percentage distribution of PHCNPs by management of oral lesions



Fifty one percent of respondents said that they would use western medication only when managing oral lesions. Twelve percent stated that they would use both western and traditional medication whereas 33% said they would refer their patients to the experts.

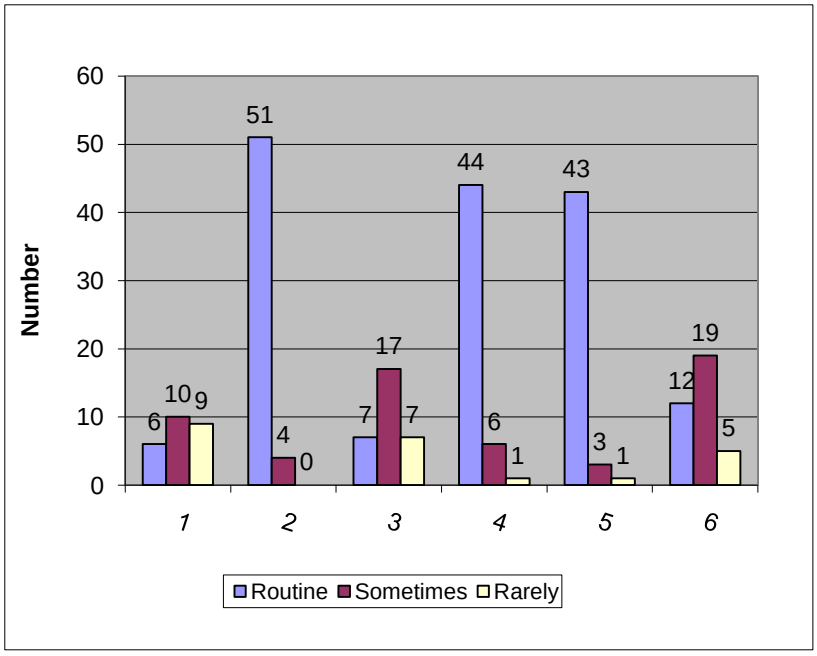
Figure 4.3.8: Distribution of PHCNPs by type of treatment given for oral lesions



Forty three respondents (75%) reported that they would give a rinse to patients with oral lesions. Around 66% of the respondents said they would give something to swallow and something to apply. Twenty four respondents (42%) said they would give something to wash the oral lesions

while they are washing or bathing. Ten respondents (18%) said they would give health education as part of the management of the oral lesions.

Figure 4.3.9: Distribution of PHCNPs by personal use of infection control during and after examination of the patient



Key 1= Wash hands with water only	Key 4=Wear gloves
Key 2=Wash hands with water and soap	Key 5=Clean instruments with bleach and disinfectants
Key 3=Wash hands with antiseptics	Key 6= Wear facemask

Figure 4.3.9 shows that 6 respondents (10.5 %) routinely washed their hands only with water. Only 12.3% (n=7) routinely washed their hands with antiseptics whereas 77.2% (n=43) of respondents routinely cleaned their instruments with bleach and disinfectants. Fifty one respondents (89.5%) washed their hands with water and soap whereas three quarters (75.4%) wore gloves during examination. Routine use of facemasks was limited to only 21.1% of respondents.

Table 4.3.13: Distribution of PHCNPs by willingness to learn to manage oral lesions

Variable	Willingness to Learn		
	Yes	No	Total
Number of PHCNPs	56	1	57
% of PHCNPs	98%	2%	100%

When asked if they would like to receive more information on how to manage oral lesions, 56 (98%) reported that they were willing to learn. All respondents except one indicated their need to learn how to manage oral lesions properly.

Figure 4.3.10: Distribution of PHCNPs by preferred mode of learning

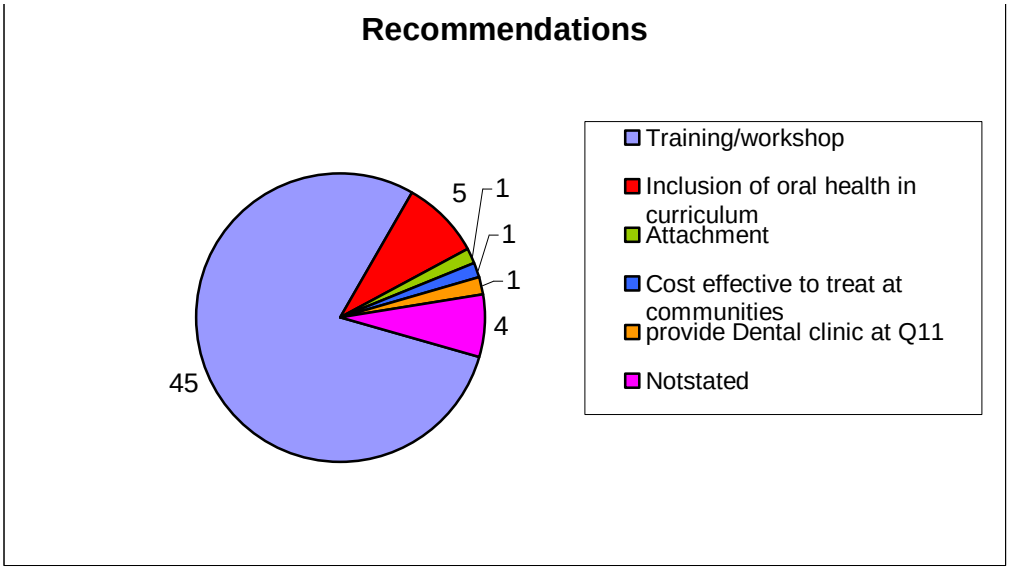


Figure 4.3.10 highlights that n=45(79%) of the respondents would like to receive more training on the management of oral lesions through workshops. Another n=5 (9%) preferred the inclusion of oral manifestations of HIV and its management into the existing nursing curriculum.

CHAPTER 5: DISCUSSION

5.1 Introduction

The chapter discusses the significance of findings presented in Chapter 4. It also compares and contrasts these findings with other relevant studies carried out locally, regionally and globally and highlights potential implications for future research and practice. It ends by stating limitations to generalizability of the findings within PHC context.

5.2. Sample and its characteristics

A total of 57 out of 65 registered PHCNPs working full time in 38 health centres were recruited. These 57 PHCNPs were recruited from 38 health facilities which clearly underscore the already well reported staff shortages in the Lesotho health care deliver system.

The study population comprised mainly of female respondents (91%). This was not surprising since the nursing profession in general and particularly in Lesotho, is relatively homogeneous with respect to gender. Ninety five percent of all nurses in Lesotho are women[10]. The study did not therefore focus on any comparison between male and the female PHCNPs.

As Shown in Table 4.2.2, the largest proportion of respondents (35.2%) was in the age category of 31-40 years followed by the category of 41-50 years (29.8%). The two extreme age categories of 21-30 years and over 50 years were equally under-represented at 17.5%. The implication of this age distribution pattern is the loss of more experienced nurses on the upper end of the spectrum and failure to retain energetic young professionals on the other extreme. In Lesotho the high attrition rates have been caused by a combination of "Push and Pull factors". The "Push factors" include as deficiencies in conditions of service, no opportunities for career advancement as senior posts are occupied, the huge disease burden which is often carried by the junior staff (they have a greater workload) and an inefficient early retirement policy which may result in lack of interest and motivation in service delivery. An example of "Pull factors" is overseas employment opportunities etc. More studies are needed to determine and understand this prevailing attrition rate in Lesotho[10].

Over one third of the respondents (77%) had less than 20 years of practice while the rest (23%) had worked for more than 20 Years as shown in Table 4.2.4. The latter group might represent PHCNPs that have opted to settle for what they have until they attain retirement age. The majority

of HCWs prefer to stay and work in Maseru district as it provides them with a wide range of services and opportunities to develop themselves compared to the rest of the districts which are still under-developed[10].

In Lesotho, there are about 60-70 new nurses graduating from the nursing institutions annually. This number falls short of the demand for this largest clinical cadre within the Lesotho health sector[11]. Although the minimum coverage standard suggests that each health centre should have at least one nurse clinician, one general nurse and one nurse assistant[10], the current study results are in clear contrast with this expectation due to shortage of nurses.

As the supply of nurses declines, the nursing workload significantly increases due to the disease burden caused by HIV/AIDS epidemic in Lesotho. A combination of such factors has negative implications for quality of services as well as for staff retention. The significant role that nurse assistants play in the health sector labour market in general and the Christian Health Association of Lesotho (CHAL) sector in particular, has been a point of debate for many years further emphasising the tension between ensuring the quality of service and achieving the PHC coverage objectives.

Another area of concern is related to the fact that nurse assistants are assigned responsibilities that supersede their pre-service training. They are essentially trained on the job to perform most of their duties resulting in the emergence of a "new nursing cadre" that comprises of some extremely experienced nurse assistants[10]. The current shortage of nursing staff has necessitated deployment of nurse assistants to be in charge of some health centres making them part of the PHC team. In the near future, one can anticipate nurse assistants becoming pillars of health care service delivery at PHC level unless effective mechanisms are put in place to reverse the trend of attrition among professional nurses in Lesotho.

With regard to educational level, an overwhelming majority of respondents (96.5%) had high school level (Form D-E) or above. This was not surprising since the minimum requirement for training as a professional nurse in Lesotho is a high school diploma. The two study participants with secondary school level of education (Form A-C) were in fact nurse assistants.

Lesotho introduced the nurse clinicians' training curriculum at National Health Training Institution during the 1980s with a special objective to provide appropriate clinical service at the health centre level. The training was phased out in mid 1990s due to funding problems

encountered and mainly due to failure to attract applicants since very few nurses wanted to be permanently assigned to clinics, many of which are in inaccessible sites or locations. As a result, an increasing number of registered nurses have been deployed to health centres to bridge the gap. The overall effect is an attempt to replace a cadre that had a lot of clinical experience with younger inexperienced PHCNPs, which can be a source of frustration on both sides as well as compromising service delivery.

There is an urgent need to strengthen clinical skills of nursing students as well as practising nurses by adequately training them in recognising and managing oral HIV lesions. They require such support as they would have to replace nurse clinicians destined to retire in the near future.

5.3. Knowledge, Attitude and Practice regarding oral health and oral HIV lesions

5.3.1 The perceived knowledge of the importance of oral health

The 100% consensus on the importance of oral health to the total well- being of individuals highlighted the respondents' positive attitude towards oral health. Their reasons given for good oral hygiene corresponded well with the general perception and understanding of oral health functional attributes namely, ability to eat well; improvement in one's appearance; boosting of self confidence; and ability to speak well. These responses may have been influenced by the respondents choosing to say what they thought the researcher wanted to hear which is not uncommon but at the same time may have been a genuine interest in the area of oral health. It will be useful to explore these reasons further to determine the consistency of such responses.

5.3.2 Knowledge of oral HIV Lesions

All participating PHCNPs reported having seen oral lesions at their health centres. According to the established classification system of EC-Clearinghouse[63], oral lesions associated with HIV can be divided into 3 groups: Group 1 are lesions strongly associated with HIV infection; Group II are lesions less commonly associated with HIV infection; and Group III are lesions seen in HIV infection.

Of the Group I lesions (OC, OHL, KS, Non-Hodgkin's lymphoma and periodontal disease), only OC was identified by an vast majority of participants (94.7%). That OC was identified by the

majority of participants highlights its high prevalence. This concurs with the findings in other regional and international studies. A Lesotho hospital-based study[65] on the prevalence of oral manifestations of HIV/AIDS found that the commonest type of lesion seen was OC (Peseudomembranous 27% and Erythematous 26%), which comprised 54% of all the lesions.

However, the participants of the study found it difficult to identify the other Group 1 lesions such as Oral Hairy Leukoplakia, KS and specific periodontal lesions such as NUG/NUP.The majority of the respondents did not recognise apthous ulceration as shown in Table 4.3.1.

Apart from insufficient and inadequate knowledge and training, failure of PHCNPs to recognise such lesions can also be attributed to the increasing number of patients with HIV related illnesses required to be seen by the insufficient number of nurses in health facilities. The resultant work overload can lead to failure to take time for proper examination of patients. There is also the element of "expectation" and understanding among the non-oral health personnel such as nurse practitioners that oral lesions should be seen and managed only by oral health personnel. That PHCNPs are less successful in the identification of oral lesions is to some extent understandable given that many oral health workers themselves find it difficult to make tentative diagnosis of some of the early oral HIV lesions as reported in a South African study [81].

Associating the various oral lesions with HIV infection followed almost the same pattern as above. The majority of respondents (84%) associated oral candidiasis with HIV infection. The ability of the PHCNPs to identify and associate oral candidiasis which is the commonest type of Group 1 lesion, with HIV/AIDS is remarkably encouraging and notable. Although, significant number of participants (61%) associated Group II oral herpes lesions with HIV infection, however for OHL, which is a significant predictor of HIV infection progression in adults[104], less than half (49%) could associate the significance of this lesion as a predictor of HIV infection.

Of concern was that only 33% of participants recognised KS and 50% associated it with HIV. KS is the most common neoplasm found in AIDS patients and is associated with advanced immune suppression. Although generally not a common lesion, it is strongly associated with HIV infection[105]. A series of cases reviewed in India and Thailand for instance, did not document any KS cases[45.] In contrast, a frequency of 52% has been reported from Mexico [53]and 19% from Zimbabwe [52].

On the contrary, periodontal disease is common among HIV infected patients. The findings raised concern over the fact that only 33% and 18% of the participants of the study associated HIV with ANUG and bleeding gums respectively even though the majority of them (88%) encounter bleeding gums in their daily practice. In a Kenyan study[106], 100% of the individuals examined had periodontal disease. Necrotizing ulcerative gingivitis (NUG) and necrotizing ulcerative periodontitis (NUP) are two of the common forms of HIV associated periodontitis which need to be correctly recognised based on EC Clearinghouse classification, without grouping them into a general category of gum disease. The study revealed that PHCNPs definitely need more knowledge and training in the area of periodontal HIV lesions to recognise and refer such lesions for investigation (HIV testing etc) and management.

Untreated HIV associated periodontal disease may progress to destructive lesions such as Noma (cancrum oris). Only 10% of the respondents of this study reported having seen Noma and 12% associated Noma with HIV. Noma is a multifactorial gangrenous condition resulting from complex interaction predisposed by chronic malnutrition, extreme poverty, poor oral hygiene, infection and compromised immunity due to HIV/AIDS. It evolves rapidly from a gingival inflammation to grotesque oro-facial gangrene. It primarily affects children but responds readily to antibiotic treatment if it is diagnosed early[107]; emphasising the importance of early identification at the primary care levels and appropriate referral.

Occasionally children from rural Lesotho are referred with symptoms of Noma but at advanced stages[30]. Though considered a preventable disease, Noma has a case–fatality rate of 70%-90% if left untreated[108]. Educating PHCNPs on the link between periodontal lesions associated with HIV and Noma as well as the importance of its early recognition and timely referral is therefore a cause worth investing in. It is also important to sensitise the Ministry of Health and Social Welfare Lesotho to include Noma as one of the notifiable diseases to be reported from all levels of health care services.

Only 5 respondents (9%) recorded parotid enlargement under the category of "other oral lesions" associated with HIV/AIDS. Parotid involvement in HIV/AIDS patients is a relatively consistent finding in the dental clinics necessitating training of PHCNPs on the linkage. Parotid enlargement is commonly associated with HIV infection in children (10-30%), and less commonly in adults [109].

It is important to note that the widely used system of classification of oral HIV lesions (the EC-Clearinghouse) is based on a predominantly homosexual male population in USA and Europe,

who live in an affluent society without malnutrition and endemic infections. So it is reasonable to see a different pattern of prevalence of oral lesions both within the adult and children population in the developing world context where the spread of HIV is predominantly heterosexual.

The studies reviewed reflect an acute paucity of literature in Africa and Asia particularly in rural areas[110]. Few direct HIV surveillance data are available for children. There aren't many publications on the prevalence of oral lesions in paediatric infections at the primary health care levels in Africa and Asia. This is of particular concern given the link between paediatric HIV infections and mother to child transmission of HIV. Women account for half of all people living with HIV worldwide and nearly 60% of HIV infections in Sub-Saharan Africa. It is estimated that more than 90% of children living with HIV acquired the virus during pregnancy, birth or breast feeding, forms of HIV transmission that can be prevented[111].

Often, adult HIV care overshadows the paediatric HIV care since very few health care providers in developing countries are adequately trained to manage children infected with HIV. It is possible to overlook many of the oral lesions that are prevalent among children as a result of this scenario that is evident in almost every health centre in Lesotho. Future studies must assess the types and the prevalence of oral HIV lesions in both adults and children and issues related to identification and referrals from primary health care level. This will certainly improve the management of oral HIV lesions among the children. Recognition of important lesions such as KS, NUG/NUP/Periodontitis and Noma, which require timely referral, is very crucial in training PHCNPS who may be the first front line health personnel to see these lesions.

Cross tabulation of some select variables (Table 4.3.3) showed that there was no statistically significant association between years of practice as PHCNPs and the ability to associate oral lesions with HIV infection. The relationship between these two variables was not statistically significant with 2-sided Fischer's exact test ranging from 0.186-1.000 except for Dental caries p=0.037 which was significant. This may be due to lack of integration of training and education on Oral HIV lesions within HIV/AIDS curriculum. Oral health was not adequately integrated within general/public health until the end 1999. PHCNPs with many years of experience may have missed out on learning about Oral HIV lesions during this period. The only thing people were familiar with was that of dental caries which is the main cause of dental extraction in Lesotho.

However, the relationship between perceived knowledge and objective knowledge (Table 4.3.7) as assessed by the ability to correctly identify oral lesions on a chart indicated that there was a significant correlation for AC (p=0.00), OHL (p=0.024), Bleeding gums (p=0.002) and non significant correlations for the rest of the oral lesions (See Table 4.3.7). The study showed that the participants were able to associate lesions such as AC , bleeding gums which are easy to identify upon visual examination. This strongly suggests that with more training of PHNPs regardless of their years of experience, their ability to identify and associate oral lesions with HIV/AIDS intra orally ,can be significantly improved.

The Lesotho hospital-based study[65]on the prevalence of oral manifestations of HIV/AIDS recommended improvement in the diagnostic ability of oral health workers with regards to oral lesions. Another study[66] also recommended more emphasis on continued education to nursing staff. The current study findings provide further impetus for implementation of such perennial recommendations.

5.3.3 Source of knowledge

Although the majority of PHCNPs (81%) indicated that they had knowledge about oral HIV lesions, only half of them (50.8 %) reported having received knowledge through training institutions. Mass media was one of the major sources of information. This concurs with the findings from other regional (Sudan) and international (Japan) studies that were reviewed. Since year 2000, the Oral Health Sector has effectively used Lesotho media (Radio/TV) to create awareness on oral health related issues especially oral manifestations of HIV/AIDs typically presented during the annual oral health awareness week. Many community activities are carried out during this week at all levels such as schools, prisons, health training institutions etc. This can probably explain why a significant number of respondents mentioned media as one of the major sources of information.

Knowledge gained through informal conversation (43.9%) was notable and should be explored further to understand the various settings that promote such meaningful learning experience. Seventy two percent (72%) received information through workshops and seminars and almost a similar percentage of respondents (69%) preferred workshops/seminars as a source of information regarding oral HIV lesions instead of training institutions. This might be explained by the fact that a majority of the respondents had been out of nursing college for many years, making workshops and seminars a source of information for them.

Although various forms of media play a key role in the dissemination of knowledge, more studies are needed to explore which forms of media are more cost effective to inform and educate the public, health care providers in general and primary health care practitioners in particular.

5.3.4 Management of Oral HIV lesions

Ninety six percent of the PHCNPs reported having either seen or treated HIV patients at their facilities. This clearly shows the need for effective recognition , diagnosis and management of oral HIV lesions at PHC levels.

Sixty eight percent (n=39) estimated to have seen 0-20 patients with oral HIV lesions whereas 6 respondents reported having seen 81-120 patients with oral HIV lesions. The difference in the number of patients seen over the period of one month may be due to the fact that some of the health centres serve larger catchment areas.

As indicated in Table 4.3.5, the difference between years of experience of the PHCNPS and the number of HIV patients seen was not statistically significant with Fischer's exact test (p=1.000) even though the table tends to indicate that more practitioners with less than 20 years of experience indicated to have seen more HIV patients than those colleagues with more than 20 years. However this finding cannot be overemphasized considering the small number of PHCNPS (n=13) within 20-40 years of experience group compared to the relatively larger number of PHCNPs (n=44) with < 20 years of experience. Similarly, there was no statistically significant difference (p= 0.426) between perceived knowledge of oral lesions and number of patients seen (See Table 4.3.8). This suggested that the recognition of oral lesions in HIV patients could have happened just by chance rather than as a result of knowledge of Oral HIV lesions or the years of experience. Oral lesions associated with HIV are not unique, some of the lesions are also seen in patients who are not immune compromised or in patients suffering from immune suppression related to other causes. This diversity necessitates collaborative efforts from a wide range of people, with varying fields of expertise[111].

Appropriate training to recognise and manage oral HIV lesions could reduce the number of unnecessary referrals and encourage important referrals to the oral health experts for timely intervention. It will also encourage the PHCNPS to investigate the underlying HIV infection through HIV testing. PHCNPs should understand the relevance of oral examination/screening in relation to the timely referral for detection and confirmation of the underlying HIV infection. A

proper oral examination is of critical importance. Lesotho oral health sector should introduce curriculum/training material that include guidelines on proper intra-oral examination and dental history taking at the health centre level.

All PHCNPs reported having seen various numbers of confirmed HIV patients with oral lesions within the previous one month period. Forty-four PHCNPs (77.2%) had seen one to ten confirmed HIV patients with oral lesions. Similarly, 15.8 % and 7% of the PHCNPs had seen (11-20) and (>21) who were confirmed as HIV patients with oral lesions, respectively. These figures are likely to increase as the "know your status" campaign picks momentum for voluntary HIV testing in Lesotho[112].

Although the majority of the PHCNPs lacked trust and or confidence in the practise, knowledge and management by the traditional health practitioners (THPs) regarding oral HIV lesions, nearly one fourth of the respondents reported that they would refer patients with such lesions to the THPs, with 16% citing ability of traditional medicine to boost the immune system as their reason for referral. This finding is unexpected but significant in the context of recommendations made on how traditional medicine could be integrated into the health systems at the "African forum on the role of traditional medicine in health systems"[113].

Strategic options for more meaningful partnership should be explored at the health centre levels since one cannot ignore the fact that THPs are the most commonly consulted and most accessible health care providers in all African communities. It is estimated that the Traditional healer per population ratio is 1:1200 compared to a conventional practitioner to the population ratio of 1:25000. In addition, about 80% of Africans rely on traditional medicine for their health needs[93]. It therefore follows that this important cadre of health care providers requires to be integrated into health care delivery systems instead of attempting to wish it away.

5.3.5 Personal use of infection control

The Centre for Disease Control (CDC) has set standards of infection control for health care providers. Standard precautions as defined by the CDC are a set of precautions designed to prevent transmission of HIV, Hepatitis B virus (HBV), and other blood borne pathogens when providing first aid or health care. Standard precautions involve the use of protective barriers such as gloves, gowns, aprons, masks or protective eyewear, which can reduce the risk of exposure of the health care workers' skin or mucous membranes to potentially infective materials. The CDC

also recommends that all health care workers should routinely use appropriate barrier precautions for all patients at all times [100]. These CDC guidelines are applicable in highly resourced countries and health care facilities. Therefore, appropriate infection control measures need to be determined and applied in resource limited settings.

The study showed that majority of the participants did not strictly adhere to the standards of infection control set by the CDC. The findings showed that 10.5% of the participants washed their hands routinely with water only whereas 12% routinely washed their hands with antiseptics. However, a majority of them (77 % and 90%) said that they cleaned their instruments with bleach and disinfectants and washed their hands with water and soap, respectively. Forty three respondents (75.4%) wore gloves during examination whereas routine use of facemasks was limited to only 21.1 %. Naidoo[100] found that a significant number of Dentists were using unacceptable cross infection control procedures. This attitude may have changed among Dentists as they are now far more exposed to more knowledge and skills as a result of existing infection control protocols in most of the countries. However, a lot more will have to be done in order to empower PHCNPs and other HCWs with more infection control knowledge and skills.

Cross tabulation Table 4.3.4 indicated that the relationship between years of experience and infection control practices was not significant with lowest 2-sided p value being 0.205. This was counter-intuitive since one would have expected PHCNPs with more years of experience to better adhere to infection control practices. The low HIV prevalence at the time these PHCNPS qualified could have also contributed to this poor adherence to infection control practices.

The ability to assess risk may be more significant in resource limited settings where many PHCNPs could be tempted to use lack of resources as a justification for failure to observe universal precautions. The health centres situated in rural areas do experience shortage of protective items such as gloves, masks and antiseptics due to delays in timely supplies. However, every effort must be made to ensure that standard precautions are strictly observed in order to minimize exposure of health care providers and patients to unnecessary risks. This will be a major challenge for health care policy makers in Lesotho to ensure the availability of protective barriers recommended by the CDC, at all levels of health care services, including the health centres.

5.3.6 Perceived need to learn to manage oral HIV lesions

Management of oral HIV lesions implies that PHCNPs are capacitated to recognise the clinical significance of all oral HIV lesions and subsequently treat or make timely referral for further investigations such as HIV testing and appropriate management of the patients.

Although nearly all of the PHCNPs stated that they would like to learn to manage oral lesions at health centres only a few (8.8 %) recommended that such knowledge should be integrated within nursing curricula taught at all nursing training institutions. The majority preferred more training through workshops/seminars. Training through workshops can be costly in terms of money, time and human resources and may not be sustainable. Integrating the recognition and management of oral HIV lesions within the existing nursing curriculum can be a more viable lasting option to equip the PHCNPs before they are dispatched to health centres. The ones who are already qualified can be empowered with knowledge on oral HIV lesions through in-service training and other continuing education program. However, even this training would require ongoing follow up and reinforcement.

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

In this chapter, conclusions are drawn and recommendations made based on the study findings:

6.1 Conclusions

Although all 57 participants reported a good understanding of the importance of oral health to the well being of individuals, this study has shown that the knowledge, attitude and practice of the PHCNPS regarding oral HIV lesions in QE II and Roma HSA of Maseru district was inadequate. Nearly half of the participants had more than a decade of experience working in various health facilities. Years of experience correlated well with better understanding of oral health with a majority of the PHCNPs having been able to identify common oral lesions seen in health centres. Oral Candidiasis was the commonest lesion correctly recognised by the PHCNPs and associated with HIV, which concurs with findings in other regional and international studies. Insufficient knowledge, skills and training to identify other commonly seen lesions such as angular cheilitis, ANUG and apthous ulceration was evident. This calls for regular training opportunities in order to promote correct diagnosis and appropriate management of such conditions. Laxity in adherence to universal precautions as recommended by CDC was noted. However, reasons for such non adherence were multifactorial including lack of materials and limited resources.

An encouraging finding of the study was the strong correlation between PHCNPs self-assessment of oral health knowledge and the objective knowledge as gauged by ability to identify the oral lesions on a chart. The finding indicated that with training and/or mentoring, PHCNPs are likely to confidently diagnose oral lesions including the rare ones. This is a challenge that training institutions should take up in order to equip PHCNPs through adequate curricula on oral lesions and their link to HIV and AIDS. However, it is important to take into consideration of the burden of heavy work load the nursing staff are already experiencing while training them with knowledge and skills on oral HIV lesions.

This baseline study could lead to a national study in future to further explore knowledge and understanding to improve training materials on oral HIV lesions especially designed to equip all PHCNPs.

6.2 Recommendations

1. Improve the diagnostic and management ability of PHCNPs regarding oral HIV lesions through integration of such skills into the training curriculum as well as in continued education programmes.
2. The OH sector should establish accurate step by step guidelines to enable PHCNPs to take proper dental history examine the oral cavity and surrounding tissues for signs of HIV infection, recognise the oral HIV lesions and make timely referral for further investigation and/or appropriate management.
3. Ensure regular supply of adequate infection control commodities such as protective clothing, gloves, masks, disinfectants and soap for health care providers at all PHC facilities. The infection control protocols should conform to recommended basic infection control measures within resource limited settings.
4. Undertake further studies to assess KAP of the PHCNPs in other parts of the country given the limitation of lack of generalisability of the current study findings.
5. Develop guidelines for using oral HIV lesions as indicators for referral of patients for HIV testing.
6. Improve the diagnostic, management and referral ability of THPs

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Appendix 1: Questionnaire on Knowledge – Attitude – Practice among the PHCNPs

Section A: Please could you supply some details about yourself?

1) Serial No.: (Coded):……

Male ☐

Female ☐

2) Age 21 – 30 ☐

31 – 40 ☐

41 – 50 ☐

+ 50 ☐

3) District/HSA ……

4) Educational Status:

Secondary school (Form A – C) ☐

High school education ☐

Tertiary education ☐

Any other (specify) ……

5) Category of service provider:

Nurse clinician ☐

Registered nurse ☐

Any other ……..

6) I have been in practice for …….years.

Section B : Knowledge - Attitude - Practice

1) Is good oral / mouth health important to the well being of a person?

Yes ☐ No ☐ Not sure ☐ Don't know ☐

2) Which of the following emphasize the importance of healthy teeth and supporting structures?

(Tick more than one answer)

Enable you to eat well ☐

Enable you to defend (by biting) ☐

Improve appearance ☐

Promote self-confidence ☐

Enable you to speak well ☐

Any other ……..

3) Which of the following Mouth lesions have you seen in your clinic? Show posters.

(Tick more than one answer)

Oral candidiasis / Oral thrush ☐

Acute necrotizing ulcerative gingivitis(ANUG) ☐

Angular Cheilitis ☐

Apthous ulceration ☐

Dental caries ☐

Hairy leukoplakia ☐

Kaposis sarcoma ☐

Fluorosis (brownish teeth) ☐

Bleeding gums ☐

Herpes Zoster ☐

Noma (cancrum oris) ☐

Others (specify) …….. ……

4) Do you have knowledge on Oral/Mouth HIV lesions?

Yes ☐ No ☐

5) If yes, which of the following Oral/Mouth lesions would you associate with the manifestations of HIV& AIDS? Show posters (Tick more than one)

Oral candidiasis/Oral thrush ☐

Acute necrotizing ulcerative gingivitis(ANUG) ☐

Angular cheilitis ☐

Apthous ulceration ☐

Dental caries ☐

Hairy leukoplakia ☐

Fluorosis (brownish teeth) ☐

Kaposis sarcoma ☐

Bleeding gums ☐

Herpes Zoster ☐

Noma (cancrum oris) ☐

Others (specify) ……..

6) What is your source of knowledge on oral HIV/AIDS lesions? (Tick more than one)

Training institutions ☐

Workshops/ Seminars ☐

Radio ☐

Newspaper/ magazines ☐

TV ☐

Informal conversations ☐

None ☐

Any other (specify) …….

Which source do you prefer most? ……..

7) Have you ever treated/ seen a HIV positive patient?

Yes ☐ No ☐ Not sure ☐

8) How many HIV positive/ AIDS patients or patients with above mentioned oral/ mouth lesions have you treated/ seen within the past 1 month?

Total number of general patients seen ……..

Number of suspected HIV patients seen ……..

Number of confirmed HIV patients seen ……..

9) Are there some mouth lesions for which you would advice your patient to visit Tradititional health practitioners (THPs)?

Yes ☐ Why? ……..

No ☐ Why? ……..

10) How do you treat/ manage oral lesions at your work place (Tick more than one)?

Western medication only ☐

Western medication and traditional/alternate medicine ☐

Referral ☐

Any other (specify) ……..

11) What kind of treatment do you follow? (Tick more than one)

Something to swallow/ drink ☐

Something to rinse ☐

Something to apply ☐

Something to wash ☐

Any other (specify) ……..

12) Which of the following applies to your personal use of infection control procedures?

	Routinely	Sometimes	Rarely
I wash my hands with water only	☐	☐	☐
I wash my hands with water and soap	☐	☐	☐
I wash my hands with antiseptics	☐	☐	☐
I wear gloves	☐	☐	☐
I clean my instruments with bleach & disinfectants	☐	☐	☐
I wear facemask	☐	☐	☐

Any other (specify) ……..

13) Would you like to learn how to manage oral/ mouth lesions at your workplace?

Yes ☐ No ☐

14) If yes, any recommendations/ suggestions to facilitate that?

……

……

Appendix 2: Questionnaire on Knowledge – Attitude – Practice among PHCPs (in Sesotho)

Section A: Khaolo ea Pele:

1) Nomoro (Serial No.): (Coded):……

Motona ☐

Botsehali ☐

2) Lilemo: 21 - 30 ☐

31 - 40 ☐

41 – 50 ☐

+ 50 ☐

3) Setereke/ Motse: ……

4) Boemo ba thuto:

Sekolo se mahareng (Form A – C) ☐

Sehlopha sa form (D-E) ☐

Sekolo se phahameng (Tertiary) ☐

E ngoe: ……..

5) Karolo ea mosebetsi oa hau:

Mooki ☐

Mothusi oa mooki ☐

Ba sebelletsi ba tsa bophelo motseng ☐

E ngoe: ……..

6) Ke na le lilemo tse …….ka tšebetso.

Section B : Karolo ea Bobeli

1) Na tlhokomelo e ntle ea lehano e bohlokoa ka kakaretso bakeng sa bophelo bo bottle ba motho?

E ☐ Che ☐ Mohlomong ☐ Ha ke tsebe ☐

2) Ke efa ea tse latelang e hlalosang ka botebo bohleka ba thlhokomelo e ntle ea lehano?

(Tick more than one answer)

Ho ja lijo hantle ☐

Ho itsireletsa (by biting) ☐

Ho ntlafatsa chebahalo ☐

Ho ntlafatsa seriti sa hau ☐

Ho etsa hore o bue hantle ☐

E ngoe: ……..

3) Ke bofe bokuli ba lehano boo o eng bobone bakuling ba hau? Fana ka lebitso la Sesotho.
(Tick more than one answer)

Oral candidiasis / Oral thrush ☐

Acute necrotizing ulcerative gingivitis ☐

Angular Cheilitis ☐

Apthous ulceration ☐

Dental caries ☐

Hairy leukoplakia ☐

Kaposis sarcoma ☐

Fluorosis (brownish teeth) ☐

Bleeding gums ☐

Herpes Zoster ☐

Noma (cancrum oris) ☐

Mafu a mang (Hlalosa): ……..……

4) Na o na le tsebo ka mafu a lehano?

E ☐ Che ☐

5) Lethathamong le latelang, ke afe mafu a lehano ao e leng matšoao a HIV&AIDS? (Tick more than one)

Oral candidiasis / Oral thrush ☐

Acute necrotizing ulcerative gingivitis ☐

Angular Cheilitis ☐

Apthous ulceration ☐

Dental caries ☐

Hairy leukoplakia ☐

Kaposis sarcoma ☐

Fluorosis (brownish teeth) ☐

Bleeding gums ☐

Herpes Zoster ☐

Noma (cancrum oris) ☐

Mafu a mang (Hlalosa): ……..……

6) Mohloli oa litsebo tsa hau ka mafu lehano a tsamaellanang le HIV&AIDS ke afe? (Tick more than one)

Makaleng a boikoetsliso ☐

Likolong tsa moetlo ☐

Lithupelong ☐

Seea- le moea ☐

Likoranta ☐

Setšoantšo ☐

Moqokong ☐

Ha e eo ☐

Tse ling (Hlalosa) …….

Ke mokhoa ofe oa ho fumana litaba oo o ratang? ……

7) Ka tsebo ea hao, o kile oa thusa/ ho bona motho ea nang le kokoana hlooko ea HIV ?

E ☐ Che ☐ Mohlomong ☐

8) Ka tsebo ea hao ke bakuli ba ba kae ba nang le tšoaestso le mafu a lehano a boletsoeng bao o ba thusitseng/ boning khoeling e fetileng?

Palo ea bakuli ka kakaretso: …….

Palo ea ba belaelloang ka HIV: ……

Palo ea netefalitsoeng batsoeroeng: …….

9) na ho na mafu a lehano ao o ka khotohaletsang moamani le ueana kappa moratuoa oa hao ho bana ngaka ea moetlo kappa mooki?

E ☐ Hobaneng? ……

Che ☐ Hobaneng? ……

10) U alafa/ ho beha taolong mafu a lehano mosebetsing oa hao ka tsela efe?

Merian’a sekhooa/ sesotho/ litlama ☐

Lingaka tsa moetlo feela ☐

Phapanyetsano ea bakuli ☐

E ngoe (Hlalosa) ……..

11) O sebelisa mofuta ofe oa kalafo ho e latelang? (tick more than one)

Ho koenya/ ho noa ho hong ☐

Ho sebelisa ho hong bakeng sa ho khakhatsa ☐

Ho sebelisa ho hong ho hlatsoa lehano ☐

Ho sebelisa ho tlotsang ☐

Ho hong: ……..

12) Molemong oa tšireletso ea hao ke ofe mokhoa oo o sebelisang?

	Khafetsa	Ka nako Engoe	Ka seoelo
Ke hlapa matsoho ka metsi feela	☐	☐	☐
Ke hlapa matsoho ka sesepa	☐	☐	☐

Ke hlapa matsoho ka lithibela kokana hlooko ☐ ☐ ☐

Ke hlatsoe lisebelisoa tsa ka ka lithibela

Likokoana hloko ☐ ☐ ☐

Ke roala liatlana ☐ ☐ ☐

Ke roala litšireletsa sefahleho ☐ ☐ ☐

13) Na u ka rata ho ithuta ho alafa mafu a lehano?

E ☐ Che ☐

14) Ke eng eo o e hlokang ea lithupelo/ lisebeliso bakeng sa ho ntlafatsa itsebo/ katamelo/ litšebeletso tsa hao kalafong ea mafu a lehano?

……..

……..

Appendix 3: Invitation to participate

Dear Primary health care nurse practitioner,

Greetings to you.

I kindly invite you to participate in the study I plan to conduct in Lesotho from April to June 2007.

The title of this study is as follows:

"The knowledge, attitude and practice of the Primary health care nurse practitioners (PHCPs) in the management of Oral HIV lesions in QE11 and Roma health service areas in Maseru Lesotho"

Herewith I enclose the subject information sheet for your kind consideration of my invitation. Please indicate your willingness to participate in this study by filling the consent form attached.

Thanking you.

Dr.T.G.Prithiviraj

(Principal investigator)

Appendix 4: Subject information

I am Dr. T.G. Prithiviraj; a dentist working for the Ministry of health and social welfare (MOH/SW), Lesotho, and a postgraduate student at the school of public health at the University of Witwatersrand. The MOH/SW, Lesotho, has given me permission to conduct a research study to assess the knowledge, attitude and practice of the Primary health care nurse practitioners (PHCNPs) in the management of Oral HIV lesions in QE11 and Roma health service areas in Maseru.

I shall be grateful if you would agree to participate in this study, which will provide relevant information on the management of oral lesions among people living with HIV/AIDS in our communities. The identity of all participants is going to be kept confidential. The names will not be recorded. I will use code numbers so that you will remain anonymous. Participation is voluntary and you are free to withdraw from the study at any time without having to provide reasons for your withdrawal. You will not be prejudiced in any way if you choose to do so.

If you have any questions please feel free to contact Dr. T.G. Prithiviraj at QE II Hospital, dental department, Maseru, Lesotho. Contact details:

Postal Address: QE II Hospital
P.O. box 9379
Maseru 100

Telephone: 63097068 (cell), 22311671 (home), 22325694 (off)

E-mail: prithidel@gmail.com

Fax: 22310347

Appendix 5: Certificate of consent

I have received both verbal and written information about the research study that Dr. T.G. Prithiviraj and his co-workers will conduct to determine the knowledge, attitude of the Primary health care nurse practitioners (PHCNPs) in the management of Oral HIV lesions in QE11 and Roma health service areas in Maseru district in Lesotho. I have been informed that I will be interviewed through questionnaire to collect the necessary data.

I hereby give Dr. T.G. Prithiviraj and his co-workers permission to enroll me in this study. I have been told that all identities of participants will be kept confidential. My name will not be recorded and a code number will be used instead. My participation is voluntary and I am free to withdraw from the study at any time without having to provide reasons for the withdrawal. I will not be prejudiced in any way should I decide to do so.

Name……Signature……

Date……Clinician (Investigator) signature……..