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Time Flies

Dr. M. Mokete

Indeed time flies and one only begins to reflect on the unfulfilled objectives and targets that time past cannot come back. We thought we would go into print of this journal in three months but articles were not enough for the edition. Our apologies to our contributors and readers.

We all recall that in 1978, after Alma Ata, all Nations declared (through WHO) that health will be for all by the year 2000. Time, lethargy, commitment, positive political will become the enemy. Good Primary Health vision was by and large not accomplished.

Then followed new resolutions on the Millennium Goals for 2000 to 2015. How many have been accomplished? Which countries can proudly declare a victory on the goals? New declarations have to be made again basically referring to the perennial problems which remain partially solved but continue to recur with more intensity proving that time indeed flies and that this time round we must keep to the schedule with more political will and commitment.

Time indeed flies and Time and Tide wait for no man. Opportunities missed will never come back again.



From the President's Pen

We have now gone firmly into the festive season. To some it is time to rest from hard work they have done during the whole year, to go and see friends and relatives, to some it is time to enjoy and spend the hard earned money while to others it is the time to remember the birth of our Lord and Savior Jesus Christ. To all of you, I would like to say Merry Christmas and happy holidays.

This is the time when we have to look back and see what we have done during the whole year. If we made resolutions during the New Year, how many of those have been achieved. If some were not, it is the time to reflect and see where we went short of reaching our target.

The buzz word during this holiday period is unity. There are many writings and thoughts about what unity is. I am not going to delve into that, but I would like to ask myself and every one, "ARE WE UNITED?" Can anyone say on a human race "We are united"? As African, we are united, as citizens of Lesotho, we are united, but most importantly as Lesotho doctors, are we united?

Unity is one of the most important factors towards achieving goals as a group with one purpose against a common obstacle. As Lesotho Medical Association, we are working hard toward uniting doctors in Lesotho but we would go a long way with a helping hand from the doctors themselves.

After a long, hard and tedious work, we have successfully applied for and been accepted into the community of the world medical association. We all deserve a pat on the shoulder for that. This admission signals the beginning of the end of isolation as now we are part of the association of world doctors; we are now in position to tackle challenges together with other doctors of the world and are in a position to get assistance when we need it. However, this goes together with a lot of responsibility and we must be prepared to take it.

Talking about challenges one can't stop to think about Ebola, which is the biggest challenge we have today. What are we doing to assist each other understand this scourge, how can we identify carriers, victims and patients and how we should avoid being infected. Lesotho is such a small country where people are living basically a care free type of life and taking health problems very lightly, mostly marred by superstitions and negligence. If we can get an outbreak of Ebola, are we going to recognize it early enough to institute necessary intervention or will we attribute it to witchcraft and punishment for the sins we have committed? What are those who are enlightened doing to inform those who are not? Is our ministry doing enough to inform the medical fraternity in the country about Ebola? I must admit Basotho are a nation loved by God, otherwise we could have long perished. But what efforts are we making to augment the love we have got from God? If we look back a little, it is only luck that no Mosotho was present when the visitors' wing of T.B. Joshua's church in Nigeria collapsed. That was just luck. Recently Likoena was about to qualify for AFCON 2015 but somehow could not go through. If it could have gone, how sure would we be that it was not going to bring us Ebola? Apart from those people we know are from potentially dangerous places, what are we doing to screen people who enter our borders to make sure that they are not bringing us this disease as they come in?

It is time that our ministry come out, clearly, with the policy towards Ebola and publicize it to the whole medical fraternity and it is time for those with knowledge and information materials to openly put them out for others to get, lest we perish at our own selfishness.

PRESIDENT'S NOTE

All is not gloom and doom, I want to congratulate all of us in that, partly due to our efforts, Queen II Hospital is now partly operating. I don't think that everybody is aware that doctors contributed a lot to that effect, and our Minister as opposed to her predecessors has shown us a good deal of recognition and appreciation by consulting us and considering some of our views in regards to Queen II. I commend our Minister Dr, Pinkie Monamolela for the respect she has shown to the doctors and would like to encourage her to do more consultations with us and implement views that we express. Sometimes we are a bit impatient and would like to see our recommendations being implemented immediately, but that is human nature.

The Lesotho Learning and Sharing program was interrupted by the prevailing circumstances in the country during the 3rd quarter of this year, 2014. However, we have picked up from where we left and our sessions are back on track. In an effort to make up time, our last session will be on the 9th of December, 2014. For the same reason we did not have our annual Symposium. We will work hand in hand to see that we make up for the missed Symposium and Dr. Ntšekhe Memorial lecture.

With these few words, I would again want to wish you Merry Christmas and a Happy New Year.

Dr. Motsoahae Raute Molise

Assessment of adverse drug reactions caused by HAART at antiretroviral clinics in Maseru district Lesotho: health professionals' opinion

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Abstract

The absence of a pharmacovigilance system in Lesotho negatively affects the public. A pharmacovigilance surveillance system makes it possible for physicians, pharmacists and other healthcare providers to report suspected ADRs. The purpose of this system is to operate as a guide in identification of new ADRs and predisposing risk factors to known ADRs. The aim was to assess the documentation of adverse drug reactions (ADR) in the private and public antiretroviral clinics in Maseru district, Lesotho. A survey in a form of questionnaires for the health professionals was carried out. The study sample consisted of all health professionals (doctors, nurses, pharmacists and pharmacy technicians) working at Sankatana ART centre, Khanya Medical centre, Healthy lifestyle and diabetes centre, Baylor College of Medicine, and St. Joseph's hospital. The total number of these health professionals was 65. A structured health professional's questionnaire was used to interview the health professionals.

Out of 65 health professionals, 49 responded to the questionnaire. 100% (n = 49) of the participants showed that they did not use the yellow card scheme to report ADRs. 34.65% (n = 17) used the individual case safety reports. 57.14% (n = 28) used the structured databases to report ADRs. 85.71% (n = 42) documented in the patient bukana, and 6.12% (n = 3) used the HIV/AIDS ART card to document ADRs occurrence. 91.84% (n = 45) of the health professionals never filled the ADR reporting form in their working environment. The health professionals never filled an ADR reporting form instead they used different methods of reporting used in their health facilities. Without the presence of a functional pharmacovigilance system, the results from the different reporting systems are not communicated and used to improve the health system of the country.

Keywords: HIV/AIDS, antiretroviral (ARV) drugs, adverse drug reactions, pharmacovigilance.

Introduction

The Lesotho national guidelines for HIV/AIDS care and treatment were revised to reproduce the new World Health Organisation ART guidelines and guarantee that Lesotho offers HIV/AIDS services in line with the regional and international standards. The ART guidelines are intended to aid healthcare providers in managing HIV/AIDS infected patients in all health facilities to guarantee that treatment is the same country wide (Ministry of Health and Social Welfare, 2010: 4). In 2007, estimates showed that there were approximately 260,000 HIV-positive adults (15 to 49

years); an estimated 21,000 HIV-positive children (0 to 14 years) bringing the total HIV-positive population to approximately 280,000 in Lesotho (United Nations General Assembly Special Session report, 2008: 4).

Antiretrovirals are alien to the body and therefore can cause harm. Patients on ARVs are to be monitored using laboratory tests to assess their well-being and if there is any occurrence of an adverse drug reaction (ADR) (Mehta *et al.*, 2007: 403). Host genetics and diagnostic delays due to insufficient laboratory monitoring may be the cause of disparities in the severity of adverse effects (Subbaraman *et al.*, 2007: 1093). Patient monitoring generally includes investigations to determine efficacy, toxicity and therapy compliance (Glencross *et al.*, 2003: 263). Some laboratory tests are expensive and this will compromise patient safety especially in developing countries. The annual health budget in developing countries could be affected by total cost of disease monitoring with reference to laboratory monitoring in HIV/AIDS which may constitute a significant challenge (Glencross *et al.*, 2003: 262).

Laboratory monitoring should go together with clinical assessments. Patient body mass loss in HIV-positive patients predicts either a progression of disease, opportunistic infection or death. It is used as a warning sign to prescribers to start investigations and treatment (National Department of Health South Africa, 2010: 28). Nutritional status and HIV infection are factors which add to immune system dysfunction leading to the emergency of opportunistic infections (Lategan *et al.*, 2010: 197). The antiretroviral regimen to be initiated is determined with the assistance of baseline laboratory tests. Before starting ART, baseline information should be provided on CD4 cell count, full blood count especially for AZT, ALT and creatinine clearance for TDF and pregnancy test for women if EFV is considered (World Health Organisation, 2010: 65).

Adverse drug reactions experienced by patients are very important to record and report in order to improve patient safety. It is important for a country to have a national pharmacovigilance centre to help in planning and implementing pharmacovigilance activities. The national centres play a critical part in public awareness of drug safety. Drug safety is very vital in public health and clinical practice as a result there is a great need for pharmacovigilance centres in different countries (World Health Organisation, 2002: 5). Medicines cause different side effects which are sometimes not seen during clinical trials and it could be because the medicines are tested in a controlled scientific environment with a limited number of participants (World Health Organisation, 2006a: 14). After approval, the medicines are released into the public market. Consequently, assessment and monitoring of new and medically still evolving medicines on safety and effectiveness in an uncontrolled environment is very crucial (World Health Organisation, 2004: 1).

Pharmacovigilance plays a great role in national drug policy development and includes medicines cost, forecasting and budgeting (United Nations Industrial Development Organisation, 2010: 11). This helps in the development of the essential medicines lists and the standard treatment guidelines. National administration is accountable for the availability of good quality, safe and effective medicines and for their proper use. As a result, the presence of a functional well-equipped national regulatory agency and a pharmacovigilance centre are fundamental to the accomplishment of these functions (World Health Organisation, 2004: 2-3).

Antiretrovirals are very toxic and need regular monitoring therefore; reporting of ADRs will help enhance clinical management of HIV-positive patients (World Health Organisation, 2006b: 11). Some of the duties to be carried out by a pharmacovigilance centre comprise of information dissemination to practitioners, patients and the public on benefit, harm, effectiveness and risk of medicines (World Health Organisation, 2002: 11). Adverse drug reactions (ADRs) attributable to antiretroviral medicines constitute 17 per cent of Individual Case Safety Reports (ICSR)

received by the Nigerian National Pharmacovigilance Centre, through spontaneous reporting system across the country in September 2009 (National Agency for Food and Drug Administration and Control, 2009: 1).

There is limited information on toxicity profile of ARVs in the developing countries. This is due to the presence of specific factors and conditions which are different from those in the developed countries. These factors include the existence of comorbid conditions such as tuberculosis (TB), malaria and other infections; malnutrition; heavy reliance on traditional and/or alternative therapies; insufficient numbers of trained doctors and pharmacists; abuse of prescription-only medicines; and likelihood of medicine interactions (World Health Organisation, 2007: 1). Additionally, the local systems for the delivery of health care rely on people who may not have the necessary training, knowledge or expertise, and the medicine regulatory systems are either non-existent or are not adequately equipped to deal with medicine safety issues. The monitoring of ARVs in these countries is of utmost importance.

For proper assessment and monitoring of ADRs, the following should be recorded: all new events even if minor; change in a pre-existing condition; abnormal changes in laboratory tests; accidents; all deaths with date and cause; and possible interactions (pharmaceutical or traditional medicines; oral contraceptives, tobacco, alcohol or other commonly ingested products which the patient may not realise are “medicines”) (World Health Organisation, 2007: 6). It is important that non-serious adverse events are recorded, particularly if they are likely to affect adherence. In addition, if only known adverse reactions are reported, unexpected adverse reactions will not be identified. Previously unrecognised adverse reactions are always found when using new medicines. It is important to identify them, understand their importance, determine their incidence and identify the risk factors as quickly as possible (World Health Organisation, 2007: 6).

Monitoring of drug safety is a basic component in the context of effective medicines utilisation and high quality medical care. Identification and reporting of ADRs is mostly done by health professionals confident of their aptitude to detect, manage and prevent these reactions. Major role in ADR monitoring and reporting is played by health training organisations and national pharmacovigilance centres by including principles and methods of pharmacovigilance as a course in schools of pharmacy, medicine and nursing (World Health Organisation, 2002: 24). When an unknown ADR occurs due to medication, it is easy for the public health sector to notice and take appropriate action which may include withdrawal of that particular drug from the market (David *et al.*, 2010: 2). Occurrence of adverse effects (known or unknown), drug interactions (with foods or other medicines) and other risk factors are observed during the years of post-medicine release into the public (World Health Organisation, 2004: 1).

Healthcare worker/professionals may record and report ADRs. They may work in the public or private health sectors. The following people are potential reporters of ADRs: physicians, pharmacists, pharmacy technician, nurses, public health programmes, pharmaceutical companies, and patients or patient representatives (World Health Organisation, 2009: 3). Additionally, the community health workers should be encouraged to detect and report, preferably to the clinician who prescribed the treatment, or directly to the pharmacovigilance centre.

The following research questions were formulated on the basis of the preceding recognitions: how do health professionals identify adverse drug reactions related to antiretroviral treatment, is proper documentation of the ADR of antiretroviral drugs being carried out in the health facilities? The general research objective of the study was to assess the health professionals' knowledge on identifying, recording and reporting adverse drug reaction.

Methodology

Study design

This was a qualitative study where questionnaires were used to access the knowledge of health professionals on adverse drug reactions recording and reporting.

Study sites

The private and public antiretroviral clinics situated in Maseru district Lesotho were used as study sites. The clinics included Sankatana ART centre, Khanya Medical centre, Healthy lifestyle and diabetes centre, Baylor College of Medicine, and St. Joseph's hospital.

Study population

The study population consisted of all health professionals (doctors, nurses, pharmacists and pharmacy technicians) working at Sankatana ART centre, Khanya Medical centre, Healthy lifestyle and diabetes centre, Baylor College of Medicine, and St. Joseph's hospital (*refer to figure 1*). The total number of these health professionals was 65. They worked directly with the patients as prescribers and dispensers of ART medicines in the clinics.

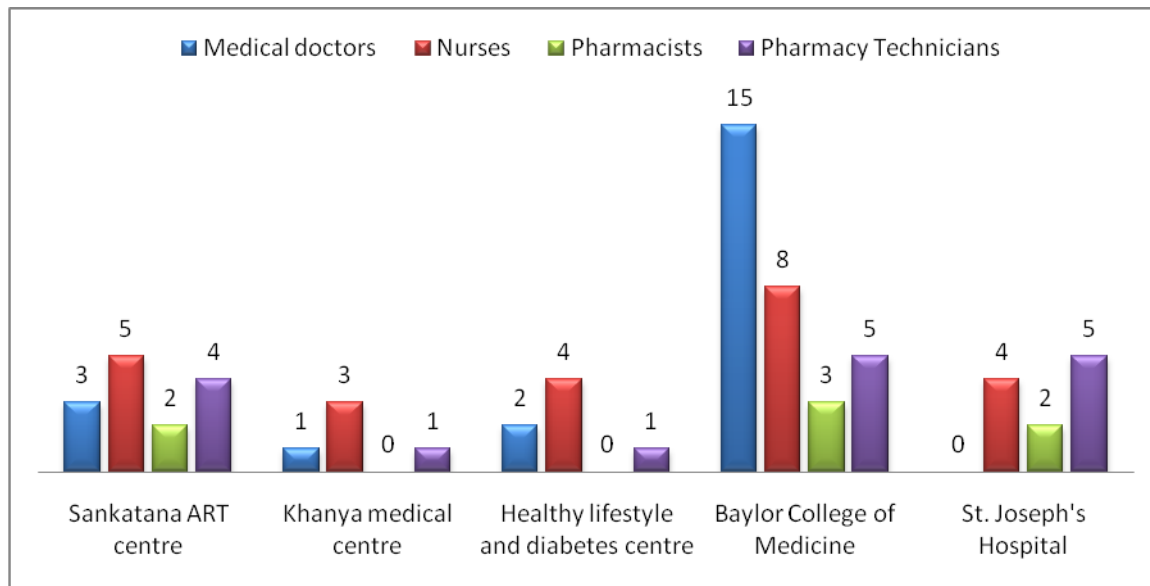


Figure 1: Number of health professionals involved per site

Data collection tools

A structure questionnaire was used to interview health professionals. The health professional's questionnaire was a structured questionnaire with questions divided into four sections. The sections included questions on demographic information, knowledge-related questions, health professional's opinion and questions about the influence of the professional environment respectively.

Data analysis

Captured data were entered on an excel spread sheet. Statistical Analysis System[®], (SAS 9.1[®]) programme was used for analysis. For the statistical analysis, frequency was used; and Proc Mixed procedure used for computation of Linear mixed models.

Ethical considerations

The study was firstly approved by the Ministry of Health and Social Welfare in Lesotho. Once this local approval was obtained, the letter of approval was sent to the different clinics. Ethical approval was also granted by the North West University ethics committee (ethics number: NWU-00134-12-A5).

Results

Demographic information

It shows the professional qualifications of the health professionals and their working experience in HIV/AIDS management and the duration of time they took in attending trainings in HIV/AIDS management and pharmacovigilance.

Professional qualification

Out of 65 health professionals, 49 responded to the questionnaire. 19 were medical doctors, 17 nurses, 5 pharmacists and 8 pharmacy technicians. The majority of the participants were medical doctors then nurses, pharmacy technicians and pharmacists respectively. Two health professionals were from a private facility and 47 from a public facility.

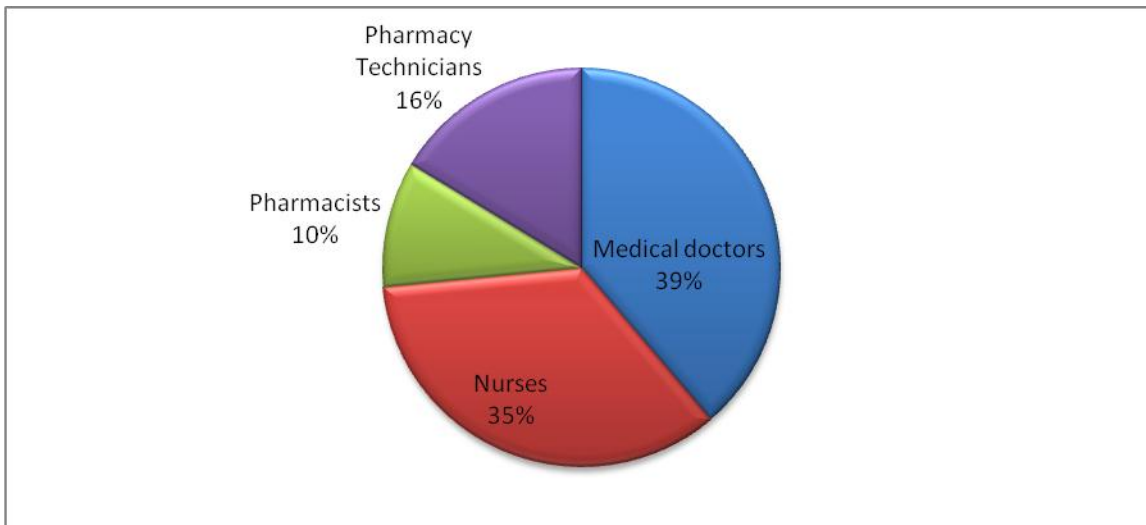


Figure 2: Health professionals' qualifications

Work experience in the management of HIV/AIDS

The different health professionals had working experience in HIV/AIDS management. Figure 3 below shows that the majority of health professionals had working experience in HIV/AIDS management of less than 5 years.

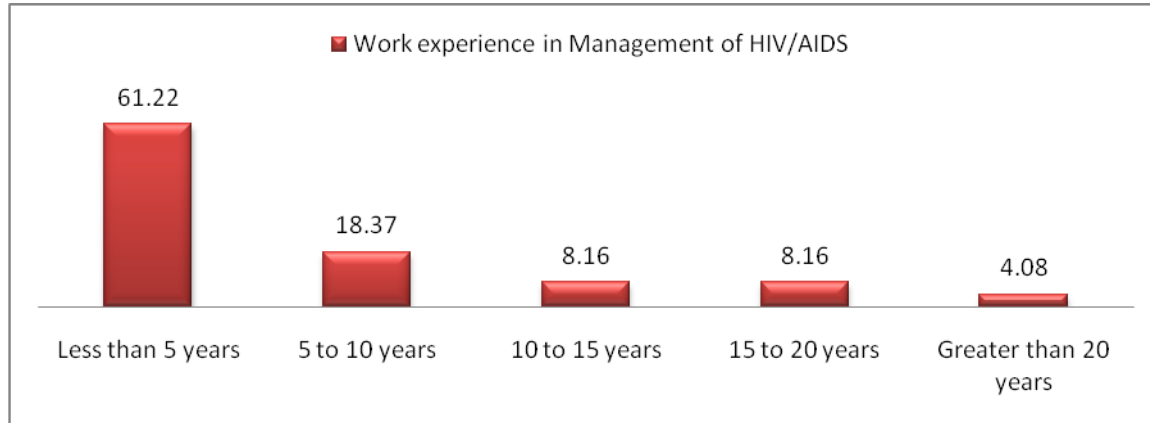


Figure 3: Work experience in the management of HIV/AIDS

Did you attend any training in HIV/AIDS management?

Figure 4 below shows that most health professionals did not attend any training on HIV/AIDS management with a percentage of 61.22 per cent (n = 30), 28.57 per cent (n = 14) went for a 2 days course, 4.08 per cent (n = 2) went for 5 days, and 6.12 per cent (n = 3) for 3 weeks.

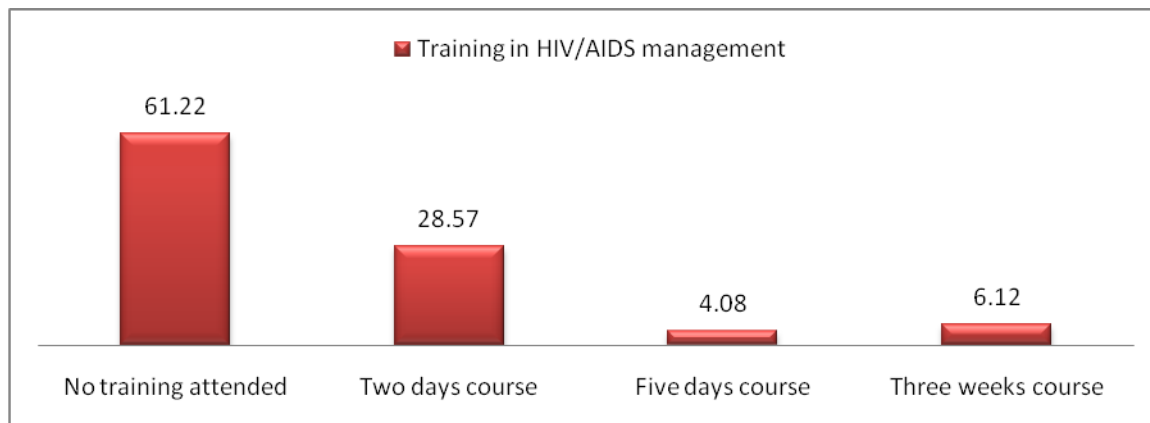


Figure 4: Health professionals who had training on the management of HIV/AIDS

Did you attend any training in Pharmacovigilance?

When the participants were undergraduate students, 8.16 per cent (n = 4) attended lectures on pharmacovigilance while the remaining 91.84 per cent (n = 45) did not have any lessons in this. 2.04 per cent (n = 1) of participants went to an in-service training and 97.96 per cent (n = 48) did not. 97.96 per cent (n = 48) of health professionals did

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not attend any training on pharmacovigilance specifically for ARVs and 2.04 per cent (n = 1) went for training. The Ministry of Health held a workshop on pharmacovigilance with poor attendance of 6.12 per cent (n = 3) of attendants and 93.88 per cent (n = 46) who did not partake according to the finding of the study.

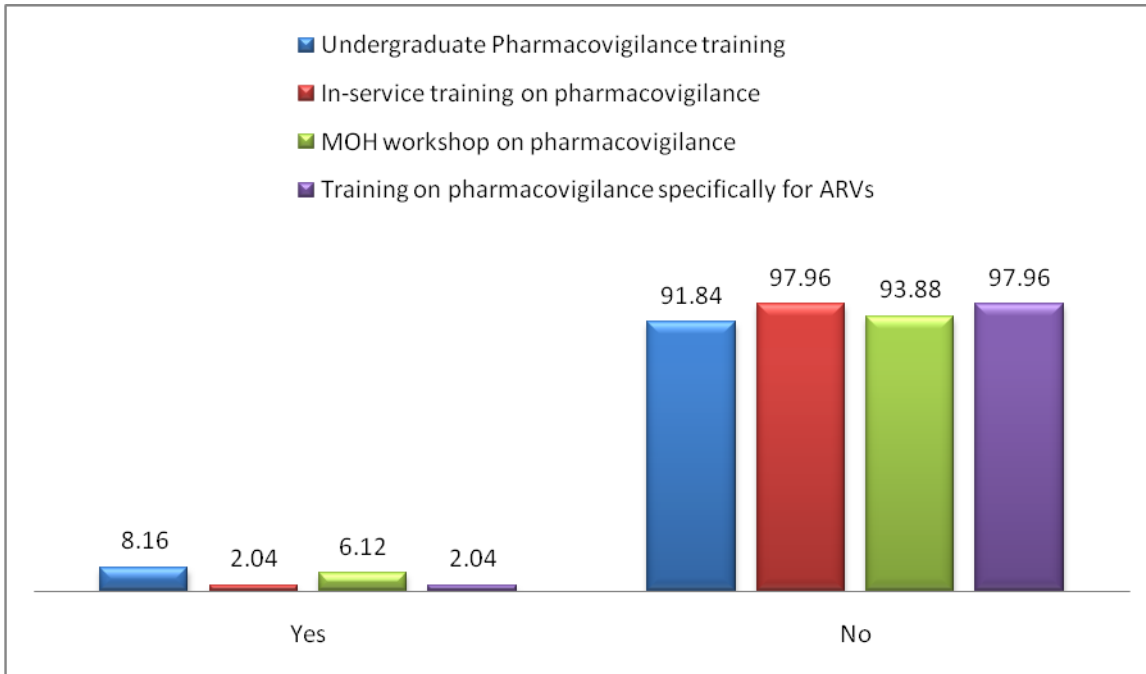


Figure 5: Attendance of health professionals of trainings in pharmacovigilance

Knowledge related questions

Question in this section were targeted towards assessing the basic knowledge of the health professional's familiarity with an adverse drug reaction reporting form and how it was used.

Do the health care workers in your facility fill the adverse drug reactions form?

4.08 per cent (n = 2) of the health professionals filled the ADR reporting form while 95.92 per cent (n = 47) did not. The majority of health professionals showed that they did not fill the adverse drug reaction form in their different facilities.

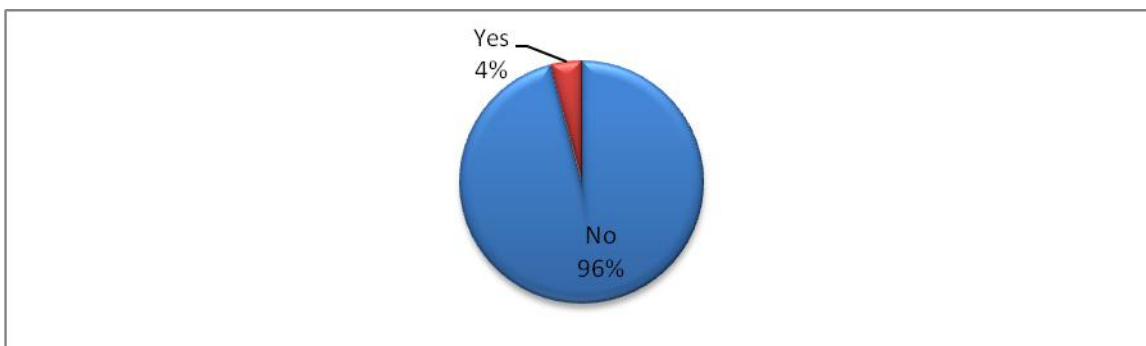


Figure 6: Health professionals who filled the ADR reporting form in their health facilities

Who is qualified to fill the form? Please indicate if more than one professional was allowed to fill the ADR form?

As displayed in figure 7 below, all categories of health professional are qualified to fill the ADR form, medical doctors have the highest number of positive responses of 93.44 per cent, pharmacist 93.88 per cent, nurses 87.76 per cent, pharmacy technicians 77.55 per cent and laboratory technicians 20.41 per cent.

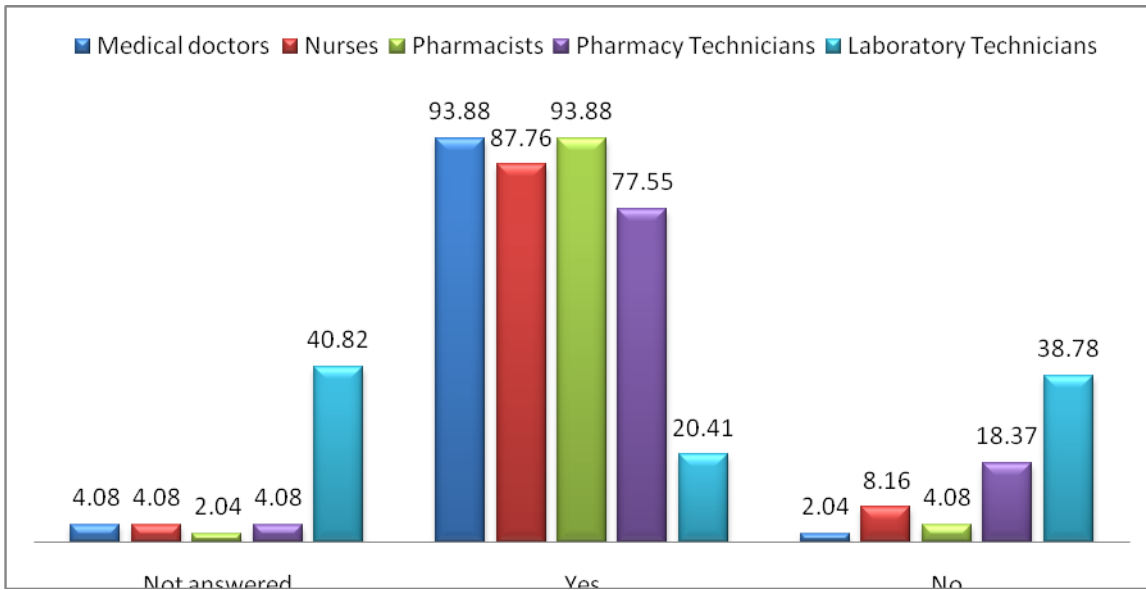


Figure 7: Different health professionals qualified to fill the adverse drug reactions reporting form

To whom should the filled form be submitted? Please indicate if it could be submitted in more than one place.

As shown in figure 8 below, the majority of health professionals stated that the place for submission of the completed ADR reporting form is director of pharmaceuticals 73.47 per cent followed by NPTC 57.14 per cent, HPTC 55.1 per cent and Drug Companies with 20.41 per cent. The highest number of participants 48.98 per cent showed that the drug companies were not the appropriate place to submit the form.

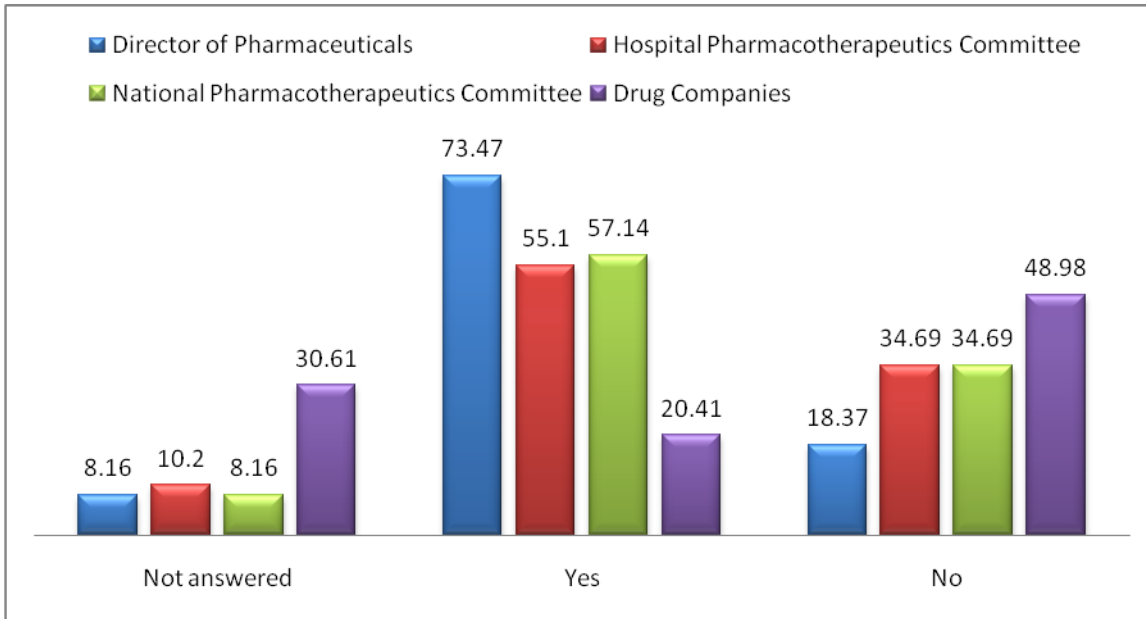


Figure 8: Different options of the places where the ADR reporting form could be submitted

How do you rule out side effects caused by other medication a patient is taking? If more than one please indicate.

The results displayed in figure 9 below show that most health professionals relied on the Lesotho ART guidelines (97.96 per cent), followed by using WHO definition of ADR (73.47 per cent), and reference to text books of medicine and surgery and medicinal science (69.39 per cent). The health professionals did not consult with HPTC or NPTC (89.8 per cent), or refer to academicians (77.55 per cent).

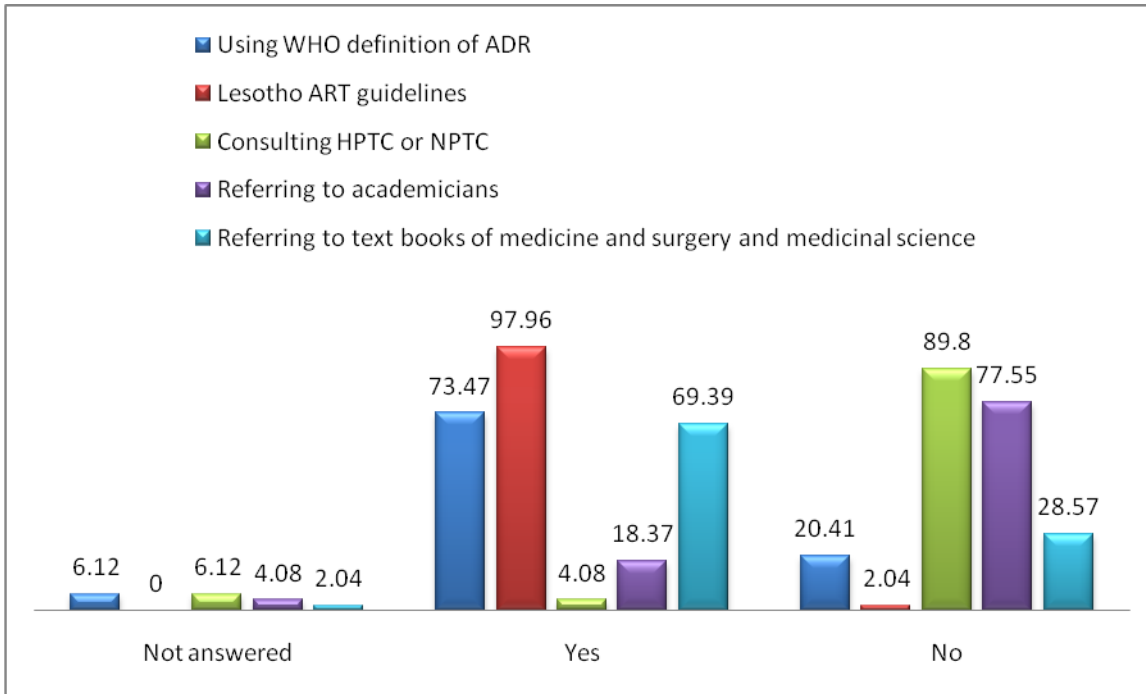


Figure 9: Possible methods used by health professionals to rule out side effects caused by other medication a patient is taking and not ARVs

How important do you think it is to fill the ADR reporting form?

None of the health professional thought the filling of the ADR reporting form was unimportant or only slightly important. 20.41 per cent said it was important, 48.98 per cent very important and 30.61 per cent critical. These conclude that the majority of the health professionals view filling the ADR reporting form as very important.

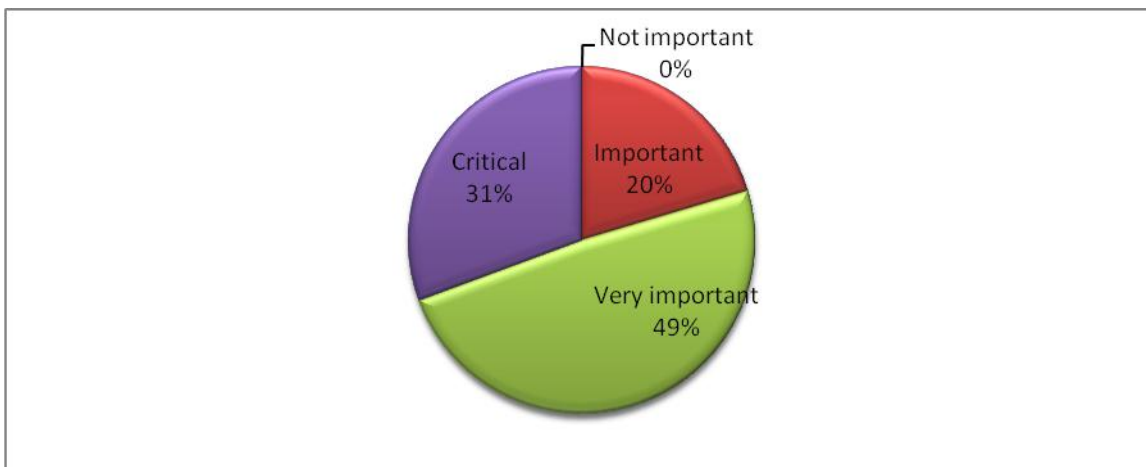


Figure 10: The importance of filing the ADR reporting form

Health professional's opinion

ADVERSE DRUG REACTIONS CAUSED BY HAART

Questions in this section of the questionnaire determined the reasons why the health workers might not fill the ADR form by evaluating their views towards the ADR form and the reporting system as a whole.

How do you report ADRs?

Figure 11 below shows that 100% (n= 49) of the participants did not use the yellow card scheme to report ADRs. 34.65% (n = 17) used the individual case safety reports. 57.14% (n = 28) used the structured databases to report ADRs. 85.71% (n = 42) documented in the patient bukana, and 6.12% (n = 3) used the HIV/AIDS ART card to document ADRs occurrence.

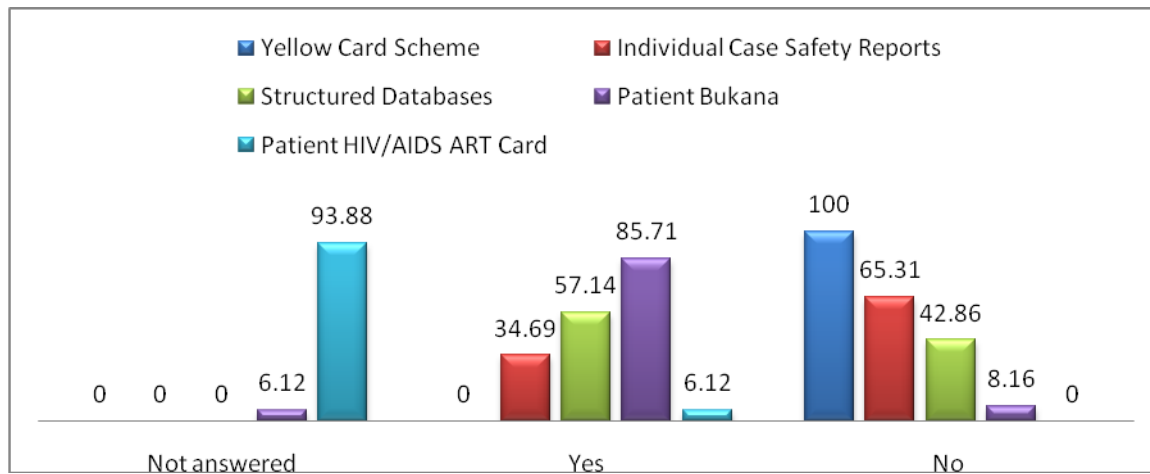


Figure 11: Different methods used when reporting adverse drug reactions

How often do you educate patients about adverse drug reactions and regimen specific side effects?

Figure 12 shows that 6.12 per cent (n = 3) of the health professionals who took part in the study never educated patients about ADR, 28.57 per cent (n = 14) sometimes did, 32.65 per cent (n = 16) often educated patients, and 32.65 per cent (n = 16) always did. 10.2 per cent (n = 5) never taught patients about regimen specific side effects, 24.49 per cent (n = 12) sometimes did, 22.45 per cent (n = 11) often did, and 42.86 per cent (n = 21) of the health professionals always educated patients about regimen specific side effects.

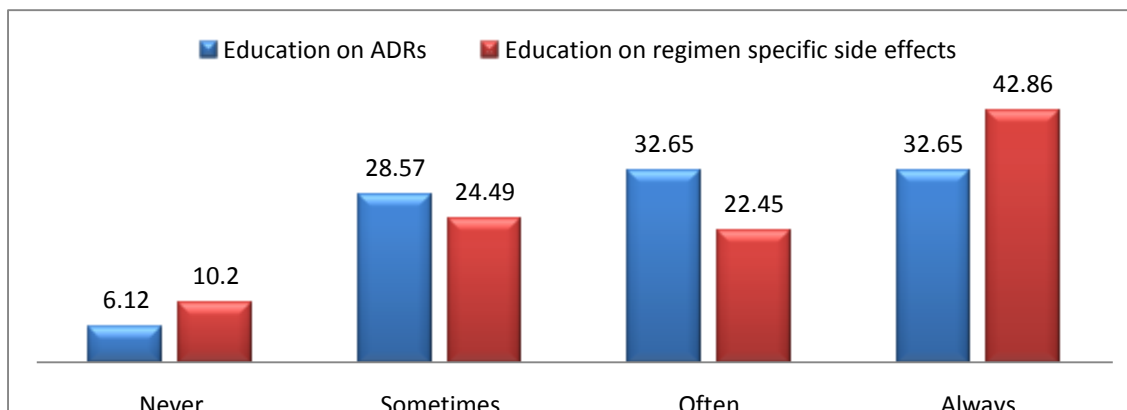


Figure 12: Patient education on adverse drug reactions and regimen specific side effect

How do you pick adverse effects? If more than one option exists please indicate.

The majority of health professionals use patient clinical examination (97.96 per cent), laboratory results (93.88 per cent), both patient clinical examination and laboratory results (89.8 per cent), and asking patients questions (85.71 per cent).

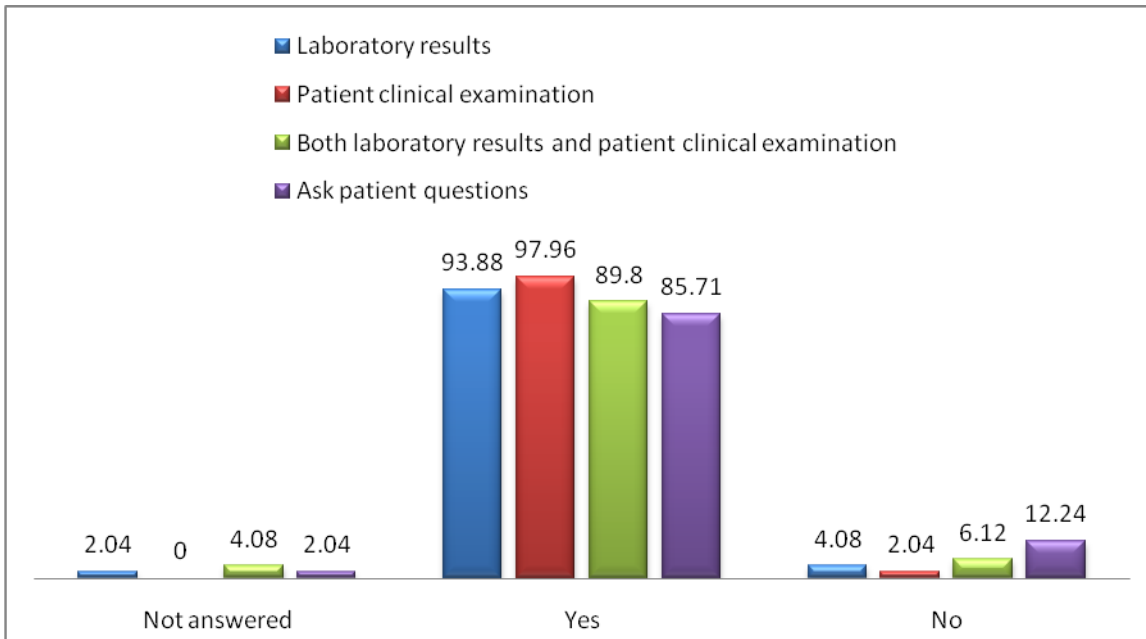


Figure 13: Different ways which health professionals utilise to detect adverse drug reactions

Discussion

Figure 6 shows that the majority of the health professionals never completed the ADR reporting form in their health facilities even though they found the form very straightforward to complete with few and/no problems. As a result, information on ADRs was lacking. This leads to lack of improvement in patient management and health care system.

Figure 7 shows that most health professionals consider medical doctors and pharmacists as the main professionals to fill in the adverse drug reactions reporting form followed by nurses and lastly pharmacy technicians. This concludes that medical doctors, pharmacists, nurses and pharmacy technicians are considered by the health professionals to be the qualified professionals to complete the ADR reporting form while laboratory technicians are not. The health professionals who took part in the study viewed the director of pharmaceuticals as the main place where the ADR reporting form should be submitted after being filled (*refer to figure 8*). As displayed in *figure 9*, the highest numbers of health professionals used the Lesotho ART guidelines followed by those who used the World Health Organisation definition of ADR, referring to text books of medicine and surgery and medicinal science, and referring to academicians respectively.

The most popular or used method of recording ADRs in the health facilities is the patient bukana (*refer to figure 11*). The patient bukana is kept by the patient. The patients might either lose or misplace the bukana with the ADR information and use a new one without the ADR information. This is dangerous to the patient as they might be re-challenged with the drug they experienced ADRs when taking it.

The patients are being taught about adverse drug reactions and regimen specific side effects depending on the type of regimen they are taking (*refer to figure 12*). This will keep the patient informed and involved in their treatment plan. Patient confidence is increased in the health care system and they could be able to identify ADRs and get help immediately. A very small number of health professionals do not educate patients at all on adverse drug reactions and regimen specific side effects.

Most health professionals used patient clinical examinations to detect adverse effects, followed by the utilisation of laboratory results, both laboratory results and patient clinical examination, and asking the patients questions respectively (*refer to figure 13*). As a result health professionals do have knowledge of how to detect adverse effects. These methods when used in combination increase the chances of the health professional detecting ADRs and thus taking appropriate action.

Limitations of the study

The limitations experienced in the study were as follows: some of the health professionals did not submit their questionnaires; other health facilities decided not to participate in the study; and some of the questions in the health professional's questionnaire were not answered.

Recommendation

A pharmacovigilance system should be established at the central level in the Ministry of Health. There should be a national form available for ADR reporting to make the reporting system the same throughout the country. There should also be frequent training, mentoring and supervision for health professionals on the reporting/recording system of ADRs caused by antiretroviral therapy. Health professionals and health education institutions should educate health professionals and students about pharmacovigilance. Patients should always be taught about regimen specific adverse drug reactions by health professionals and which measures to take when experiencing them.

Conclusion

The absence of a pharmacovigilance system in Lesotho negatively affects the public. A pharmacovigilance surveillance system makes it possible for physicians, pharmacists and other healthcare providers to report suspected ADRs. The purpose of this system is to operate as a guide in identification of new ADRs and predisposing risk factors to known ADRs. Without the presence of a functional pharmacovigilance system, the results from the different reporting systems are not communicated and used to improve the health system of the country.

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Assessment of Knowledge and Perceptions of Kota Community Towards Post-Exposure Prophylaxis for HIV

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ABSTRACT

The purpose of the study was to assess the knowledge and perceptions of Kota Community towards post exposure prophylaxis for HIV. The research qualitative and the design was descriptive. The research population was Kota community members of age 16-60. Purposive sampling was used and data collected by means of tape-recorded semi-structured individual interviews. The study revealed that they had low knowledge about PEP and perceived PEP positively and negatively and had concerns.

KEY CONCEPTS

Knowledge, perceptions, Kota Community, post exposure prophylaxis for HIV

DEDICATION

I dedicate this study to God for giving me the strength and ability to complete my study, to my parents for their love, support and encouragement and to Kota community.

Concepts

Knowledge: having knowledge about PEP, location of PEP services that are offered, PEP protocol (UNAIDS 2009)

Perception: judgment by means of the senses or of the mind, cognition and understanding.

Kota community: people have been Kota residents for at least two years.

Geographical accessibility: This is the distance walked to health facilities and transport used to access them.

Attitudes of health care providers: discrimination that involves having negative feelings against patients or clients seeking healthcare services.

Waiting time for services: How long it takes for people requiring PEP to get services.

Stigmatization: A process of devaluation of people, either living with or associated with HIV by apportioning blame for their circumstances. It also refers to feelings of disapproval that have about particular illness or ways of behaving (ANC 2009).

INTRODUCTION

Post Exposure prophylaxis (PEP) is an antiretroviral treatment taken or given as soon as possible after exposure to HIV so that the exposure will not result in HIV infection. According to Cardo (1997) it is a short term antiretroviral treatment to reduce the likelihood of HIV infection after potential exposure either occupationally or through sexual intercourse.

The services include first aid; counseling including the assessment of risk exposure to the infection; HIV testing; depending on the outcome of the exposure assessment; a prescription for 28-day course of ARVs with appropriate support and follow up (GOL: 2010).

Time is the most important factor for initiation of PEP. (Hoffman: 2007, 699). Amos s.et al (2008) states that it should be started as soon as possible, ideally within one hour after exposure, but not later than 72 hours post exposure. According to UNAIDS (2009), the immediate use of ART is to prevent sero conversion after exposure to potentially HIV infected blood or body fluids. It should begin as soon as possible after exposure to HIV but within 72 hours. The treatment with 2-3 ARV drugs should continue for 4 weeks.

According to Hoffman (2007:695), transmission can occur when HIV-containing material enters the body by

- Accidental needle stick or incision by surgical instruments
- Exposure of damaged skin or mucosal membranes
- Unprotected sexual intercourse with an infected person
- IDU sharing needle or equipment
- Transfusion of HIV-contaminated blood or blood products

Table1. Recommendations of PEP and regimen as from WHO guidelines (2013)

Exposure	HIV status of source patient			Frequency and Duration
	Unknown	Positive	High risk	
Intact skin	No PEP	No PEP	No PEP	All this are taken 12hourly for 28 days
Mucosal/non intact skin	Consider 2-drug regimen (zidovudine 300mg +lamivudine 150mg)	Recommended 2-drug regimen(zidovudine 300mg +lamivudine 150mg)	Recommended 2-drug regimen(zidovudine 300mg +lamivudine 150mg)	
Percutaneous (sharps)	Recommended 2-drug regimen(zidovudine 300mg +lamivudine 150mg)	Recommended 2-drug regimen(zidovudine 300mg +lamivudine 150mg)	Recommended 3-drug regimen(zidovudine 300mg +lamivudine 150mg +lopinavir 400mg/ritonavir 100mg)	
Percutaneous (needlein vessel or deep injury)	Recommended 2-drug regimen (zidovudine 300mg +lamivudine 150mg)	Recommended 3-drug regimen(zidovudine 300mg +lamivudine 150mg +lopinavir 400mg/ritonavir 100mg)	Recommended 3-drug regimen(zidovudine 300mg +lamivudine 150mg +lopinavir 400mg/ritonavir 100mg)	

BACKGROUND INFORMATION

Human Immune Virus (HIV) and Acquired Immune deficiency Syndrome (AIDS) has become a major health problems worldwide. According to UNAIDS (2012), there are about thirty-five million people living with HIV. Since the start of the epidemic, about 75% have become infected with HIV and two hundred and sixty thousand children became newly infected. More women are infected and dying than men worldwide. In sub-Saharan Africa, a slight decline in the estimated number of new infections was recorded for the first time in 2000. The decline continued in 2001 with an estimated three million and four hundred thousands new infections and more women are affected than men. (Jackson, 2002:9)

Lesotho is not an exception of the increasing HIV infection. Lesotho is part of the Southern Africa region; it is landlocked by the Republic of South Africa .The population of Lesotho is currently estimated at 2,067,000 and the population distribution is 25% urban and 75% rural. An estimated annual increase is 3.5%.About two thirds of Lesotho consists of highland and rest constitutes foothills and lowlands. Its economy is mainly based on Lesotho Water Highlands Project, Kao and Lets'eng diamond mines, mineworker from RSA, agricultural products, and salary taxes which are) spent on tertiary education and health benefits like free provision of Antiretroviral Therapy. Lesotho is said to hold the highest literacy rate in Africa. it is estimated that 85% of the population 15 and over is literate.

According USAIDS (2006/07), It is the third country in the world that its citizens are dying of HIV/ AIDS with a prevalence estimated at 23%. People who are at risk of getting exposed include children, girls, Women, youth and people already infected with HIV. (Kimaryo et al. ,2004) state that HIV/AIDS is concentrated in the urban areas but the prevalence is high across the country, they continue to state that women between ages 15-29 years old are particularly affected as they constitute almost 75 % of all reported aids cases in this group.

This situation of HIV exposure and infection makes the use PEP for HIV very important. This approach is estimated to reduce the risk by eighty percent (Jackson, 2002:173). Time is the most important factor for initiation of PEP... Initiating PEP after more than 72 hours following exposure does not seem reasonable (Hoffmann et al., 2007:699)

Initiatives have been taken by the government of Lesotho (GOL) through the ministry of health (MOH) to prevent HIV exposures and infections. According Khobotlo M.et al. (2009), there are a number of approved guidelines relevant to prevention of HIV, PEP included. Control strategy, and PEP registers and kits have been distributed and PEP-related training has begun at district level. Lesotho AJR (2012/13) states that Lesotho conducted baseline assessment in 2012 with the aim of describing the status of PEP implementation in health facilities and to identify the determinants of the current status of PEP implementation in health facilities.

PROBLEM STATEMENT

The continuing HIV exposure and infection is one of the major problems that Lesotho faces. According to Lesotho AJR, (2012/13: 2) drastic measures are still required to cause interruption of the new infections. It continues to state that PEP is provided in about 90% of the health facilities in Lesotho and among these facilities, 79% of health facilities do not provide PEP as an emergency to community members. None of the private Health centers was providing PEP services.

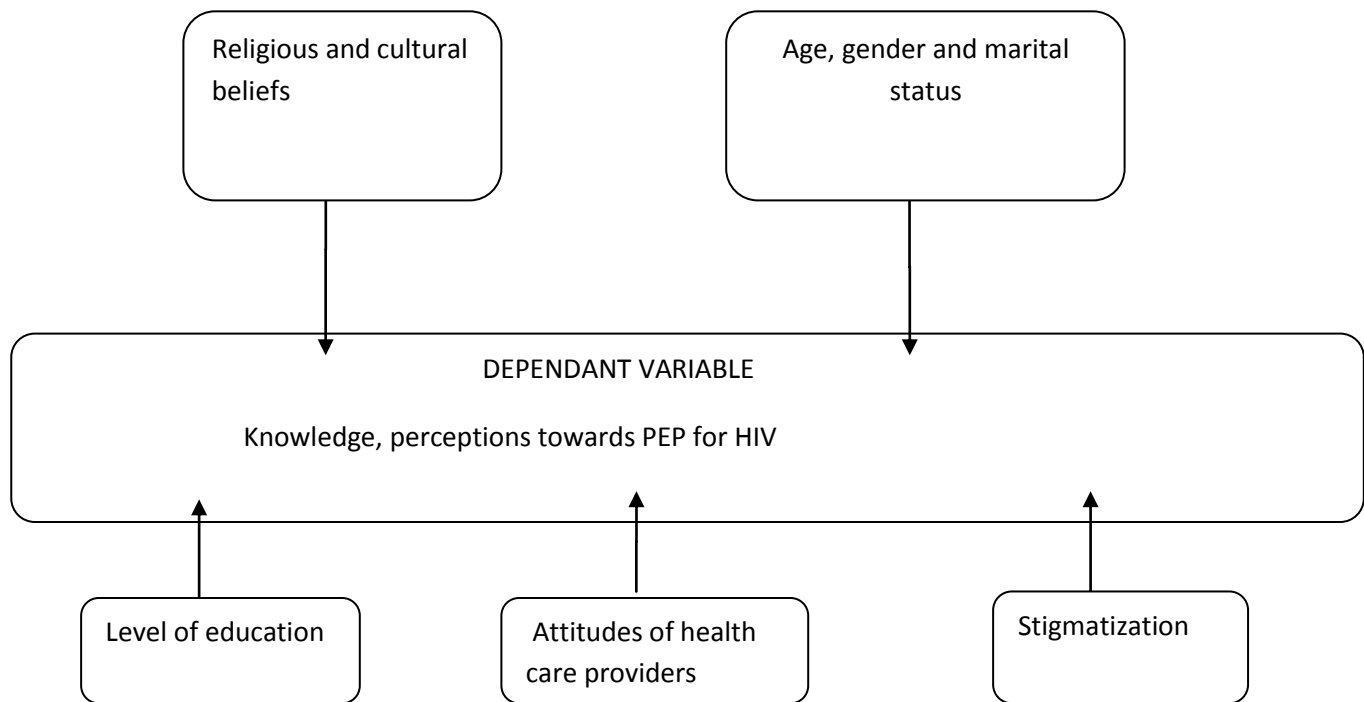
There are reasons why some facilities do not provide PEP as an emergency to community members. Lack of PEP awareness from the provider (18%); confidentiality and privacy issues (1%); skilled PEP provider not available 24 hours (18%); no 24 hours accessibility to PEP kits (38%) and others (25%) that included lack of drugs and late reporting of victims to the health facilities, patients without police forms among others.(Lesotho AJR,2012/13)

Despite the fact that emphasis is given by the ministry of health to provide PEP over the country, the number of new HIV infections is still increasing. The question is why are there still increasing HIV infections? The number of people on ART increased tremendously, however, because of the increase in the new infections and loss to follow-up the coverage seems to have stalled (Lesotho AJR, 2012/13: 2).

Knowledge and perceptions need to be investigated to evaluate the reasons for emerging infections. This study therefore aims at assessing the current status of knowledge and perceptions towards PEP in Kota community.

PROBLEM ANALYSIS

INDEPENDANT VARIABLES



INDEPENDANT VARIABLES

SIGNIFICANCE OF THE STUDY

Assessment of knowledge will inform initiatives towards strengthening prevention of HIV transmission and will also encourage the need for health care providers to increase awareness on PEP. The assessment perceptions will help in evaluating the need for education on PEP and to promote understanding of the importance of PEP. After assessing the status of knowledge and perceptions, the information is going to be disseminated through health education in Kota villages. This will reduce spreading of HIV and therefore reduce HIV and AIDS prevalence and the costs that the country bears in HIV treatment. Mortality due to HIV and AIDS will also decrease if people have access to PEP and use it profitably.

AIM

To assess knowledge and Perceptions of Kota community towards post exposure prophylaxis for HIV.

OBJECTIVES

To assess the level of knowledge of PEP in Kota community

To identify factors associated with knowledge of PEP in Kota community.

To assess the perceptions of Kota community towards PEP

To identify effects of PEP on behaviour

RESEARCH QUESTIONS

Do Kota community members know what PEP is?

What are the factors associated with knowledge of PEP in Kota community?

What are perceptions about PEP in Kota community?

Does provision of PEP to non-occupants affect the community's behavior?

VARIABLES

People's knowledge, perceptions depend on certain variables and they are stated as follows:

Dependent variable

- Knowledge of PEP
- Perceptions towards PEP

Independent variables

- age

- gender
- marital status
- educational level
- religion and cultural backgrounds
- Stigmatization

LITERATURE REVIEW

The literature focuses on HIV PEP knowledge and perceptions. Sources include books, articles, and policy papers. This involves search through library books and perhaps online journals and has several purposes (McNeill P. and S. Chapman: 2005, 31). According to Streubert J.H. and Carpenter D.R.(1995), Part of the review includes identifying the problems connected to the topic, for example, the ambiguities that have risen overtime in defining and evaluating critical thinking.

While there are a lot of studies done on occupational PEP, there are several authors who wrote on aspects of knowledge and perceptions of HIV PEP.

KNOWLEDGE OF PEP

In Lesotho, PEP services are available and they are issued to the community. This shows people's awareness of PEP. According to NAC (2011), Lesotho blood testing services work on the prevention of HIV infection through medical transmission through its blood safety programme. Other prevention efforts with respect to medical transmission include the roll out of PEP in facilities where there is the potential for exposure through occupational hazard and sexual assault.

According to Peacock et al. (2008), In South Africa, despite the alarming high levels of rape and HIV/AIDS, PEP is not available to many rape survivors...this has a serious implication that many women have a limited access to hospitals and given the rapid reaction time that is required for PEP to be effective. A report by the National Working Group on Sexual Offences found that staff at many health centers refused to provide medical treatment in the form of ARV drugs taken as PEP for HIV infection if rape had not been reported at a police station.

In some countries, people have fairly high knowledge of HIV/AIDS but still have little knowledge on PEP. According to UNAIDS (2007), in a study done in Georgia, a self-reported knowledge of HIV/AIDS was fairly high though there was a reported need for learning more about treatment, PEP and issues related to People living with HIV. In a study done in Ecuador, 80% of respondents reported that they did not have a good knowledge about HIV treatment such as PEP treatment, ARV drugs and treatment for opportunistic infections (UNAIDS, 2007:33).

Even among gay men, studies have been done. In a study done in California among gay men in San Francisco in 1998 and 1999 (before and after outreach campaign to recruit for a study of PEP) reported that, although general knowledge of PEP might be associated with increased rates of unprotected anal intercourse among HIV-positive

(but not HIV-negative or untested) men, those men who actually knew that PEP was available in their community did not report higher risk behavior, regardless of HIV status(HIV insite knowledge,2004).

Knowledge of PEP is still somehow a problem even in health care providers, learners included. In a study done among student nurses in Ndola Zambia, it revealed that 28% Of respondents had low levels about HIV PEP, protocol and 87.5% of the respondents did not know where PEP services were offered. (Lungu M.M. Year of study not known.)

According to, Bandy U et al., (.2008) the Rhodes Island Department of health became concerned that PEP provision is not optimal and needs improvement. It is said it is possible that at-risk people in Rhodes Island have not received HIV PEP because of lack of formal guidelines on HIV PEP and insufficient health practitioner knowledge of PEP.

According to UNAIDS (2007),in a study done in Ecuador ,among the participants, those who chose to answer optional questions on testing ,53% said they feared being tested because of the negative judgment of other and 4% feared that testing information would not be confidential .This is associated with perceptions towards PEP because HTC is part of PEP services.

In Lesotho, even though there is no study done on knowledge and perceptions towards PEP, It is provided in the country and there are guide lines regarding PEP. According to Lesotho AJR, (2012/13: 2) drastic measures are still required to cause interruption of the new infections. It continues to state that PEP is provided in about 90% of the health facilities in Lesotho and among these facilities, 79% of health facilities do not provide PEP as an emergency to community members. None of the private Health centers was providing PEP services.

There are reasons why some facilities do not provide PEP as an emergency to community members. Lack of PEP awareness from the provider (18%); confidentiality and privacy issues (1%); skilled PEP provider not available 24 hours (18%); no 24 hours accessibility to PEP kits (38%) and others (25%) that included lack of drugs and late reporting of victims to the health facilities, patients without police forms among others.(Lesotho AJR,2012/13)

In conclusion, it is evident that the level of knowledge is high among health worker and low among non-health care providers. Many studies have been done among different groups of different health workers including student nurses but fewer studies on the community.

RESEARCH METHODOOGY

This chapter describes the research methodology comprising the study design, study setting, study population, sample selection, data collection instruments, data collection techniques, ethical consideration, pre-testing, dissemination and utilization of results and limitation of the study.

RESEARCH METHOD

The research method was qualitative. A qualitative study involves the identification and exploration of a number of often mutually related variables that gives insight in human behavior (motivations, opinions, attitudes), in the

nature and causes of certain problems and in consequences of the problems for those affected (Varkevisser et al.2003:150).

STUDY DESIGN

A descriptive study was used. It investigates and describes knowledge and perceptions towards PEP in Kota community. According to Varkevisser et al. (2003:123), descriptive study involves describing the characteristics of a particular situation, event or case. Mcneill and Chapman (2005) state a descriptive study aims only to describe a situation or asset of circumstances in detail. It aims to answer questions like “how many?” and “who?” And “what is happening?”

STUDY AREA AND POPULATION

The study area is Kota. It is a rural area located in the Leribe district. It is about 32km from Botha-Bothe town. The nearest health centers are St. Denis and Khaboheath centers. Secondary health services for Kota community are provided by Botha-Bothe Hospital. The study was conducted on Kota community members of 15-65 of age both males and females.

SAMPLING

Sampling is a process of selecting a portion of a population to represent the entire population so that generalisation about the population can be made (Polit and Beck, 2008). A non-probability purposive sampling was used.

The sample size was based on the basis of theoretical saturation, this it the point in data collection when new data no longer bring additional insights to research questions.

PARTICIPANT’S IDENTIFICATION AND ENROLMENT

All participants who had the characteristics of the population of this study were registered formally after obtaining their informed concern. They were numbered for easy identification.

VALIDITY

Validity is the degree to which a test or an instrument measures what it is supposed to measure (Polit& Hungler1997). According to Burns and Grove (2005), validity has to do with truth, strength and value. When an instrument is valid, it truly reflects the concept it is supposed to measure. The interview guide was developed based on the objectives and literature review of the study.

RELIABILITY

Reliability is the extent to which the instrument consistently provides the same

results (Cliford, Carnwell& Harkin 1997).For reliability of the interview guide of the study, it was submitted in the Ministry of Health and changes were made where necessary. They were corrected by the supervisor before.

DATA COLLECTION

Data collection refers to gathering information necessary to deal with and answer the research problem. Any information that is gathered must be relevant to the research problem (Langford 2001:315).

Data was collected through open and closed ended questions in a one-to one interview. An interview guide was written in English and in Sesotho. It had three parts; part I had demographic information, part II knowledge and part III perceptions items .A tape-recorder was used during an interview to record the conversation. According to Varkevisser et al. (2003:149) an interview is suitable for both literates and illiterates and permits clarification of questions but the presence of the interviewer can influence responses.

Probing was used to gain more details of the respondents' responses for further clarity. Probing is the technique used by interviewers to elicit more useful information from the initial reply (Polit&Hungler 1997:259). Open-ended questions allowed the respondents to answer in their own words. The tape recorded responses were transcribed verbatim after each interview session for the purpose of analysis. The researcher kept the transcripts all the time to ensure that no one had access to them.

ETHICAL CONSIDERATIONS

Permission to conduct a study was obtained from the Ethics Committees of the National University of Lesotho (department of nursing) and the Ministry of Health and the headman of Kota. Participants were informed about the purpose of the study and they were told that there will be no material benefits made for their participation. Participation was voluntary and participants told to withdraw anytime they feel the need to.Respondents signed consent forms as an agreement to participate.

Anonymity and confidentiality were maintained to the respondents (no names or addresses were attached to their information).Records and data were kept under lock and key to ensure that they were out of reach of unauthorized personnel.

DATA ANALYSIS

This chapter presents qualitative data from the interview. It further describes the processing and analysis of data. Data analysis is defined as the systematic organization and synthesis of research data and testing of the research hypothesis using those data (Polit&Hungler 2001). Data were collected using interview guides. A total 11 respondents participated in the interview.

At the end of each interview, the recorder read. This was done to check the information for accuracy and consistency. Using participants' own words, the key statements, ideas and attitudes expressed for each topic were

categorized. The researcher read through all the data to obtain a general sense of the information and to reflect on its overall meaning.

Table 2. demographic characteristics of the respondents

All participants have been Kota community members for more than two years. They are males and females of age 16-60. They are from four villages. They have varying marital statuses, levels of education and religions. They are all Basotho.

Respondent	Age	Sex	Marital status	Level of education	Religion
1	16	female	Single	PSLE	L.E.C.
2	24	female	Married	COSC	R.C.C.
3	23	male	Single	COSC	R.C.C.
4	19	female	Single	JC	12 th Apostolic church
5	23	male	Single	COSC	A.C.L.
6	61	female	widowed	none	JesuKeKarabo
7	22	female	Single	COSC	JesukeKarabo
8	45	female	widowed	Diploma	R.C.C.
9	29	male	Single	none	None
10	23	male	Single	Degree	Seventh Day Adventist Church
11	60	male	Married	none	none

The table shows that 55% of respondents were females and 45% were males, 64% were married, 18% were widowed and 18% were married. It also showed that 36% have COSC, 27% have not attended school, 9% have a degree, 9% JC, and 9% have diploma.

The main themes determined during the interview were;

1. Knowledge of PEP
 - Indications
 - Contraindications
 - Initiation and duration of consumption
2. Negative perceptions of PEP
 - Negative effects on behavior
 - Increases the HIV infections
3. Positive perceptions
 - Increases HTC rates
 - Reduces HIV infections
4. Suggestions for improvement in PEP knowledge.

KNOWLEDGE OF PEP

They were asked what they know about PEP.

Majority (64%) stated that they did not know what PEP is, they have never heard of it before. Only four who (36%) have COSC and above as a level of education reported that it a treatment given after exposure to HIV. They have had of PEP before. One of the respondents said, ***“they are pills given to people who are exposed to blood and other body fluids accidentally, mostly rape victims”***

The respondents who reported to have heard of PEP before were asked questions to assess if they have got full correct information about PEP.

They were asked the indications of PEP. One respondent said, “When the source person, I mean the owner of the blood or the bodily fluids is HIV positive. And only if the affected person is found HIV negative after testing because giving PEP to a HIV positive person is a waste. It is given after testing for HIV.” The other (25%) reported to be uncertain of the indications.

They were also asked about the contraindications of PEP and they all did not know when it is contraindicated.

Last on knowledge assessment, the four respondents were asked when PEP is initiation and how long it is taken. Three said it is given within 72 hours of exposure and one said after six hours. Only one knew about it duration of consumption. She said it is taken for 28 days. Two were not sure of the duration and one said it is taken for a month (31 days)

PERCEPTIONS TOWARDS PEP

Streubert and Carpenter (1995:3) describe perception as “a way of observing and processing what is present to the self”. They were asked if they think PEP is important. Majority (91%) reported that it is important and some wished all people knew about it. Some of PEP importance reported include reduction of new HIV infections that leads to meaning reduction of stigmatization. HIV infected people get discriminated even by healthcare workers. (UNSAID 2013:83), Stigma and discrimination persist within many health care facilities, with people living with HIV experiencing judgmental attitudes from providers and refusal of services. They also said it increase HTC rates and that it somehow boost the economy of the country because it is only used for 28 days rather than life time. Only one reported to be uncertain because he has just heard about it.”

EFFECTS OF PEP ON PEOPLE’S BEHAVIOR

They were asked to give their opinions on the saying that usage of PEP changes our behavior?

Majority (73%) showed that it has nothing to do with their behavior. They supported that by saying that it is taken as an emergency meaning it is not planned, and people do not tolerate pill burden so they cannot misuse PEP or misbehave at all. Twenty-seven per cent of the respondents said it affects people’s behavior in a negative way

because people are not going to protect or care for themselves because they know that they are covered. One respondent said, "Even though it helps, our children are going to be uncontrollable because they will think they have a cure for HIV."

AWRENESS OF HIV RISK FOLLOWING PEP USAGE

Respondents were asked what they think about PEP in reducing the likelihood of being HIV positive.

Majority (46%) showed that they think PEP usage will reduce the number of new infections. They thought that because it has been scientifically proofed. One even asked, "Just imagine if we did not have PEP? These rape and road accident victims would be all living with HIV."

Thirty-six per cent thought it is not going to help but instead increase the likelihood of getting HIV positive. One respondent said, "The usage of PEP by rape victims and road traffic accidents victims will reduce HIV infections. But as for people who go for PEP services just because they had sex, we are going nowhere with HIV reduction. They will engage in sex knowing that they will get covered by PEP and unfortunately PEP is not 100% safe." Others reported that people will be careless and expose themselves to HIV and due to negligence or certain factors they fail to get PEP in time. UNSAID (2013) also reports that due to societal blame or discrimination, people do not report incidents and thereby face the risk of being infected by HIV.

The rest (18%) were not sure because they have not seen people using it so they have not seen its effects.

SUGGESTIONS FOR IMPROVEMENT ON KNOWLEDGE

The participants were asked what they suggest should be done to improve knowledge of post exposure prophylaxis services among the community.

The participants felt that the Ministry of Health should facilitate the formation of active support groups from at least five villages in Kota. The support groups' members should be trained in HIV counseling and testing and should be able to refer victims to clinics. This will encourage counseling and support which is a very effective way of dealing HIV issues.

The participants also emphasized that PEP should be taught at school, on public gatherings and on media especially the radio because almost everybody in the community owns a radio. This will assist people to know what to do if an accidental exposure occurs. According to the 2007 Zambia DHS results compiled by CSO (2008), information obtained from the media and health facilities is considered most reliable as it is communicated by individuals who have received training in HIV.

Others further suggested that the hospital and clinic staff should change their attitude of castigating and blaming people who get exposed to blood and body fluids. This hinders people from inquiring about issues of HIV.

DISCUSSION

The main objective of the study was to assess knowledge and perceptions of Kota community towards post exposure prophylaxis for HIV. Data was collected using interview and respondents were guided with an interview guide.

KNOWLEDGE AND FACTORS ASSOCIATED TO KNOWLEDGE OF PEP

DEMOGRAPHIC CHARACTERISTICS OF THE SAMPLE ASSOCIATED WITH KNOWLEDGE.

Table shows demographic characteristics of the study population. Among 11 respondents who were interviewed, only four (36%) reported to have heard about PEP before and (64%) have never heard about it at all. This four who knew about PEP had COSC and above and reported to have heard about it at school. 75% of those who knew about PEP were within the age range of 15-30 this could mean Knowledge of HIV is high within this age range. Among this four who knew PEP, two were females and two were males so gender, religion and marital status were seen to have no influence on knowledge of PEP.

KNOWLEDGE OF PEP

Majority (64%) of the respondents had no information about PEP. They reported to have not heard of it before. 36% of respondents reported to have some information and 75% them reported that source of information was obtained while at school. This could mean that school plays a role in increasing knowledge on HIV issues.

Most of them knew that it is given after exposure to HIV even though two of them took the exposure to be from rape only. Only one of the respondents knew the correct meaning of PEP.

Although few of the respondents had heard about post exposure prophylaxis and knew that it is given after exposure, they did not know when they should report at the clinic in case of exposure and how it is taken. Three of them knew about the initiation and only 1 knew about the duration of PEP consumption All in all only 9% of the population knew what PEP is. The person who knew about PEP had once attended the PEP workshop .This could mean that if it was not of the workshop none of the respondents would have correct knowledge of PEP.

This means Knowledge of PEP is low in Kota. There is still a lot to be done to increase the knowledge on PEP. Qualitative interviews with sexual assault survivors also suggests that more time should be taken during nPEP patient education to discuss side effect profiles as well as the importance of taking the entire course of medications (Vetten&Haffejee, 2005).This can help because they can disseminate information to other people.

PERCEPTIONS TOWARDS PEP

The positive perception was almost similar across the community. For example, 91% reported to find PEP important. Other indicators of positive perceptions include high proportion who reported that it is decreasing new infections and stigmatization and increasing HTC rates because people get to test during PEP services.

This means even though they did not know about it before, they have no problem using or with people using it. Now that they know about PEP, they are going to use it in case of exposure. This is supported by one of the respondents who said, *"It is important because people do not get positive. Nobody wants to get HIV positive. Now that I know about PEP, I am going to help those who are exposed."*

Study also revealed that only one respondent was uncertain about its importance because he just heard about it that day so he really could not say.

EFFECTS OF PEP ON BEHAVIOUR

They were asked if PEP affects behaviour and if its usage among non-occupants will affect the likelihood of getting HIV positive. Majority (73%) thought it has nothing to do with behavioural changes. Some of their reasons being it is given as an emergency and people do not plan to use it. Those who thought it affects behaviour said people are going to live the risky life of exposing themselves to HIV knowing they are covered.

Majority thought it is going to reduce the likelihood of getting positive. But some thought it is going to increase the likelihood of HIV infection because they will get exposed to HIV but because of some reasons fail or delay to report at the PEP services. One also supported by saying PEP is not hundred per cent save.

LIMITATIONS

The following are the limitations of the study;

- The sample comprised of respondents from only four villages and this makes it difficult to generalize the findings to the entire community.
- There is an inadequate literature on Post Exposure Prophylaxis in Lesotho.
- The researcher is also a Kota community member so this may have influenced the answers.

CONCLUSION

The study was carried out to assess knowledge and perceptions towards post exposure prophylaxis in Kota. It had limitations like any other study.

The study revealed that there was a low level of knowledge on post exposure prophylaxis. The results show that only thirty-six out of hundred people have heard about PEP before but only nine out of hundred know and understand PEP. Factors associated with the knowledge of PEP in Kota are the level of education and age. Knowledge of PEP seemed to be better on age range 15-30 and on people with COSC and above as a level of education.

After PEP was explained to the respondents, the attitude towards PEP was found to be positive. Majority of respondents reported that PEP is important and helping. Even though the majority reported that it has nothing to do with people's behavior, some said it has negative impact on behavior and it is likely to increase HIV infections. This shows that there is need for strong emphasis on the educational strategies of HIV prevention as it might be of help in increasing HIV and AIDS awareness and lead to knowledge and utilization of PEP.

The findings from this study may not be applicable to all Kota community members however; insight is provided on the dynamics of HIV infection and prevention strategies among this population accessed through the collection of information on knowledge and perceptions. The study can provide information that can guide public health practice.

Lastly, this study contributes greatly to the little information that exists in Kota and acceptance of post-exposure prophylaxis.

RECOMMENDATIONS

The following are recommendations for increasing knowledge and positive perceptions towards post exposure prophylaxis

- Health education on PEP should be given to patients during hospital services.
- Community nurses should call community meetings and teach about PEP.
- The Ministry of Health should formulate PEP programs on media
- The Ministry of Education should encourage that HIV education appears in the school curriculums.
- The ministry of Health should facilitate the formation of village committees that will offer counseling and testing to fellow community members

RECOMMENDATIONS FOR FURTHER RESEARCH

- There is a need for the study to be duplicated in other geographical areas to enable generalization of the results.
- A similar study should be done among qualified health care workers so as to identify awareness of PEP and plan intervention that will promote knowledge and utilization of PEP services.

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Extent of Tinnitus in Elderly in Malibamatso

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Abstract

Tinnitus is a nonspecific symptom generally referred to as largely unknown dysfunction of the hearing system. It may manifest as buzzing, hissing, whistling, crickets, bells, roaring, clicking, pulsating, humming or swishing sounds. The aim of the present thesis was to find out about the extent of tinnitus in elderly. Questionnaire was used to collect data from 100 respondents who qualified for inclusion criteria. Quality of life was found to be affected by tinnitus suffering and sleep disturbance, attention span disturbance and stress relating to tinnitus; were among factors which were used to quantify the affection of quality life and they had significant effects. The study provides information on risk factors of tinnitus.

Definition of concepts

Disabling hearing loss: refers to hearing loss which is associated with degeneration and other related factors

Tinnitus: Tinnitus is the perception of a sound that cannot be attributed to an external source

Elderly: A person over the age of 65.

Old age: It means reduced physical ability, declining mental ability, the gradual giving up of role playing in socio-economic activities and independence to dependence upon others support.

Extent: the degree to which something has spread either by scale or seriousness

1.1 Introduction

Tinnitus is the perception of a sound that cannot be attributed to an external source. It is a nonspecific symptom generally referred to as largely unknown dysfunction of the hearing system. (Borghi, Cosentino, Rinaldi, Brandolini, Rimond, Veronesi, Cicero, Dormi: 2011).

Tinnitus, or ringing in the ears, may also manifest as buzzing, hissing, whistling, crickets, bells, roaring, clicking, pulsating, humming or swishing sounds. (Ebersole, Hess, Luggen: 2004:362). A comprehensive definition has been proposed to differentiate normal ear noises from pathological tinnitus defined as a head noise lasting at least five minutes and that occurs more than once per week. A distinction is also made between subjective and objective tinnitus. The former is more common and refers to an individual sound that is perceived only by the patient. Tinnitus affects a remarkable number of adults and is frequently associated with a hearing loss of various degrees as expression of a cochlear disorder. (Borghi et al. 2011)

There are many causes leading to tinnitus in elderly population. These include otology, metabolic, neurologic or cardiovascular conditions, more than one of which may be present in the same individual: Negrila-Mezei: 2011. Tinnitus is sometimes the first sign of hearing loss in the elderly (Evid: 2009). In some cases it may become so severe that one finds it difficult to hear, concentrate, or even sleep.

N.coni et al 2003 states that treatment of tinnitus includes hearing aids if it is associated with hearing loss, avoidance of stress and tiredness as these aggravate the symptoms

1.2 BACKGROUND INFORMATION

Lesotho is a landlocked country and enclave mountaineer's country completely surrounded by the neighboring country the Republic of South Africa. It is over 300,000km² in size and it is a third world country whose population approximately is 1930493. People aged 0-4 constituting 33.5%, 15-64 being 61.1% 65 years and over constituting 5.4 % (103009) of the total population. Its capital and largest city is Maseru. The population distribution of Lesotho is 25% urban and 75% rural. (LDP: 2011)

Lesotho is geographically surrounded by Republic of South Africa (RSA) and economically integrated with it as well. The economy of Lesotho is based on agriculture, livestock, manufacturing and mining. The majority of households subsist on farming. The formal sector employment consist of mainly the female workers in the apparel sector, the male migrant labor, primarily migrant labor in the mines in RSA for 3-9 months and employment in the Government of Lesotho (GOL).(Magubane: 2013)

The large numbers of Basotho leave the mountain kingdom for RSA to work in sectors such as mining. It is estimated that in 2012 there about 44,000 Basotho miners working in RSA and this made them 10% of total RSA mining workforce. (Magubane: 2013). Looking at occupational noise exposure and its association with increased odds of frequent tinnitus, it is crucial to undertake this study in Lesotho.

Among the numerous related risks of tinnitus are also orthopedic problems. In Lesotho, as part of the cultural practices for Basotho, men usually play with sticks and others may sustain head injuries. In a study conducted in Lesotho to quantify the importance of trauma and death due to interpersonal violence in the rural Lesotho, it was found that the male to female sex ratio amongst the 506 identified victims was 7:1.the assailants were males in 59% of these events, only 26% of the consulting women suffered at the hands of their partners. And over 55% of injuries inflicted by men were caused by beating with tradition sticks.(Geldermalen V; 1993)

The study is about the determination of extent of the problem and the challenges faced by the elderly due to tinnitus. Although there is no specific study done in Lesotho about tinnitus in elderly, (WHO :2012) indicates that the prevalence of disabling hearing loss in adults aged 65 years or more in sub-Saharan Africa, south Asia, and Asia pacific. Botswana, Lesotho, Namibia, South Africa, Swaziland and Zimbabwe were South African countries selected for this study. The prevalence was around 44% as estimated in prevalence of DHL for adults 65 years or older (per 1000 population)

1.3 STATEMENT OF THE PROBLEM

Tinnitus affects people in different ways. For some it is a minor irritant which is tolerated fairly easily, while for others, the nature of the problem can cause such severe distress that can lead to suicide. It is for this reason that the complaint of tinnitus should never be taken lightly. Up to 18% of the general populations is mildly affected by

chronic tinnitus, and 0.5% report tinnitus having a severe effect on their ability to lead a normal life. (Laryngol: 1984:7-15).Tinnitus is therefore disabling condition as one could not lead a normal life.

The complaint of tinnitus in older adults has received some interest from researchers, but much less is known regarding the effects of tinnitus rehabilitation in this group. It is not easy to draw any firm conclusions from the research that has been conducted so far (Andersson, Porsaeus, Wiklund, Kaldo, and Larsen: 2005.671-675).There is no published material indicating if there has been any study of tinnitus in Lesotho.

Significance of the study

The study will create awareness and help to inform the policy makers about the challenges the elderly are facing and stimulation of further research.

In this chapter, the researcher will review the studies that have been conducted on tinnitus, incidences among people living in developed and developing countries including Saharan Africa. The review will focus on the related causes of tinnitus.

Some researchers stated that although there are difficulties in performing extremely thorough scientific research into tinnitus, their knowledge about the condition is slowly but definitely improving.(McFerran, and Phillips 2007: 201–208). It was also found that disability resulting from tinnitus did not increase with age. However, in their population based study, Axelsson and Ringdahl (1989) found that older women experienced tinnitus more than younger women, and that tinnitus annoyance increases with age.

In a study into the epidemiology of tinnitus which was carried in UK in 2002, the study discovered that the prevalence of persistent spontaneous tinnitus in the adult population was 10.1 %, defining persistent spontaneous tinnitus as tinnitus that arose spontaneously, not as response to sound stimulus, and lasted for periods of five or more minutes at time. 5% described their tinnitus as moderately or severely annoying and 0.5% reported that it had a severe effect on their ability to lead a normal life, and it was noticed that studies in other countries produced broadly similar figures.

Studies display that tinnitus prevalence seems similar in men and women though there are some differences in the way that the sexes perceive the symptom: women are more likely than men to perceive their tinnitus as a complex sound. Presence of a hearing loss increases the likelihood of an individual experiencing tinnitus and, in particular, a high frequency hearing deficit is a good predictor of tinnitus. Previous noise exposure is also a good predictor; A prevalence of tinnitus of 7.5% in adults who gave a history of little or no noise exposure but 20.7 % in those with high exposure. Approximately 40 % of patients who present with tinnitus also complain of hyperacusis. Of those whose primary complaint is hyperacusis, up to 86 % report tinnitus.(McFerran, and Phillips 2007: 201–208)

As part of a population-based study of hearing loss in adults aged 48 to 92 years at baseline in Beaver Dam, Wisconsin ,in America, self-reported data on tinnitus were obtained at the baseline examination (1993-1995; N = 3753) and again 5 years later (1998-2000; N = 2800). A person was classified as having tinnitus if their tinnitus was at least moderate in severity or caused difficulty in falling asleep. The prevalence of tinnitus at baseline was 8.2 percent. The 5-year incidence of tinnitus among the 2513 participants at risk was 5.7 percent. Risk factors for prevalent and incident tinnitus were evaluated. The results suggested that tinnitus is a common problem for older adults and was associated with some modifiable risk factors.(Nodahl, David and Cruickshanks 2012:323)

There has been a study conducted in Lesotho in 1998 to review health and safety practices and to determine the occupational health status of dam workers in the Lesotho Highlands .A health and safety audit and a health study of 258 workers were undertaken. The workers were administered respiratory health questionnaires and underwent chest x-rays and lung function and audiometric testing. A low level of awareness of health and safety issues at all levels of management and a lack of occupational medicine and industrial hygiene systems was revealed. Noise-

induced hearing loss occurred among 92% of the study subjects. Among the 158 dam construction workers, 5.4% had pneumoconiosis. With poorly developed laws and regulatory bodies, and little client supervision, health and safety had a low priority in this construction project. (Calvin, Dalvie, Myers, Macun and Sharp:1998)

Moreover, in spite of its public health significance, tinnitus among the elderly has received poor research attention in Sub-Saharan Africa where, with relatively poor access to health service, etiologically important medical conditions that would otherwise be readily treated could become chronic and increase vulnerability to tinnitus. In the study, the researchers focused on subjective tinnitus; in selecting risk factors to study, they speculated that the presence of chronic recurrent rhinosinusitis may lead to eustachian tube dysfunction, hence middle ear pressure dysregulation and tinnitus. In addition, chronic medical conditions predisposing to arteriosclerosis have been considered as correlates because when untreated or complicated, they might lead to hypoperfusion of the cochlear and dysregulation of inner ear fluid dynamics, which could then cause tinnitus. Furthermore, control of these risk factors may help in reducing tinnitus and improving quality of life, which would be a significant benefit to the majority of the elderly.

In a study which was carried out in Department of Otolaryngology, Massachusetts, the researchers made relations between several potential risk factors and self-reported tinnitus in participants in the 1999-2004. Approximately 50 million US adults reported having any tinnitus, and 16 million US adults reported having frequent tinnitus in the past year. The prevalence of frequent tinnitus increased with increasing age, peaking at 14.3% between 60 and 69 years of age. Hypertension and former smoking were associated with an increase in odds of frequent tinnitus. Loud leisure-time, firearm, and occupational noise exposure also were associated with increased odds of frequent tinnitus. This suggests that there appears to be strong evidence that noise pollution really is destructor. The prevalence of tinnitus being highest among older adults, non-Hispanic whites, former smokers, and adults with hypertension, hearing impairment, loud noise exposure, or generalized anxiety.

Findings thus far suggest that tinnitus is common to people who sustained head injuries sometime in their life. The document reads "Tinnitus is common among elderly Nigerians and associated with treatable health conditions like otitis media, rhinosinusitis, head injury..."

Up to 18% of people in industrialized societies are mildly affected by chronic tinnitus, and 0.5% report tinnitus having a severe effect on their daily life. If one lives in an urban area, then chances expose self daily to dangerously high levels of noise pollution, described as anything above 55 decibels. Freeway and airport traffic noise, manufacturing plants, and overcrowded public spaces all amount to a lot of environmental noise. Even if people do not live in a dense population, the chances of suffering the ill effects of noise pollution are high. If they attend indoor events like musical plays, then they are at risk for developing tinnitus and hearing loss, along with a myriad of other symptoms linked with noise pollution (Laryngol, 1984:7-1)

2. AIM and OBJECTIVES

2.1 Aim

- To study the extend of tinnitus among the elderly population

2.2 Objectives

- To determine the degree of tinnitus in elderly
- To find out the risk factors of tinnitus
- To assess the effect of tinnitus on elderly on the quality of life

3.0 Methodology

Overview

The chapter focuses on research methodology which highlights the study design, study population and sample, sampling technique, inclusion and exclusion criteria, data collection tool, its validity and reliability, the data analysis and the ethical considerations that have to be taken into account when conducting the research.

3.1 Variables

Dependent variable

The extent of tinnitus: in this study the extent referred to the degree and level of tinnitus.

Independent variables

The independent variables included measures which are often accompanied by tinnitus complaint and demographic characteristics of elderly participating in the study. These included marital status, age, noise trauma, head injury and tinnitus severity.

4.1 RESEARCH DESIGN

The study utilized a quantitative descriptive cross –sectional design. (Hilla B, 2006:105).cross-sectional designs involve the collection of data at the point in time: the phenomena under study are captured during one period of data collection. The design is also used in time related purposes.(Polit D.2003:166).The purpose of the research was to study the extend of tinnitus in the elderly in Malibamatšo

4.2 POPULATION

Population is a complete set of person or objects that possess same common characteristics that is of interest to the researcher (Hilla Brink, Chista van der Walt and Gisela van Rensburg 2006: 123). Study population was the elderly. The target population was the population from which the sample was chosen and to which study findings

were generalized. The target population for the study consisted of all the elderly aged between 75 and 85 years who were collecting their monthly allowances at Malibamatšo.

Accessible population is the portion of the target population of which the researcher has access (Hilla B, 2006:123).

4.3 SAMPLE SIZE

Sample size is the number of people the researcher wants to obtain information from (H.Brink ,2006: 135). Assuming the population size of 2000, the margin of error of 0.5%,the confidence interval 95% and the response distribution of 50%,the estimated sample size for this study was 100 respondents.(<http://www.raosoft.com/samplesize.html>) .They were selected because the sample was representative of elderly.

4.5 SAMPLING METHOD

The convenient sampling technique was utilized in the study whereby the researcher selected elderly happened to be seen collecting allowances during time of the study.

5.0 PARTICIPANTS IDENTIFICATION AND ENROLLMENT

Inclusion criteria encompassed elderly who were aged between 75 and 85 who were healthy and living in Malibamatšo. Exclusion criteria included all the younger people, those elderly who were not leaving in mentioned areas; and those who refused to participate were excluded in the study. Elderly who were mentally unstable.

6.1 INSTRUMENT OR TOOL

Questionnaire

It is the method of gathering self report information from respondents through self administration of questions in a written form (Polit and Beck:2004;729).The study utilized the instrument developed by the researcher. The written questionnaires were administered by the researcher to allow provision of information and explanation where the need raised. The researcher asked questions and filled the answers on the questionnaire on behalf of the respondent. The questionnaire was written in both Sesotho and English.

6.1 PILOT STUDY

Pilot study is a small-scale conducted prior to the main study on a limited number of subjects from the population at the proposed study and to detect possible flaws in the data- collection. (Brink and Walt, 2012) .Pre-test was done on individuals who met the inclusion criteria, but who did not form the part of the sample. Pilot study was for testing the validity and reliability of the study.

Validity means that the chosen instrument is accurate and measures exactly what it is intended to measure (Hilla B. 2006:159). Reliability refers to the consistency and dependability of a research instrument to measure a variable

(Brink, 2006: 163). A pilot study was conducted to assess whether consistent results could be obtained. The results were compared to examine for the similarities and consistency in responses.

7.0 DATA MANAGEMENT AND ANALYSIS

DESCRIPTIVE STATISTICS

Descriptive statistics was used to represent the analysis of each variable. The frequency tables were used to analyze data to determine frequency distribution and measures of central tendency. The cross tabulations were used for analysis of data that requires the combination of information in two or more variables in order to describe the problem.

The collected data was aggregated and coded and entered in a computer to be electronically processed using the Statistical Package of Social Sciences (SPSS) version 16. The collected data was kept under lock and key in which only the researcher and the supervisor accessed.

8.0 ETHICAL CONSIDERATIONS

In order to ensure the rights of study participants are not violated, researchers have to adhere to strict ethical standards. (Burns & Grove 2005). The Principle of Beneficence considered that is, there was no harm done to the participants. There was no manipulation of individuals. Again the issue of confidentiality was maintained by not using the real names of participants but rather used the codes.

The "Principle of Respect for Persons" was considered, for they had the right to determine whether they wished to participate in a study or not. Informed consent was administered before questionnaire and not only did it involve providing adequate information to the study participant but also ensured that they comprehended to the information given. The participants in the study had the information given to them in their local language, including the purpose of the study. The participants were assured of their rights to agree or refuse to participate in the study without being prejudiced. The contact details of the researchers were also provided to them.

Before conducting the study, the research proposal was submitted together with necessary consent forms and questionnaires to the ethical committee for review and for them to grant permission. The researcher also requested for permission chief at Malibamatso. The consent explained the purpose of the study as well as a person who conducted the study.

There were no anticipated risks or harm done to the participants. All the subjects had equal chances of being selected except those who did not meet the inclusion criteria.

Data analysis and interpretation

The chapter focuses on presenting and interpreting results from data collected so as to find out if results from data collection actually answered the research question and whether specific objectives of the research were met.

The sample constituted a stratum, being Malibamatšo elderly people who were interviewed. Interpretation of data is based on mentioned stratum. The chapter is structured according to the specific objectives of the study. Interviewed males were 47 and 53 were females.

Data analysis

4.1. To find out the risk factors of tinnitus

In order to find out if the predefined factors which included age, noise trauma, and head injury are really factors of tinnitus, the elderly were interviewed. The frequency tables were run to see the respondents' answers. All interviewed people reported to have symptoms of tinnitus.

Table1: Ear infections

Frequency		Percent
yes	72	72.0
no	28	28.0

72% of respondents who had ear infections reported symptoms of tinnitus.

Following it's a pie chart showing the age of respondents in relation to symptoms of tinnitus. People between ages of 75-80 have a greater proportion of respondents who have tinnitus and a smaller percentage in older people.

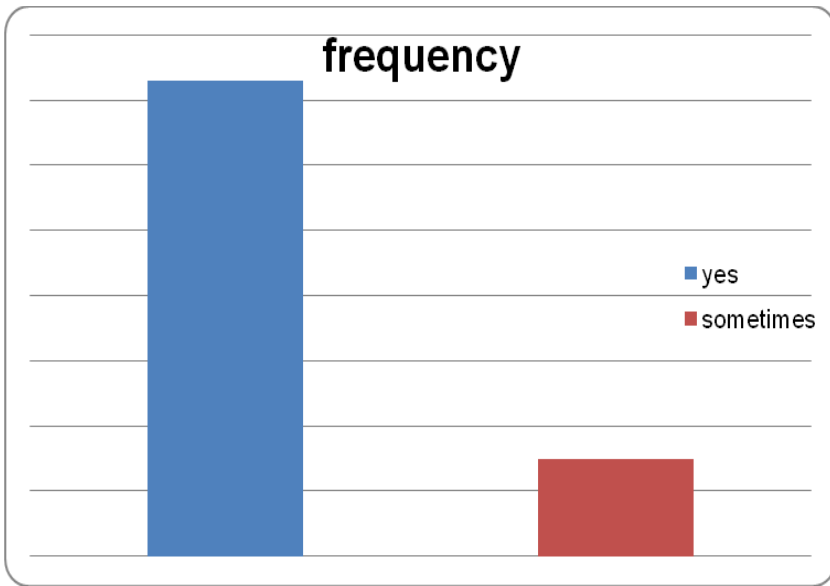


Fig1.1

Above are pie charts showing the age of respondents in relation to symptoms of tinnitus of people between ages of 75-80, 81-85 and a bar chart of respondents who suffered tinnitus between ages of 1-5, 6-10 and 11+.The comparison between the charts lies in where the charts have a greater proportion of many respondents who have tinnitus earlier and a smaller percentage in older people.

Gender of respondent			Noise Pollution exposure of respondent	
			Yes	No
female	Respondent has head injuries	yes	28	5
		no	17	3
male	Respondent has head injuries	yes	39	0
		no	6	1

The table presents gender in relation to noise pollution exposure and whether the respondents have sustained head injuries in life. Female respondents who were interviewed were 53 and males were 47.28(53. %) of females have both been exposed to noise pollution and had sustained head injuries, while there is 39(83%) of both had

EXTENT OF TINNITUS IN THE ELDERLY

head injuries and noise exposure.17 (32%) are females who were exposed to noise pollution but no head injuries.6 which is (13%) are males who do not have head injuries but have been to loud noises. Only one male (2%) and three females (6%) were never exposed to noise pollution and never had head injuries. Five (9%) of females had head trauma only

Table3

Respondent hypertensive * use of antihypertensive Cross tabulation

		Use of antihypertensive		Total
		Yes	No	
Respondent hypertensive	Yes	56	20	57
	No	0	23	43
Total		56	43	100

56 respondents had hypertension and on treatment while 20 reported to be hypertensive and not using antihypertensive. There were 23 elderly who were not hypertensive.

4.2. The effect of tinnitus on elderly on the quality of life

Table 4: Response with environment difficult * attention span Cross tabulation

		attention span			Total
		never	sometimes	yes	
response with environment difficult	never	1	0	0	1
	sometimes	0	8	7	15
	yes	4	31	49	84
Total		5	39	56	100

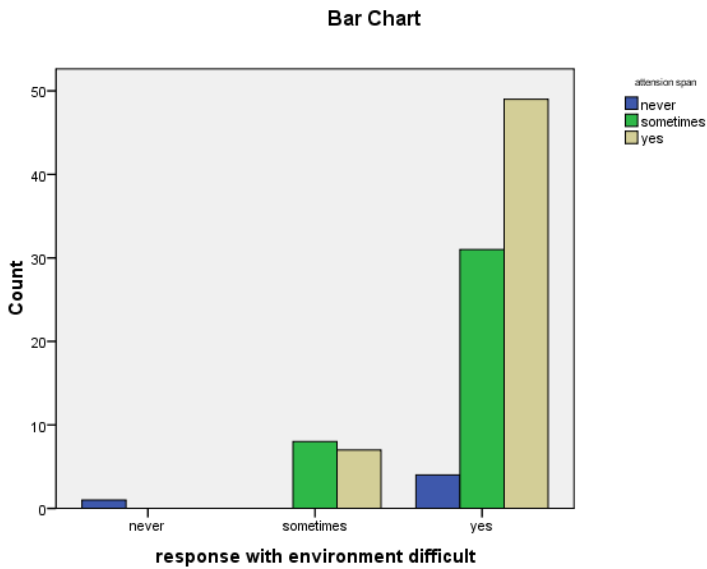


Fig1.2

Table 4 represents the Bar chart in fig1.2 respondent answered he/she never has difficulty with his environment or loses any concentration (attention span). 8 reported sometimes have difficulty in responding to environment and paying attention attentively. 7 answered they sometimes have difficulty responding to environment and total lose attention span. 31 said they always not respond well to their surroundings when their tinnitus is present and also that they sometimes lose attention. 49 respondents always have problems with their tinnitus. They lose attention and cannot get hold of the environment.

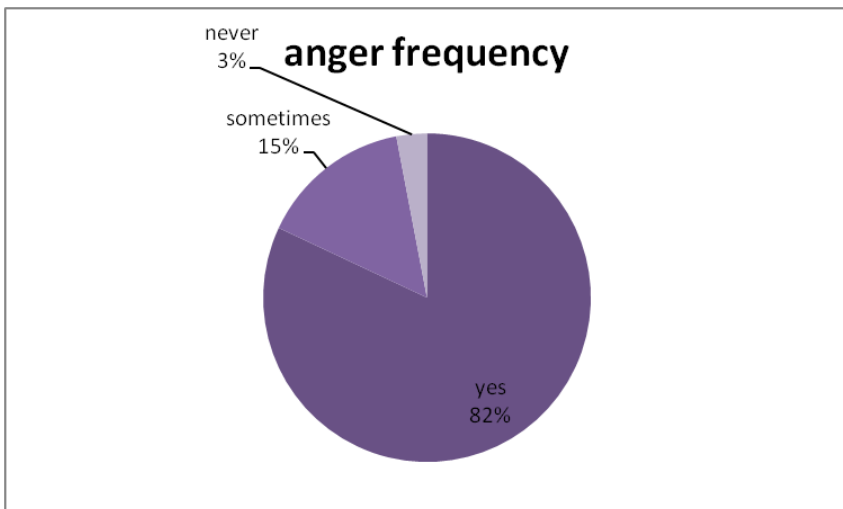


Fig1.3a

EXTENT OF TINNITUS IN THE ELDERLY

The pie chart in fig1.3a presents how tinnitus affects quality of life in the elderly. On the pie chart, 80% elderly reported to be always angry in relation to tinnitus, 17% reported to sometimes be angry while 3% never get angry in relation to their tinnitus. In addition, 45% reported to always have sleep disturbance, while 55% reported sleep disturbances that come and go. 73% reported to always being stressed by their tinnits, 15% have intermittent stress. And lastly, 12 % never any stress.

Table5: Family and friends supportive care

Frequency		Percent
sometimes	20	20.0
yes	80	80.0

To the left is a table of friends and family members on how supportive to an elderly who reported to have tinnitus, 20% respondents to sometimes have supportive care, while 80% answered their family members are so supportive

4.3 To determine the degree of tinnitus in elderly

Table6. Age of respondent * scaling of tinnitus by respondents Cross tabulation

Age of respondent		Scaling of tinnitus by respondents	
		moderate	Severe
	75-80	48(74%)	28(80%)
	81-85	17(26%)	7(20%)

Moderate tinnitus presented in 65 respondents, between the ages 75-80 and 81-85. 35 respondents reported severe tinnitus of which 80% of that was elderly aged between 75-80. The interviewed elderly of 81-85 and 75-80 were 24 and 76 respectively.

Table7: Marital status of respondent * scaling of tinnitus by respondents Cross tabulation

		Scaling of tinnitus by respondents	
		moderate	Severe
Marital status of respondent	married	33(67.3%)	16(32.7%)
	widowed	32(62.7%)	19(37.3%)

The widowed people have higher percentages of severe tinnitus.37.3% as compared to 32.7% of those whose partners are still alive. Married couples and widowed respondents have readings of 67.3% and 62.7% respectively; are moderate tinnitus readings.

Table 8: Gender of respondent * scaling of tinnitus by respondents Cross tabulation

		Scaling of tinnitus	
		Moderate	Severe
Gender	Female	35(64.8%)	19(35.2%)
	Male	30(65.2%)	16(34.8%)

Female have severe tinnitus with scores of 35.2% with scores exceeding those of males who have 34.2%.not a big difference. And males outweigh females on moderate tinnitus.65.2% and 64.8%.also not any outstanding difference

Table9.Years of suffering tinnitus * scaling of tinnitus by respondents Cross tabulation

Years of tinnitus	Scaling of tinnitus by respondents	
	Moderate	Severe
1-5	32(65.3%)	17(34.7%)
6-10	26(60.5%)	17(39.5%)
11-greater	7(87.5%)	1(12.5%)

EXTENT OF TINNITUS IN THE ELDERLY

The severity of tinnitus seems to be increasing between ages of 1-5 and 6-10 of suffering. Respondents who suffered tinnitus between these ages reported closely severe tinnitus with percentages of 34.7% and 39.5% respectively. Severity of tinnitus is increasing with increasing age of suffering.

Table10. Noise pollution exposure of respondent * scaling of tinnitus by respondents

		Scaling of tinnitus	
Noise pollution exposure		Moderate	Severe
	Yes	59(65.6%)	31(34.4%)
	No	5(55.6%)	4(44.4%)

59 respondents reported to have moderate tinnitus while 31 reported had severe tinnitus. These were people exposed to noise pollution. People who were not exposed to very loud noise 4 had severe tinnitus while 5 had moderate tinnitus.

Table11: Respondent has head injuries * scaling of tinnitus by respondents

Respondent has head injuries	Scaling of tinnitus by respondents		
		moderate	Severe
	yes	48(67.6%)	23(32.4%)
	no	17(58.6%)	12(41.4%)

71 respondents who had tinnitus had head trauma. 32.4% had severe tinnitus and 48.6% had moderate tinnitus.

Table12: Sleep patterns of respond disturbed * scaling of tinnitus by respondents Cross tabulation

Sleep patterns disturbed	Scaling of tinnitus by respondents			
		Moderate	Severe	Total
	Sometimes	33(60.0%)	22(40.0%)	55(100.0%)
	Yes	32(71.1%)	13(28.9%)	45(100.0%)

EXTENT OF TINNITUS IN THE ELDERLY

All respondents who have tinnitus reported their sleep patterns being disturbed. Though this not always being the case, 71.1% of the population reported their sleep being disturbed.

Table13: Respondent hypertensive * scaling of tinnitus by respondents Cross tabulation

		Scaling of tinnitus by respondents	
		Moderate	Severe
Respondent hypertensive	Yes	36(63.2%)	21(36.8%)
	No	29(67.4%)	14(32.6%)

Table 14: When are noises present * scaling of tinnitus by respondents Cross tabulation

		Scaling of tinnitus by respondents	
		Moderate	Severe
When are noises present	Always	21(63.6%)	12(36.4%)
	Intermittent	44(65.7%)	23(34.3%)

Table15: Stress related to tinnitus present * scaling of tinnitus by respondents Cross tabulation

		Scaling of tinnitus by respondents	
		Moderate	Severe
Stress related to tinnitus present	Never	8(66.7%)	4(33.3%)
	Sometimes	9(60.0%)	6(40.0%)
	Yes	48(65.8%)	25(34.2%)

Tinnitus induces stress on 73 respondents. This number includes people with moderate and severe tinnitus.15 respondents reported to sometimes have stress related to tinnitus.

Table 16: Making the respondent angry * scaling of tinnitus by respondents Cross tabulation

		Scaling of tinnitus by respondents	
		moderate	Severe
Making the respondent angry	Never	2(66.7%)	1(33.3%)
	Sometimes	10(66.7%)	5(33.3%)
	Yes	53(64.6%)	29(35.4%)

Table17: Poor response with environment * scaling of tinnitus by respondents Cross tabulation

		Scaling of tinnitus by respondents	
		Moderate	Severe
Poor response with environment	Never	0	1(100.0%)
	Sometimes	14(93.3%)	1(6.7%)
	Yes	51(60.7%)	33(39.3%)

Table 18: Attention span disturbed * scaling of tinnitus by respondents

		Scaling of tinnitus by respondents	
		Moderate	severe
attention span disturbed	Never	3(60.0%)	2(40.0%)
	Sometimes	25(64.1%)	14(35.9%)
	Yes	37(66.1%)	19(33.9%)

Table 19: Response with environment difficult * scaling of tinnitus by respondents

		Scaling of tinnitus by respondents	
		Moderate	severe
Response with environment difficult	Never	0(0%)	1(100.0%)
	Sometimes	14(93.3%)	1(6.7%)
	Yes	51(60.7%)	33(39.3%)

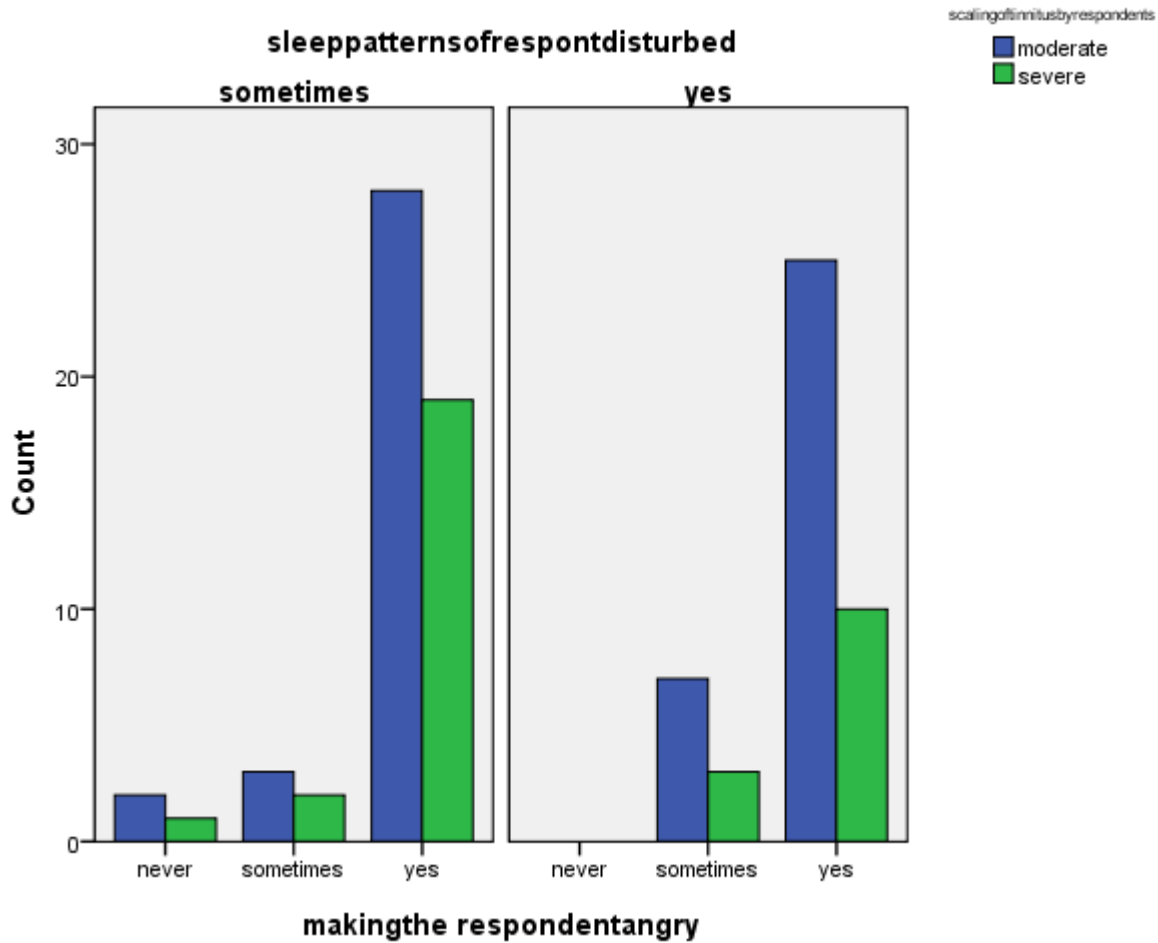


Fig 1.3

The bar chart presents sleep pattern disturbance, and anger plotted against tinnitus severity as reported, 29 elderly had moderate tinnitus and their symptoms made them angry and their sleep patterns were sometimes disturbed. 19 had severe tinnitus and sometimes had sleep disturbed but always got angry due to their tinnitus. On the other hand 28 always had sleep disturbance and always got angry as well as having moderate tinnitus. 9 elderly had severe tinnitus, sleep disturbance and were angered by the symptoms.

At the age 81-85 the Pearson Chi square of 0.025 which is a significant number. At only age 75-80, age had no significance in describing its association with tinnitus severity

5.1 Discussion

- The main aim of this study was to :To study the extend of tinnitus among the elderly population, with the following objectives:
- To determine the degree of tinnitus in elderly
- To find out the risk factors of tinnitus
- To assess the effect of tinnitus on elderly on the quality of life.

The discussion is based on these specific objectives so as to define the aim.

5.1.1 Risk factors of tinnitus

Results from the study show that people who had ear infection suffer tinnitus; in table1 this is supported. table1, 72% of respondents who had ear infections reported symptoms of tinnitus. This finding was expected as some research findings indicate that ear infections are risk factors to tinnitus suffering.

Among the possible causes are infections, drugs, exposure to noise, or simply age. The age of the respondent and years of suffering seem to have no significance in tinnitus suffering. At the age of 75-80, 76% respondents reported severe tinnitus and the remaining 24% was of the age 81-85 which is the older age group. also, there is an increase of reporting severe tinnitus between ages 1-5 and 6-10 of suffering tinnitus, while there is a decline in age 11+ of suffering of tinnitus.

The belief was there would be increasing severity of tinnitus symptoms with increasing age of suffering. Another study which has similar results was done which revealed that ,the age distribution presented in showed that the difference in the rates of tinnitus between the age groups was not statistically significant(Negrila-Mezei A, Enache R, Sarafoleanu C:2011)

Of all the 47 males who were interviewed, 83 % of them had been exposed to noise pollution and also sustained head injuries. Magubane : 2013 states that

The large numbers of Basotho leave the mountain kingdom for RSA to work in sectors such as mining. It is estimated that in 2012 there about 44,000 Basotho miners working in RSA and this made them 10% of total RSA mining workforce. Viewing the noise exposure there, the findings are significant.

Among the numerous related risks of tinnitus are also orthopedic problems. In Lesotho, as part of the cultural practices for Basotho, men usually play with sticks and others may sustain head injuries .And over 55% of injuries inflicted by men were caused by beating with tradition sticks.(Geldermalen V; 1993)

5.1.2 Effect of tinnitus on elderly on the quality of life

Although the interviewed elderly reported a greater supportive care from their families and friends, but their quality of life is still affected.80% respondents reported that they have a great support from the families whilst 20% reported their families sometimes do not understand what “they” perceive.

Table 4, together with fig1.2 display that there is a problem with concentration (attention span) and adaptation to changes to one’s environment. 49(88) of the respondents both have difficulty in attention span and adapting to changes in their surroundings.

Findings thus far suggest that really elderly are affected by their tinnitus their sleep is being disturbed, they have stress related to tinnitus and also suffer the consequences of being overwhelmed by their tinnitus and because tinnitus makes them angry.

In a study into the epidemiology of tinnitus which was carried in UK in 2002, the study discovered that the prevalence of persistent spontaneous tinnitus in the adult population reported that it had a severe effect on their ability to lead a normal life, and it was noticed that studies in other countries produced broadly similar figures.

5.1.3 Degree of tinnitus in elderly

The cross tabulations were used to display the information of how respondents scaled their tinnitus. The variables were plotted against tinnitus severity. on table6 age was cross matched with tinnitus severity and 80% respondents reported to be having severe tinnitus and this was the age group of 75-80.the remaining 20% was the age group of 81-85.

On table 8, the females have a 35.2% as compared to the males. the female reported that they have severe tinnitus than men, although the findings were this way, some studies display that tinnitus prevalence seems similar in men and women though there are some differences in the way that the sexes perceive the symptom: women are more likely than men to perceive their tinnitus as a complex sound McFerran, and Phillips 2007: 201–208)

Table9 .the severity of tinnitus is found to be increasing between ages 1-5 and 6-10 of suffering and then dropping gradually at the age of 11+ .on tables 14, 63.7% of the respondents have intermittent noises and 34.3% reported to be having severe tinnitus. On the other hand, 63.6% of the respondents who have the never subsiding noises either

ion the head or ears also 36.4% reported severe tinnitus. this table displays that there are increasing cases of tinnitus with the never going noises.

For 2 x 2 tables, a measure of the strength of the association between the presence of a factor and the occurrence of an event. If the confidence interval for the statistic includes a value of 1, assume that the factor is associated with the event. Age has association to tinnitus suffering. At the age 81-85 the Pearson Chi square of 0.025 which is a significant number. At only age 75-80, age had no significance in describing its association with tinnitus severity. The bivariate analysis revealed that, at the 0.05 level of significance, the variables age, proved to be significantly associated with tinnitus. When the age75-80 was only used the value was 0.222 and chi square value was 0.634 and together with age 80-85, the chi square value is 0.023 with the value 5.007.this reveals that there is increasing severity of tinnitus with increasing age.

Conclusion

Tinnitus causes much dissatisfaction in elderly patients, since this symptom affects their daily activities and may alter sleeping patterns and the emotional status. the negative impact of tinnitus on quality of life in Lesotho was evidenced from the study ,by the degree of tinnitus and thus far symbolizes a great extent of tinnitus and coverage in Lesotho.

Limitations

The study was done in only one district and the remote area of that district, this mark only 10% of the country. The study was done as partial fulfillment of Bachelor of Science in general nursing and midwifery.

Recommendations

Although the respondents were not initially diagnosed to be having tinnitus, setting blind eye on them would be depriving them quality life. The researcher recommends Ministry of Health to take into consideration these elders and get them some masking instruments for their tinnitus, or any resort which would be helpful.

The researcher also recommends that the similar study be undertaken for the whole country in other to fill up the gaps which might have occurred.

Challenges

Time was the main challenge, collecting data while out for the internship.

Some respondents were not willing to answer.

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Nurses and Patients' Perceptions of Quality of Health Care at Rural Health Centers in Leribe, Lesotho

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ABSTRACT

Background: Perceptions of quality of health care (PQHC) by patients and staff are important determinants of success for the decentralisation of health systems.

Objectives: This study assessed the PQHC of nurses and patients and reviewed the reasons for referral of patients to district hospitals in Lesotho.

Method: This study analysed the PQHC of 40 purposively sampled nurses' at three village health centres (VHCs) and 69 referral patients at Motebang Government Hospital (MGH) in Lesotho using semi-structured qualitative interviews. The study also retrospectively reviewed the reasons of referral of 305 patients referred between June 2013 and April 2014.

Results: Complicated labour (19.3%, n=305) and diarrhoea (13.8%) were the most frequently referred conditions. Shortage of drugs (32.1%, n=40), lack of medical devices (29.4%), expertise (26.6%) and laboratory investigations (11.9%) were the main reasons why they referred patients to MGH. Poor quality of care (51.4%, n=69), lack of expertise (26.6%) and lack of confidence in staff (7.3%) were the patients' main worries.

Conclusion: This study highlights the importance of considering PQHC in Lesotho's programme of decentralising the health care system. There is need to improve staff expertise, medical supplies at VHCs and work on the negative perceptions by staff and patients to improve the quality of health care in Lesotho.

Keywords: *Medical-referral; Perceptions; Quality-of-care; Lesotho*

INTRODUCTION

District hospitals in developing countries are the first referral centres that receive referrals from village health centres (VHCs). VHCs which are staffed by nurses who often lack the skills and facilities required to manage many clinical conditions.^[1]

Lesotho's health system is divided into Health Service Areas (HSA)^[2]. Each HAS has at least one district hospital and a number of VHCs. About 81%^[2] of the population in Lesotho lives in remote rural villages which makes VHCs the backbone of primary health care of Lesotho.

District hospitals in Lesotho provide the first level of outpatient or inpatient care for patients who have been referred by VHCs. District hospitals allow for greater cost effectiveness by having many services including laboratory investigations and personnel in one place.

Appropriate and prompt referrals can have a significant impact on timely diagnosis and treatment of patient ailments. However, for decades, Lesotho's district hospitals have been characterized by overcrowding.^[3] In 2010, the Government of Lesotho (GoL) in collaboration with development partners and non-governmental organisations began the process of upgrading the VHCs in efforts to decentralise the country's health system as way of

addressing the problems of Human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS). The high prevalence of HIV which is estimated at 23% has increased the demand for health services across the country.⁴

Notwithstanding the efforts to improve the VHCs, some patients in the villages continue to avoid the VHCs and visit the District Hospitals. Perceptions by patients about the quality of services at the VHC may be contributing to the overcrowding at the district hospitals. This study analysed the perceptions of quality of health care at village health centres by patients and staff. The study also reviewed the reasons for referral of patients from VHCs to district hospitals.

METHODOLOGY

Study setting

The study was conducted at Motebang Government Hospital (MGH) in Leribe District and at three purposively sampled VHCs that refer patients to Motebang Government Hospital in Leribe District. Motebang Government Hospital is a referral district hospital.

Study design and data collection

This was a micro-level analysis that focused on the nurses' and patients' perceptions of quality of health care (PQHC) at VHCs. The study also retrospectively reviewed the reasons of referral of 305 patients referred between June 2013 and April 2014 to MGH. The study utilised semi-structured qualitative interviews. The research was approved by the Ministry of Health of Lesotho on the 4th of March 2014 (ID127-2013).

Both patients and nurses included in the study were conveniently sampled. However, 40 nurses at VHC Leribe constituted about 50% of the total number of nurses in all the VHCs. The 305 patients in the study also constituted about 50% of the total number of cases referred from the VHCs.

Statistical analysis

Cross tabulation using STATA version 12 (Stata Corporation, Texas, USA) was performed to identify the proportions and distribution of medical conditions referred and perceptions by the patients and the nurses on the reasons for referral.

RESULTS

Demographic characteristics of the patients

Thirty-one (34.9%) of the 69 adult patients included in the study were males and 38 (55.1%) were females. The ages of the patients ranged from 20 to 61 and the mean age was 45.4 (IQR: 38 - 52). The nursing staff consisted of 13 males (32.5%, n=40) and 27 females (67.5%). The ages of the nurses ranged from 24 to 58 and the mean age was 47.2 (IQR: 37 - 53). Of the 40 nurses, 11 (27.5%) were nurse assistants with a certificate in nursing qualification, 21 (52.5%) were registered nurses with a diploma in nursing and 8 (20.0%) had BSc. Nursing and Midwifery.

Medical conditions referred

Referred medical conditions were categorised into ten groups (see figure 1). The largest referred condition was complicated labour (19.3%, n=305). The second most referred condition was diarrhoea (13.8%). Other most referred conditions were chronic conditions (12.8%), trauma (12.8%), animal bites (11.0%), respiratory tract infections (10.1%) and bleeding disorders (9.2%). The least referred conditions were referred for specialist services (5.5%), surgical conditions (4.6%) and chronic obstructive pulmonary diseases (0.9%).

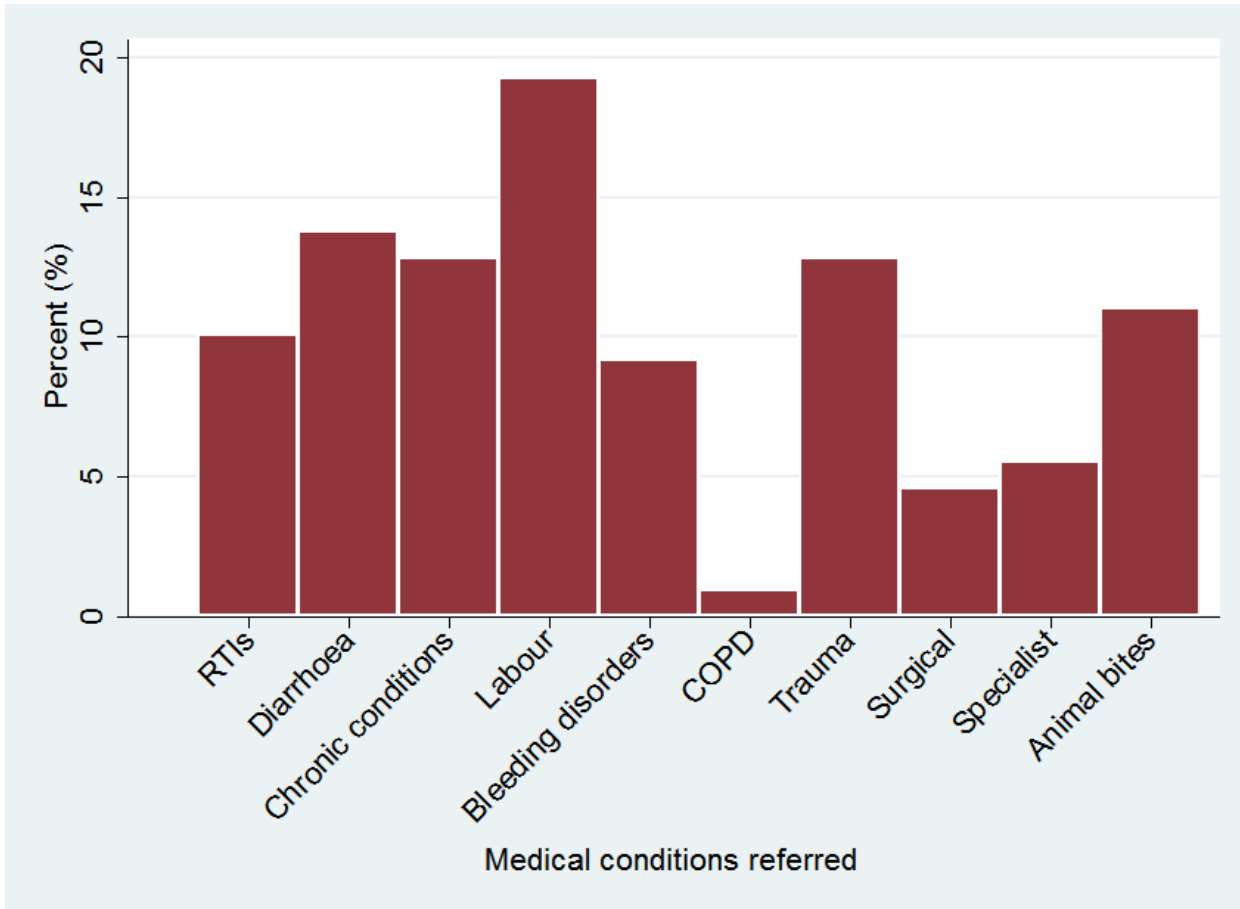


Figure 1: Medical conditions referred to MGH between June 2013 and April 2014 (n=305)

RTIs = Respiratory tract infections; Labour = Complicated labour; COPD = Chronic Obstructive Pulmonary Diseases; Specialist = Conditions that require specialist; MGH = Motebang Government Hospital.

Perceptions of quality of care

Figure 2 compares the relative perceptions about the elements lacking at village health centres which affect perceptions of nursing staff and patients. According to the 40 nursing staff at the peripheral clinics, the main reasons affecting their perceptions of quality of care (PQHC) were shortage of drugs (32.1%, n=40), medical devices (29.4%), expertise (26.6%) and laboratory investigations (11.9%). However, patients referred at the district referral hospital felt that the poor quality of care at VHCs (51.4%, n=69) and lack of expertise (26.6%) affected their perceptions. Others (7.3%) stated that they were affected by lack of confidence in the staff at the VHCs.

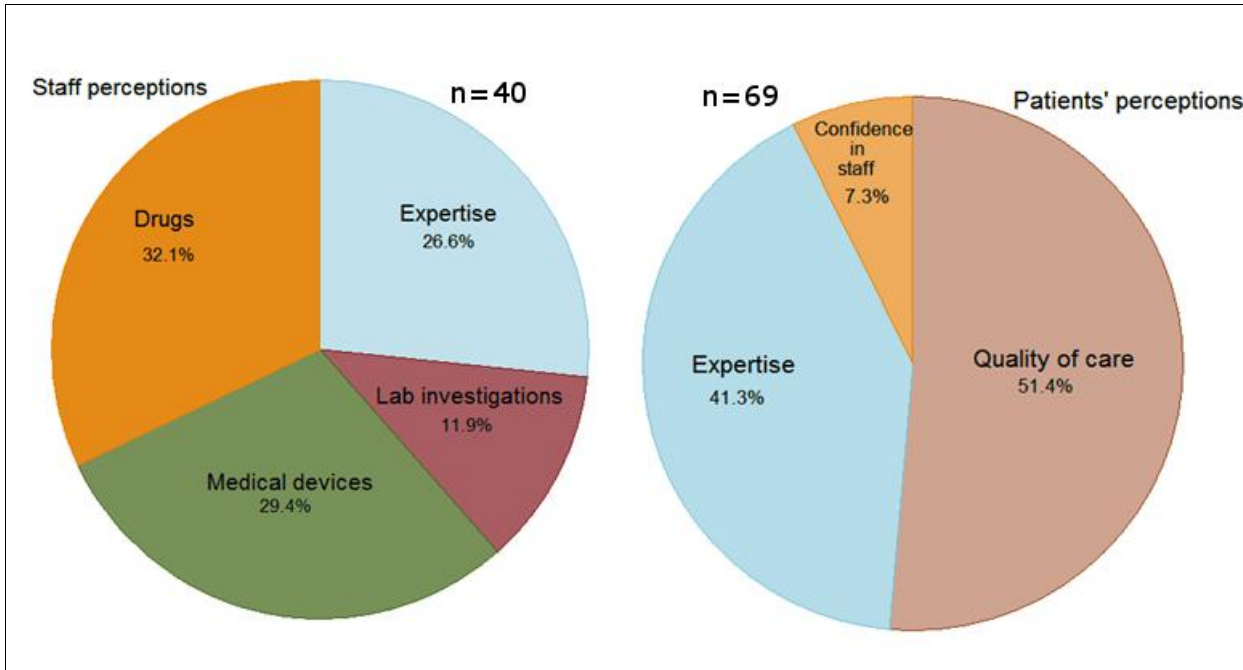


Figure 2: Nurses and patients's perceptions about elements lacking at village health centres

DISCUSSION

Medical conditions referred

Complicated labour was the most frequently referred condition in this study, constituting 19.3% (n=305). This implies that service provision for maternity deliveries in peripheral clinics is still inadequate. According to the WHO^[4] Lesotho, high maternal mortality along with other health system weaknesses result from inadequate maternal health services at and around birth.

The second most referred group in this study had diarrheal diseases (13.8%, n=15). Poor sanitary conditions in remote villages may be increasing the number of referrals. Although improved drinking water supplies have contributed to reducing diarrhoea diseases in many developing countries, diarrhoea has remained the single most frequent cause of admissions particularly among children below the age of 12.^[4]

Chronic conditions were the third most referred medical conditions. This may be because the diagnosis and management of chronic conditions need laboratory investigations which are not available at VHCs. However, most of the chronic conditions such as hypertension and diabetes need life-long treatment. Patients with these conditions therefore spent more resources during their frequent visits to referral hospitals.

The referral of other conditions such as trauma, surgical conditions and the need for specialist services highlights the gaps that exist at the VHCs. In countries where resources permit, health systems use emergency nurse practitioners who are trained to assess and manage minor injuries before referral.^[5]

Most of the animal bites in this study referred to bites by dogs in the villages. Dog bites are feared because they commonly spread a fatal viral infection called rabies.^[6] Rabies is found in many developing countries including Lesotho.^[7] A large proportion of VHCs do not always stock anti-rabies vaccines resulting in referrals to district hospitals. In this regard, the Government can improve the provision of anti-rabies vaccines to minimise loss of life.

Perceptions of quality of care

PQHC affect nearly all aspects of health care. Patients with negative PQHC are likely to have worse treatment outcomes resulting in patient-initiated requests for referral. Studies have shown that PQHC may even affect satisfaction with pain management^[8] meaning that treatment outcomes of patients with negative PQHC may be suboptimal compared to patients with better PQHC. Negative PQHC by pregnant women in Uganda has been blamed for the unwillingness of women to deliver in health facilities and to seek care for complications^[9]. Therefore, healthcare referral systems should consider patients' PQHC when designing medical referral systems.

The need to consider PQHC was also emphasised in a study in Spain^[10] which revealed that "emotional and technical professional competences" as viewed by patients as well as "professionals' job stability" as viewed by staff were the main determinants of better PQHC.

Continuing competence development among registered nurses has been shown to improve quality of care and raise the morale of staff resulting in better work climates.^[11] Although this may be difficult to achieve in developing countries, attempts to implement policies that promote continuing education among the nurses in Lesotho may be one way of improving PQHC by staff and patients in Lesotho.

CONCLUSION

The study highlights the gaps in the provision of health services in VHCs. The study also highlighted the perceptions of the staff and patients on the reasons for referral. There is need to improve staff expertise and medical supplies at the VHCs. Some basic laboratory investigations may need to be introduced at the clinics to improve primary health care. Further studies should be conducted to ascertain the cause of their negative PQHC and strategies enacted to reverse them.

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Organ Transplant Trade: A Moral Examination

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Abstract

This article normatively discusses two moral theories namely: Ubuntu and Deontology, with the aim of arguing against the practice of organ transplant trade. It is argued that this practice violates a rule of categorical imperative which states that human beings should not be used as the means, but always be treated as ends into themselves. Organ transplant trade also affects negatively the process of informed consent of vulnerable people who may overlook the risks in trading of organs and focus only on the monetary incentives. This article is based on non-empirical research which employs the method of critical and conceptual analysis with a review of existing literatures on the subject. Therefore, this article addresses the following question: do people have ownership of their bodily parts to an extent that they can autonomously sell them to make a living? This question is answered by concluding that the upholding of moral duties of human beings eliminates all human acts that violate the notion of human dignity.

Key Words: *Ubuntu, Deontology, organ transplant trade, autonomy, informed consent, vulnerability.*

The Practice of Organ Transplant Trade

While it is commonly believed that trafficking only takes places for commercial sexual exploitation or for forced labour, trafficking in fact takes many forms such as trafficking for forced marriage and trafficking for organ trade among others. “An organ transplant is the transplantation of a whole or partial organ from one body to another, for the purpose of replacing the recipient’s damaged or failing organ with a working one from the donor site” (Glannon, 2005: 155). However, some scholars argue for the organ transplant trade due to the high rate of a devastating shortage of organs and a growing number of patients on the waiting list of the organs.



Trafficking for organs trade is a crime that occurs in three broad categories. According to (Mackellar, 2014: 64) there are cases where traffickers force or deceive the victims into giving up an organ. There are cases where victims formally or informally agree to sell an organ and are cheated because they are paid for the organ or are paid less than the promised price. Thirdly, vulnerable persons are treated for an ailment, which may or may not exist and thereupon organs are removed without the victim’s knowledge.

However, some other people see trafficking of organs trade as a good mechanism to be used to reduce a number of people on the waiting list. Those promoting the implementation of a regulated system for the payment for organs indicate that it may save the lives of persons on waiting lists since it represents the only means by which a greater number of individuals in society can be encouraged to consider providing an organ. An example of such a system for kidneys has already “been in existence in Iran since the late 1980s, which is the only regulated organ payment programme in the world” (Mackellar, 2014: 55). In addition, after the transplantation, the person providing the kidney is compensated by both the government and the person receiving the kidney. This represents about US\$ 3,000 of which about US\$ 600 is paid by the government (Hippen, 2005: 594) which also provides one year’s medical insurance.

The proponents of organ transplant trade also argue that the implementation of a regulated system of payment for organs would, it is claimed, “substantially address the unregulated exploitation of vulnerable groups through organ trafficking since the demand for organs would be reduced. Studies from the World Health Organization indicate that about 7,000 kidneys each year are illegally obtained by traffickers around the world” (Hippen, 2005: 596). In addition, Hippen also argues that illegal deals in Pakistani donors are offered around US\$ 2,500 for a kidney but receive only about half the amount because middlemen take a large cut. Thus, it is suggested that a regulated market for organs would considerably address such abuse if, for example, a government institution could actually buy the organs from the individuals so that appropriate regulation and care should be provided to both the seller and the recipient.

The motives from this practice emanate from the act utilitarianism which views actions to be morally acceptable if and only if they produce good results for many. With all these, it means that those who need organs will be helped and more people will get organs through organ trade formation, there will be no exploitation for those who are vulnerable (the poor) because there would be a very low rate of organs shortage. In other words, “for other people, a financial incentive will help to match supply and demand thereby addressing the shortage of organs and other tissues” (Dhai & MacQuoid-Mason, 2011: 119).

Some other arguments for the practice of organ transplant trade are based on the principle of autonomy which refers to “self-rule that is free from both controlling interference by others and from limitations, such as inadequate understanding, that prevent meaningful choices” (Beauchamp & Childress, 2001: 58). As ethicist, Julian Savulescu indicates that people have a right to make a decision to sell a body part (Savulescu, 2003: 648). According to him, human beings are entitled to ownership of their bodies. Thus, they ought not to be paternalised, but they should be allowed to sell their organs and live a better life with the income they will get from the market.

***Ubuntu* as a Moral Theory in Organ Transplant Trade**

The maxim of *Ubuntu* states that; *umuntu ngumuntu ngabantu/motho ke motho ka batho*. These are, respectively, Zulu and Sotho versions of a traditional African aphorism, often translated as: “a person is a person through other persons” (Ramose, 1999: 49; Shutte, 1993: 46). Under the light of *Ubuntu*’s moral theory, a human being has a chance to fail to attain *botho* which can be translated to mean humanness. For example, those who perform immoral acts such as killing, raping, stealing, disrespecting others are described as lacking the status of *botho*. The moral theory of *Ubuntu* emphasizes that the only way to develop one’s humanness is to relate to others in a positive way. “One becomes a person solely through other persons, which means that one cannot realize one’s true self in opposition to others or even in isolation with them” (Metz & Gaie, 2010: 275). Under the guidance of

Ubuntu, sub-Saharanans do not consider themselves as hermits, but as beings that are communally integrated with one another regardless of their different status and positions in life.

The exhibition of *Ubuntu/botho* (humanness) that can help one to develop well can be done in a communitarian background whereby an individual recognizes his character together with other's characters. Shutte (1993: 30) argues that "our deepest moral obligation is to become more fully human. This means entering more and more deeply into community with others." Caring and respecting other human beings reflect the elements of *Ubuntu* in a way that immoral actions that may negatively affect other people's welfare are prohibited. For example, people who disrespect those who are severely mentally retarded, diminish these people's personhood in their communities because their actions would be perceived as lacking the aspect of *Ubuntu/botho*.

Just like in Kantian moral theory of deontology whereby an action is morally acceptable if it is in conformity with the categorical rules, *Ubuntu* does the same job through its maxim *umuntu ngumuntu ngabantu*. Metz (2010: 51) explicitly argues that:

An action is right just insofar as it is a way of living harmoniously or prizing communal relationships, ones in which people identify with each other and exhibit solidarity with one another, otherwise an action is wrong.

To identify with each other "is largely for people to think of themselves as a "we": while to exhibit solidarity with one another is mainly for people to engage in mutual aid, to act for the sake of one another, to seek to improve some other organisms' quality of life for non-instrumental motives" (Metz, 2012: 393). The solidarity and identification that Metz has highlighted maybe seen as the force of attraction that keeps the harmonious relationships alive among sub-Saharanans. This harmonious relationship becomes vivid when people respect and care for other people. This maxim encourages only the positive relationships that show respect to others regardless of their mental status. People such as sorceries or witches do not qualify for the status of *Ubuntu* because of their unacceptable actions that cause pain, sorrow and deaths of other people. Hence, those that do not relate positively with others are said to lack *botho* and they are often described as animals.

Harmony is achieved through close and sympathetic social relations within the group. This, however, implies that the common good of caring and loving one another can be attained through communal relationships. On this issue, Mbiti (1969:108) also says, "I am because we are and since we are, therefore I am." This statement refers to the promotion of the harmonious belongingness among the societal members without neglecting other human beings.

Ubuntu is similar to virtue ethics in a sense that virtue ethics is concerned with a person's motivation for action, the disposition or character from which the action issues, instead of with features of action itself. Actions are evaluated as expressions of the agent's disposition or character. If one performs a compassionate act, for example, it is because one has a compassionate disposition to act in that way. On this issue, *ubuntu* as a moral theory will say that "when we want to give high praise to someone in sub-Saharan morality we say: Hey, so-and-so has ubuntu. Then you are generous, you are hospitable, you are friendly and caring and compassionate. Anger, resentment, lust for revenge, even success through aggressive competitiveness, are corrosive of this good" (Tutu, 1999: 31-35). *Ubuntu* and virtue ethics consider the actions of human beings from their inner moral character and their inner motivation behind their actions. Just like *ubuntu*, "virtue ethics is agent based rather than action based. It is concerned with a person's motivation for action, the disposition or character" (Glannon, 2005: 13-14).

***Ubuntu* Against Organ Transplant Trade**

Through the lens of *Ubuntu*, the practice of organ transplant trade fails to promote the notion of personhood that is acquired through virtuous actions. In the sub-Saharan Africa this practice will demean human beings into the level of animals that can be used as commodities. *Ubuntu* only encourages positive relationships that will show respect to humanity as a whole within the communities. Caring and respecting other human beings reflect the elements of *Ubuntu* in a way that immoral actions that may negatively affect other people's welfare are prohibited.

The practice of organ transplant trade is very detrimental to other members of the community because it is likely to promote human trafficking to the extent that other human beings can be forced to trade their organs. For this reason, it is common to find people wearing or hanging all sorts of objects believed to contain the vital power around their wrists, waists, necks or arms in traditional African communities. For the same reason, others engage in ritual murders in order to enhance their power, respect, and maximize profit within their societies. They act without a sense of moral accountability as relates to the consequences of the actions they choose to carry out as long as they can justify their cause as having been driven by a "temptation" inherent in financial markets. A greedy person is certainly one who cannot "bridle" his desire to acquire more returns no matter what the consequences are as long as the probability of "making a kill" is high enough to make the act tempting.

Converse to this line of argument, this paper argues that any society that instills in their offspring that greed is morally bad would produce financial market players that act in a way that reflects their abomination of greed. This can further be deepened by the church, moral law, school and the literature that promote the same standard of morality. Hence, society will produce individuals with a particular moral fibre, and these become players in markets for good or bad depending on the type of moral ethos cultivated by social institutions in these individuals. This paper sees moral value as an important input in enabling financial market fundamentals to function properly for the good of the entire society. Morality can be institutionally inculcated into the very fibre of humanity for the good of humanity. For example, a person who does not relate harmoniously with other people in a community diminishes his or her personhood, and s/he is said to lack *botho*/humanness.

Ubuntu is different from act utilitarianism because according to the latter actions are to be judged right or wrong solely by virtue of their consequences; nothing else matters. In assessing consequences, the only thing that matters is the amount of happiness or unhappiness that is created. For those who support act utilitarianism, the practice of organ transplant trade will be acceptable because it will produce good results for many. However, *Ubuntu* does not focus on the end results alone, but it also focuses on the inner moral character of the individual within their own communities. Thus, harmony is achieved through close and systematic social relations within the group. Individuals consider themselves as integral parts of the whole community, and a person is socialized to think of himself or herself, as inextricably bound to others. *Ubuntu* ethics can be termed anti-egoistic as it discourages people from seeking their own good without regard for, or to the detriment of others and the community.

In a medical research setting, it will be virtuous for the researchers not to deceive their participants and give them enough time to consent autonomously without anyone coercing them. Virtue ethics and deontology in this regard will consider that action as morally acceptable because it is based on the justifiable means. *Ubuntu* will also agree with this implication but it will differ from these two moral theories because it goes deeper than them. That is, "once a researcher and a participant have begun to think of themselves as 'we' engaged in the joint project of testing a vaccine, they share a way of life that imposes special obligations to care for one another's quality of life that can go beyond those listed in a contract" (Metz, 2010: 56).

In African societies, emphasis is put on the communitarian relationships that bound all the members of the society. For Menkiti, there are three inferences that give individuals human dignity within their own communities. Firstly, in the African view “it is the community which defines the person as person, not some isolated static quality of rationality, will, or memory; secondly, that the African view supports the notion of dignity/*seriti* as acquired not merely granted as a consequence of birth; thirdly, that as far as African societies are concerned, dignity is something at which individuals could fail” (Menkiti, 1984: 173). These claims made by Menkiti demonstrate that dignity in an African thought is acquired in the communal participation and a person becomes a full person in the eyes of the community after the incorporation. Human beings develop their social moral actions better in an integrated communal world which is where they can learn to respect the dignity of other people.

Deontology as a Moral Theory

This section discusses the moral theory of deontology which was found by Immanuel Kant, while the next section discusses the arguments against the practice of organ transplant trade. Deontology is a duty based moral theory because it argues that people should always perform their duties: It includes respect for a moral law such as lying is always bad. According to this moral theory, human beings should always use justifiable means to attain their end results. Immanuel Kant argues for the human dignity of human beings and he analyzed that worth as inherently embedded within human beings because “of an endowment with reason, a reasoning power that enables them to exercise their autonomy and to follow the moral laws” (Kant, 1996: 186).

In addition to his argument, Beauchamp & Childress see personal autonomy as a “self-rule that is free from both controlling interference by others and from limitations, such as inadequate understanding, that prevent meaningful choices” (2001: 58). Autonomy in this regard can be seen on individuals who do their moral duties according to the demands of moral rules and principles. For Kant, it is morally wrong however for other human beings to make false promises to others, because such actions use other human beings as the means to an end, as well as violating their human worth.

Kantianism states that a moral action is one done out of duty, a duty based on pure practical reason. This duty or categorical imperative views humanity as an end and ‘never as a means’ to an end. Actions that have a social benefit such as voluntary exchange in a free market are justified if such action benefits both parties regardless of the differences in the information that each party may have. It is the moral duty of the party with more information not to use the additional information to take advantage of the other party. This is also what Immanuel Kant argued when he contrasted ‘dignity’ with ‘price’ indicating that: ‘Everything has either a price or a dignity. If it has a price, something else can be put in its place as an equivalent; if it is exalted above all price and so admits of no equivalent, then it has a dignity’ (Kant 1996: 105). In other words, something with a price has worth that can be measured against other things and rated for value. On the other hand, something with inherent human dignity has absolute worth, making it the ultimate value.

Deontology Against Organ Transplant Trade

Through the lens of deontology, the payment of human organs is considered to be immoral because it uses human beings as the means or as commodities for others to earn their living. This kind of incentives can also deteriorate our human dignity into the level of commodities because other human beings will practice organ trafficking. Kant argues that we ought to “act so that we treat humanity, both in our own person and in that of another, always as

an end and never merely as a means. The value of human beings is beyond all price” (Kant quoted in Rachels, 2007: 131). This means that human beings are not supposed to be used as commodities that have prices.

For Kant, human beings have an intrinsic human dignity, while other things have value that can help human beings to reach their end results. In relation to organ transplant trade, human beings are allowed to donate their organs autonomously and out of altruism with the motive of promoting the welfare of others which is demanded by the principle of beneficence. Monetary influence will make others to be greedy and lead them to practice organ trafficking. Hence, financial incentives may also “interferes with the consent process” (Dhai & McQuoid-Mason, 2011: 119). Some people may consent too quickly to donate their organs mainly because they are desperately in need of some money without considering the risks that are likely to follow after they have been paid.

The prohibition of payments for organ donations is very fundamental because the least-off people and those who are vulnerable such as the children, elderly people, and severely mentally retarded people may be abused for cash. That is, “the poor and vulnerable may find themselves tempted by the financial incentives and thereby ignore the risks” (Dhai & McQuoid-Mason, 2011: 119). In this regard, deontology prohibits all the actions or practices that use human beings like commodities.

The South African law regarding payment for organ donations under section 60 (4) of the National Health Act 61 of 2003 maintains that it is an offence for a person who has donated tissue, a gamete, blood or a blood product to receive any form of financial or other reward for such donation, except for the reimbursement of reasonable costs incurred by him or her to provide such donation; it is also an offence for a person to sell or trade in tissue, gametes, blood or blood products. On the same practice, organ transplant trade is presently illegal in Singapore. Under the Human Organ Transplant Act of 2009, (section 14 (s2)) it is stated that “it is a criminal offence to enter into a contract or agreement on the sale or supply of any organ or blood” (Lim Meng Kin, 2: 2008). The Singaporeans advocate for legalizing organ trading in pointing to the waiting list of about 600 people who would die without a transplant. “The average waiting time is currently nine years for a kidney. They felt that ethical concerns should not hinder any policy review that might help to save lives and reduce shortages that promote a black market for organs” (Lim Meng Kin, 3: 2008).

Mental Competence and Vulnerability

The practice of organ transplant trade may also affect one’s mental competence and autonomy in a sense that the seller mainly focuses on the end results (incentives) rather than also focusing much attention on the risks that are likely to follow from that practice. According to Buchanan & Brock (1989: 18) “Competence is to be understood as decision-making capacity.” Competence is decision-relative, not global, because a patient may be competent to make a particular decision at a particular time, under certain circumstances, but incompetent to make another decision or even the same decision, under different conditions. A person is usually considered to be mentally competent if able to understand a therapeutic or research procedure, to deliberate regarding its major risks and benefits, and to make a decision in light of this deliberation.

Vulnerability is one of the causes of mental incompetence. For example, people who lack money to buy food, lack of adequate housing, may opt for the practice of organ transplant trade as a way of fighting poverty without proper consideration of the risks that may be caused on their welfare. Dhai (2013: 45) classifies such people under allocational vulnerability which refers to the population that is disadvantaged. Such populations live in poverty, without food, clean water, sanitation, electricity, adequate housing and access to health care.

The question is: should vulnerable people dying with hunger be allowed to sell their organs in order to fight poverty? Through the lens of utilitarianism which says an action is good if it maximizes good for many people, organ transplant trade will be perceived as a morally good practice because many vulnerable people will be able to improve their style of living. For this moral theory, the end results justify the means. However, through the moral theory of deontology which this paper supports, such an action will be immoral because it fails to treat human beings as ends into themselves; rather it treats human beings as the means to attain the end results. Vulnerable people should not be exploited by being allowed to be engaged into the practices that will pose harm to their welfare.

Therefore, it is very imperative to compare *Ubuntu* as an African moral theory with the Western moral theory of deontology in the medical practices like organ transplant trade. *Ubuntu* in this case raises an alarm that organ trade is not reflecting our communal humanness because people can end up in ritual killings because they want to sell other people's organs. Such actions in our African world view, especially through *Ubuntu* are deemed to be against the maxim of *Ubuntu* which promotes harmonious relationships among societal members.

Conclusion

The issue of ownership regarding human organs and autonomy raise vexing issues in bioethics. Logically, this connotes that human beings are entitled to sell their organs in order to fight poverty. Due to worldwide shortage of organs available for transplantation, other human beings may feel inclined to exercise their autonomy and choose commercial trade in human organs. However, in this article, it is argued that the life of a human being is sacrosanct and dignified to an extent that it cannot be used as a commodity because in this way, human beings will be treated like mere objects that have price. This practice also compromises the element of informed consent in medical procedures, because vulnerable individuals will be attracted to sell their organs to make a living without caring much about the risks ratio.

It is also argued that *Ubuntu* as a moral theory in the African worldview also rejects organ transplant trade because it uses unjustifiable means by using human beings like objects to be sold. According to *Ubuntu*, this practice violates the personhood of human beings which through it, all immoral practices that may end up promoting actions like (*liretlo*) which is translated to mean ritual killings of human beings, are prohibited. For *Ubuntu*, an action is morally bad if it does not promote the harmonious relationship among the societal members. Greed is part of a human character; hence, vulnerable human beings like mentally disabled, as well as children can be forced by greedy people to sell their organs. In addition, deontology also rejects the practice of organ trade because the intrinsic human dignity of human beings is priceless. Thus, since selling of organs goes together with price tags, according to deontology such actions are morally wrong because they use human beings as the means to an end.

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Purpose and Promoters of Medicinal Herb Usage During Pregnancy in Maseru, Lesotho

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ABSTRACT

Lesotho has one of the highest maternal mortality ratios in Southern Africa. The Government of Lesotho has made efforts to address this problem by training more midwives and traditional birth attendants. Notwithstanding the gains made towards reducing maternal death in Lesotho, unsafe use of medicinal herbs during pregnancy remains a threat to the goal of reducing maternal death. This study assessed the purpose and promoters of medicinal herb usage during pregnancy in Maseru District of Lesotho. The study was a semi-structured, questionnaire-based, cross-sectional study on 72 purposively sampled pregnant women who attended antenatal care at St Joseph's Hospital in Lesotho between January and June 2014. Lesotho is a small landlocked country completely surrounded by South Africa. Overall, 34 (47.2%, n=72) women conceded use of herbs during pregnancy. The majority (52.9%) of participants had no specific reasons for using the herbs, other than as a tradition. Prevention of *leucorrhoea* during pregnancy (5.9%, n=34), placenta *praevia* (8.9%), abortion (5.9%) and enhancing foetal growth (5.9%) were the most common reasons for using herbs. Grandmothers (52.9%, n=34), traditional healers (26.5%), mothers-in-law (14.7%) and traditional birth attendants (5.9%) were implicated in the provision of the herbs used by pregnant women. Use of herbs was not significantly associated with age ($p=0.233$), marital status ($p=0.113$), literacy level ($p=0.719$), previous loss of pregnancy ($p=0.490$), *parity* ($p=0.147$) and *gravidity* ($p=0.234$). Grandmothers, traditional healers, mothers-in-law and traditional birth attendants are the main promoters of herb use during pregnancy. There is a need to incorporate information on cultural beliefs and practices into the training curriculum for traditional birth attendants and midwives to raise their awareness of the potential dangers of using medicinal herbs during pregnancy. Further qualitative research is necessary to unveil precisely the cultural reasons for using herbs.

Key words: *Medicinal; Herbs; Pregnancy; Purpose; Promoter; Maseru; Lesotho*

INTRODUCTION

The use of herbs during pregnancy is common in African settings for various reasons including induction of labour, reducing pain during delivery and expelling the placenta after birth (Kaido et al., 1997, Abasiubong et al., 2012). Cultural beliefs and practices associated with the use of herbs during pregnancy are important determinants of maternal death during pregnancy in many African countries including Lesotho (Sindiga, 1995, Castle et al., 1990, Ngomane and Mulaudzi, 2012).

Reducing maternal death during pregnancy and delivery is one of the Millenium Development Goals (MDG) adopted by the Government of Lesotho (G.O.L) (G.O.L., 2013). Lesotho has one of the highest maternal mortality

ratios in Southern Africa. Available data shows that the maternal mortality ratio increased from 762 deaths per 100,000 live births in 2004 to 1,155 deaths per 100,000 live births in 2009 (G.O.L., 2013). There was however, a slight decline to 1,143 per 100,000 live births in 2011. The global target is set at 90 per 100,000 live births. To address the problem of maternal death, the Government of Lesotho in collaboration with donor agencies such as Nursing Education Partnership Initiative (NEPI) in 2011 started training more midwives and traditional birth attendants (Middleton et al., 2014).

Notwithstanding the gains made towards reducing maternal death in Lesotho, unsafe use of medicinal herbs during pregnancy remains a threat to the goal of reducing maternal death. One author observes that unsafe use of medicinal herbs during pregnancy needs to be addressed to reduce maternal death (Mothupi, 2014).

The main drivers of the use of herbs in African settings include cultural practices enforced by elderly family members such as mothers-in-law and grandmothers who prefer herbs to clinical remedies. Traditional birth attendants and traditional healers also commonly prefer to administer herbal and clinical medicines concurrently to pregnant women (Ngomane and Mulaudzi, 2012).

The use of traditional herbs during pregnancy is common in African settings. For example *Ledebouriamarginata* (*Bokhoein* vernacular) is used in Lesotho and South Africa for soothing pain in fourth month of pregnancy (Bolofo and Johnson, 1988). *Pentanisiaprunelloides* (*Setima-molloin* vernacular) is also used in Lesotho to facilitate childbirth and expulsion of the placenta (Moteetee and van Wyk, 2011). The continued use of these herbs suggests that they are perceived to be effective. Traditional birth attendants often provide the herbs to their clients with the belief that they are effective.

However, concurrent use of herbs and clinical drugs during pregnancy is not without dangers, and may need to be done with caution since most herbs have not been clinically tested. Studies show that some herbs are poisonous while others are known to interfere with the normal physiology of pregnancy and labour resulting in complications during delivery (Varga and Veale, 1997, Veale et al., 1992). Herbs may potentiate or suppress the effect of oxytocin (Kaido et al., 1997, Shih et al., 2009). Concurrent use of herbs and antiretroviral (ARV) drugs during pregnancy is common in Southern African countries given the high prevalence of HIV in the region (Veale et al., 1992, Mogatle et al., 2008). Some herbs interfere with drug metabolic pathways such as cytochrome P450 system resulting in increased plasma levels of some drugs to toxic levels (Mills et al., 2005).

Most health ministries and governments in African countries are silent regarding the use of herbs during pregnancy owing to lack of clear policies and guidelines secondary to the absence of scientific evidence regarding effectiveness or dangers. As a result, the use of these herbs is usually not reported to the clinicians, including midwives and doctors. Moreover, those who reveal use of the herbs often do not reveal the nature of the herbs. Consequently, documentation of the use of these herbs in the context of Lesotho is minimal. Apparently, these users are also not informed of these details by the suppliers of the herbs who often opt to preserve patent information of the herbs.

This study investigated the purposes and the promoters of medicinal herb usage during pregnancy as well as factors that influence their use.

METHODS

Study design and data collection

This was a cross-sectional study on 72 pregnant women who attended antenatal care (ANC) at St Joseph's District Hospital in Maseru, Lesotho between March and April 2014 and were willing to participate in the study. Lesotho is a small landlocked country completely surrounded by its only neighbour, South Africa. St. Joseph's Hospital is a referral hospital located in the Manonyane community and serves Maseru District which constitutes about 10% of Lesotho's population (G.O.L., 2009). Maseru District was ideal for the study since it has both urban and rural settings.

The study used purposive sampling. The data was obtained by means of a semi-structured questionnaire. The study was approved on the 10th of January 2014 (ID145-2013) by the Ministry of Health of Lesotho. All ethical considerations were observed during data collection.

Participants were asked to complete a predesigned questionnaire which collected information including demographic data, herbs used, source of herbs, trimester when herbs were used and the reasons for using herbs.

Data analysis

Data was analysed using STATA[®] version 12 (StataCorp, Texas, USA). The proportion of pregnant women using herbs was calculated and the respondents' characteristics associated with the usage of herbs were determined. Tests of association between use of herbs and categorical demographic variables such as marital status, level of education and literacy level were performed using Fischer's exact test. Variables such as age, number of pregnancies (gravida) as well as the number of children (parity) were tested for association with the use of herbs using test.

RESULTS

Demographic characteristics of the pregnant women

The ages of the 72 respondents who attended ANC ranged from 15 to 40 with a median age of 24 (IQR: 19 – 27). Thus the participant ages were skewed towards the younger age groups with the 15-18, 22-24 and the 25-27 age groups being the largest groups attending ANC in this population.

Overall, 80.6% (n=72) were married and 13.9% (n=72) were single. The remainder were widowed (1.4%), separated (2.8%) or divorced (1.4%).

When literacy level was considered, 58.3% (n=72) of the women had primary school education, 40.3% had secondary education and 1.4% had tertiary education. The number of pregnancies experienced by respondents (gravida) ranged from one to six. However, most of the women (36.1%, n=72) were pregnant for the first time followed by those who were pregnant for the second time (26.4%) and 18.1% for the third time. Only 19.4% were pregnant for the fourth time or more.

When parity or the number of children alive was considered, most of the women (41.7%, n=72) indicated that they had no children alive. Twenty three (31.9%, n=72) had one child and ten women (13.9%) had two children alive. Only nine (12.5%) women had 3 or more children alive. The ratio of the number of pregnancies to the number of children alive (gravida to parity ratio) indicated that 63.9% (n=72) of the women had lost at least one pregnancy and only 36.1% (n=72) had not lost any pregnancy.

Use of Herbs

Overall, 34 (47.2%, n=72) women conceded use of herbs at least once during pregnancy. Herbs were used mostly (50.0%, n=34) in the second trimester and in the first trimester (30.9%). Only 19.1% used herbs in the third trimester.

Figure 1 presents the reasons for use of the herbs by the 34 women who indicated that they used herbs during pregnancy. Of the 34 women who used the herbs, about 55.9% did not specify any reason why they used herbs beside cultural practises.

Beside unspecified reasons, prevention of *leucorrhoea* during pregnancy (5.9%, n=34), prevention of placenta *praevia* (8.9%), prevention of abortion (5.9%) and promoting foetal growth (5.9%) were the most common reasons for using herbs. Names of herbs used by the pregnant women, parts of plants used and uses of the herbs are presented in table 1.

Pregnant women's own grandmothers provided most of the herbs used (52.9%, n=34). In this study the term grandmother referred to either maternal or paternal grandmother. Traditional healers provided herbs to 26.5% of the pregnant women. Mothers-in law supplied herbs to 14.7% of the women whilst traditional birth attendants (TBA) provided herbs to 5.9% of the women.

Use of herbs was not significantly influenced by age ($p=0.233$), marital status ($p=0.113$), literacy level ($p=0.719$) and previous loss of pregnancy ($p=0.490$). Parity ($p=0.147$) and gravida ($p=0.234$) were also not significantly associated with use of herbs during pregnancy.

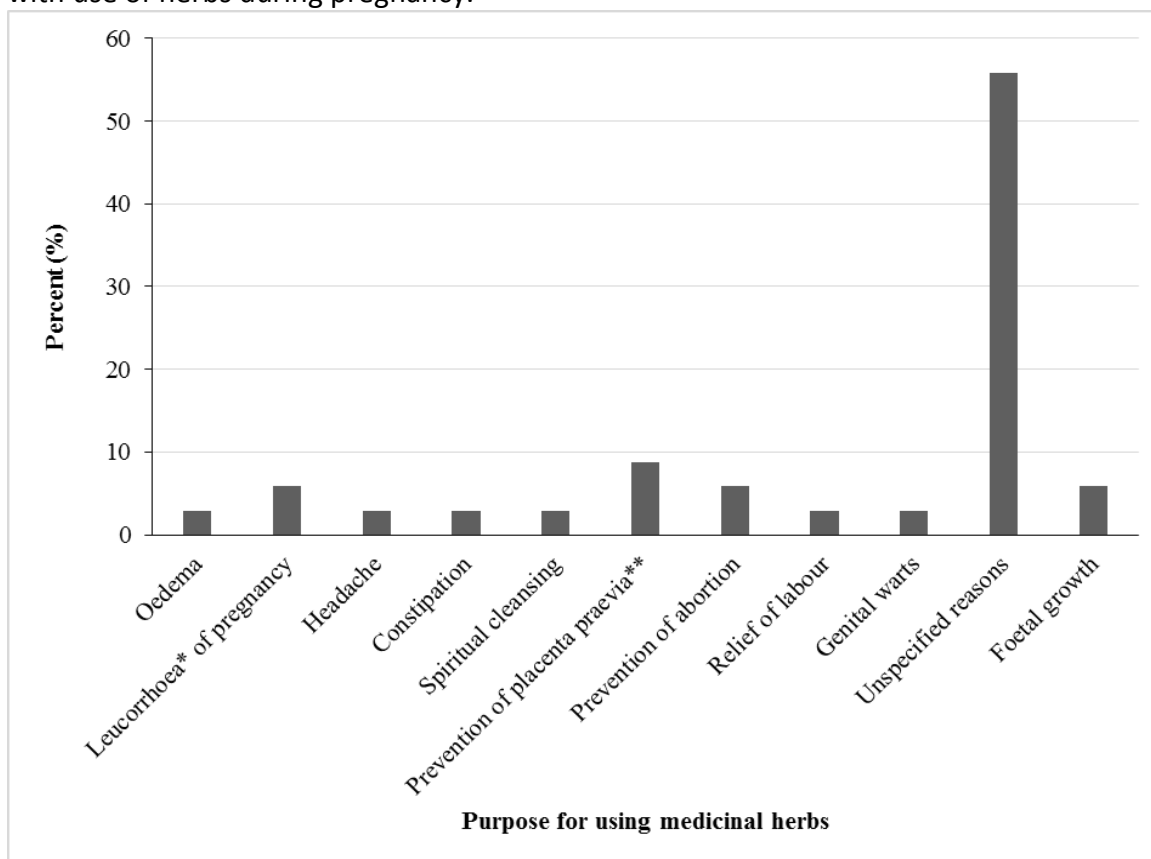


Figure 2: Purpose for using medicinal herbs during pregnancy

Leucorrhoea of pregnancy = odourless vaginal discharge caused by increased blood flow to the vagina during pregnancy and may be mistaken for sexually transmitted infections;(Leucorrhoea of pregnancy, 2003) Placenta *praevia* = improper implantation of the placenta near the uterine cervix which is usually associated with severe maternal haemorrhage during labour(Placenta *praevia*, 2003)

Table 1. Names of herbs used during pregnancy and their uses

Vernacular name	Botanical name	Part of plant used	Purpose for use of herbs
Qobo	<i>Gunneraperpensa</i>	root bulb	Relief of labour pains
Setima-mollo	<i>Pentanisiaprunelloides</i>	tubular roots	Prevent placenta <i>praevia</i>
Seletjane	<i>Hermannia depressa</i>	roots	Sooth painful waist, prevent placenta <i>praevia</i>
Mohalalitoe	<i>Zantedeschia albomaculata</i>	root bulb	Prevent abortion
Mathethebale	<i>Eucomia autumnalis</i>	tubular	Relief of labour pains, treat <i>leucorrhoea</i> of pregnancy
Hloenya	<i>Dicomaanomala</i>	tubular	Treat headache; constipation
Bohomeboboputsoa*	-	Leaves, roots	Promote foetal growth
Bokhoe	<i>Ledebouriamarginata</i>	root bulb	Sooth painful waist and treat <i>leucorrhoea</i> of pregnancy and genital warts

* Botanical name unknown

DISCUSSION

The proportion of women using herbs during pregnancy in this study (47.2%, n=72) was very high. However, it was comparable to the findings from a study in KwaZulu Natal, South Africa where 43.7% of 577 participants were using medicinal herbs during pregnancy (Mabina et al., 1997).

About 55.9% of the women who used herbs in this study did not specify any reason why they used them beside cultural practises. This highlights the role played by culture and tradition in influencing the use of herbs during pregnancy. Grandmothers, village traditional healers and mothers-in-law emerged as the main promoters of using medicinal herbs during pregnancy. Apparently, these groups of people are culturally expected to take care of pregnant women and assist during delivery. The influence of the elderly women and traditional healers was also reported in another study in KwaZulu Natal, South Africa where parents and elderly relatives as well as traditional birth attendant were found to have the most influence towards younger generations of pregnant women with respect to pregnancy safety (Mabina et al., 1997). This indicates that elderly women as well as traditional healers have profound influence on pregnant women and therefore, there is need to educate the elderly population such as grandmothers on safe use of herbs.

Traditional birth attendants also provided herbs to 5.9% of the women in the current study. This highlights the need to incorporate indigenous beliefs and practices into the training curriculum for traditional birth attendants and professional midwives to increase awareness of the safe usage of medicinal herbs during pregnancy.

In 55.9% of the cases, the elderly women provided herbs to the pregnant women without giving full information about the herbs. This highlights the possible dangers pregnant women are exposed to in such cases. For example, medicinal herbs may potentiate or suppress the effect of oxytocin resulting in labour complications (Kaido et al., 1997). In addition, medicinal herbs have been reported to interact with ARVs in HIV-positive pregnant women resulting in drug toxicity (Mills et al., 2005).

In this study, herb usage by pregnant women was not influenced by age ($p=0.233$), parity ($p=0.147$) and gravida ($p=0.234$). Moreover, marital status ($p=0.113$), literacy level ($p=0.719$) and previous loss of pregnancy ($p=0.490$) also not significantly associated with medicinal herb usage by pregnant women. This implies that the main reason for the use of herbs during pregnancy is cultural norms.

The study did not control for confounding variables that may influence use of herbs during pregnancy. However, this study highlights the extent to which cultural norms associated with the use of herbs during pregnancy may be affecting maternal-child health in Lesotho.

CONCLUSION

A high proportion of women in Maseru District of Lesotho use herbs during pregnancy despite the dangers posed by the herbs. Herb usage by pregnant women is independent of age, marital status, literacy level and previous loss of pregnancy. The majority of the pregnant women use herbs for no apparent reason, but just as a tradition or custom enforced by their elders. Grandmothers, village traditional healers, mothers-in-law and traditional birth attendants are the main promoters of herb use during pregnancy. There is need to incorporate information on cultural beliefs and practices into the training curriculum for traditional birth attendants and professional midwives to increase awareness of such practices and the dangers of using herbs during pregnancy. Further qualitative research is necessary to unveil precisely the cultural reasons for using herbs.

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Study on Assessment of the Involvement of the Family in Tuberculosis (TB) Management in Lesotho

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ABSTRACT

Tuberculosis is a common chronic and in many cases a lethal, infectious disease caused by various strains of acid-fast bacillus, mycobacterium tuberculosis. It typically attacks the lungs, but can also affect other parts of the body. It is spread through the air when people who have an active form of TB infection cough, sneeze, or otherwise transmit respiratory fluids through the air. Multi resistant TB is a series of events where the mycobacterium tuberculosis is resistant to anti TB drugs. It is a particular problem in patients with AIDS. Diagnosis of TB is made on clinical signs, X-rays, skin tests and the presence of acid-fast bacilli in the sputum or in urine. Treatment is based on anti-tuberculosis drugs in combination. Immunization with BCG is used to protect vulnerable individuals usually detected by skin testing. (Mosby 2002)

The general objective was to find out the involvement of families in TB management in Moleleke's Hoek district.

The specific objectives were to determine how supervision of TB treatment is done by the family members, to assess the knowledge of families about modes of transmission of TB, to identify possible ways in which families contribute to adherence to TB treatment by patients to review knowledge of families about preventive measures of TB.

METHODOLOGY

The research project was a quantitative descriptive type of study. The researcher used questionnaires with an attached consent to the nurses, who have worked in TB ward for at least a month, to TB patients who are already on treatment, and to family members of those TB patients.

Population and sample of this study was consisting of all nurses who worked in TB ward in Ntšekhe hospital who were willing to participate in this study. It also included TB patients and family members of TB patients who presented to Ntšekhe hospital. Assuming an estimated target population size of 110. Stratified random sampling technique was employed to select subjects in each stratum such that, everybody stood equal chance of being selected, but still considering different educational level; the first person met in the each educational level was selected until the required number of such stratum or sub-stratum was achieved. The above mentioned technique only applied to nurses while for TB patients and their family members non probability purposive sampling was used, and nurses helped to trace TB patients and their family members.

The research proposal was sent to ethical research unit in the ministry of health for ethical clearance. An informed consent was as well asked from informants and their names remained anonymous, there was no harm to them thereafter. Consent was asked from Ntšekhe hospital, TB patients and families of those TB patients before administering questionnaire. Whereby it became almost impossible to reach the respondents, other communications such as email and telephone were employed to aid data collection by questionnaires

SPSS version 16.0 was utilized to analyze data; construction of frequency tables and correlations was done. Microsoft excel office word 2007 was used to construct bar charts and pie charts.

According to family members of TB patients who presented at Nt'sekhe hospital, adherence of TB patients to treatment and also supervision of TB patients by family members is a major contributing factor to TB management by families. According to TB patients, patients were found to adhere to their treatment and many of them were found to be supervised by their families. Also knowledge of modes of transmission of TB by families seems to have more impact on TB management. Adherence to TB treatment, supervision by families, knowledge of modes of transmission of TB have shown to have more impact on involvement of families in TB management according to nurses. This pattern which is evident here, also predominant in TB patients as well as family members as they stated that adherence to TB treatment and supervision of TB patients by family members are major indicators of involvement of families in TB management.

Adherence to TB treatment by TB patients and supervision of TB patients by their family members seemed to be the most contributing factors to involvement of families in management of TB in all categories, and finally the results of this study concludes that knowledge of the modes of transmission of TB, and Knowledge of preventive measures do not contribute to involvement of families in TB management but through the involvement of families by supervising TB patients on their treatment, patients adhere to treatment.

DEFINITION OF KEY TERMS

Family: It is a group of related people (Mosby 2002).

Role: It is a specific pattern of behaviour expected of a person in a particular social situation (Mosby 2002).

Tuberculosis: It is a chronic granulomatous infection caused by an acid-fast bacillus, mycobacterium tuberculosis (Mosby 2002).

INTRODUCTION

Tuberculosis is a common chronic and in many cases a lethal, infectious disease caused by various strains of acid-fast bacillus, mycobacterium tuberculosis. It typically attacks the lungs, but can also affect other parts of the body. It is spread through the air when people who have an active form of TB infection cough, sneeze, or otherwise transmit respiratory fluids through the air. Multi resistant TB is a series of events where the mycobacterium tuberculosis is resistant to anti TB drugs. It is a particular problem in patients with AIDS. Diagnosis of TB is made on clinical signs, X-rays, skin tests and the presence of acid-fast bacilli in the sputum or in urine. Treatment is based on anti-tuberculosis drugs in combination. Immunization with BCG is used to protect vulnerable individuals usually detected by skin testing. (Mosby 2002)

BACKGROUND

According to the Global Fund to Fight AIDS, Tuberculosis and Malaria 2013, Lesotho has the third highest HIV prevalence in the world, at 24 percent, and the fourth highest estimated TB incidence. The TB-HIV co-infection rates are the fifth highest in the world and multidrug resistant TB is a growing challenge.

Tuberculosis (TB) has affected all the development areas of the country including human resource. This pandemic has also negatively affected the economy of the country. Therefore, there are declining and poor health indices in Lesotho. The scale of the global TB epidemic requires urgent and effective action. This is particularly true in those parts of the world where HIV is fuelling TB. One of the challenges facing health systems is to bring the provision of health services as close as possible to those who need them. TB is both a disease of poverty and a disease exacerbating poverty.

With the necessary support, communities have the potential to contribute to TB care. This can therefore help ensure access to TB care of the poor, who most need it, and help alleviate the impoverishing effects of TB. Successful TB control requires the contribution of many partners. In the global village, all countries need to play a full part in supporting each other's TB control efforts. Families have a crucial role to play in their contribution to the provision of TB care, along with the full range of other health service providers. The World Health Organization and collaborating agencies provided this review of experience in family contribution to TB care and recommendations to national TB programmes (Dr Francis Omaswa 2003).

In the family and community, family support interventions for people living with TB should include supporting TB patients to complete treatment. Where successful, this may pave the way for family support for the introduction of antiretroviral treatment for patients who are HIV positive. TB and HIV/AIDS programmes need to collaborate in order to implement the health service interventions at the family and community level (WHO/CDS/TB/2003.312).

World health organization (WHO) Global plan to stop TB implemented DOTS strategy which focuses on five main points of action. This is where the family intervenes in TB management. WHO advises that all TB patients should have at least the first two months of their therapy observed (and preferably the whole of the treatment observed). This means there should be an independent observer watching patients swallowing their anti-TB therapy (WHO/CDS/TB/2003.312).

Statement of the problem

Tuberculosis is an infectious disease that primarily affects the lung parenchyma. It is a worldwide public problem, and mortality and morbidity rates continue to rise. World Health Organization (WHO) estimates that TB is the cause of death for patients with AIDS (Corbett, Walt, Walker, et al., 2003). Lesotho as one of the developing countries has high prevalence rate of TB currently, 402 cases per 100 000 populations of which 77% are HIV infected (GoL, 2010).

Successful TB control requires the contribution of many partners. In villages, families need to play a full part in supporting each other's TB control efforts. Families have a crucial role to play in their contribution to TB care, along with the full range of other health service providers (Omaswa, 2003).

In an effort to address the deficiencies identified in TB control, the Lesotho government developed a five-year strategic plan for DOTS to combat TB. DOTS helps to control TB because it involves participation of family members by directly observing TB patients when taking their anti TB treatment. In addition, health care workers in all facilities have been trained on TB/HIV management (GoL, 2009; GoL, 2011).

The study is carried out because there are limited studies established yet in Lesotho, which address the involvement of families in TB management, and yet families are the first TB treatment supporters and they are the determinants of treatment success as well as treatment failure.

SIGNIFICANCE OF THE STUDY

The study will promote development of effective strategies that address and encourage involvement of families in treatment of their patients to reduce incidences of TB in the country.

AIMS

To find out the involvement of families in TB management

OBJECTIVES:

1. To determine how supervision of TB treatment is done by the family members.
2. To assess the knowledge of families about modes of transmission of TB
3. To identify possible ways in which families contribute to adherence to TB treatment by patients
4. To review knowledge of families about preventive measures of TB

LITERATURE REVIEW

A review published in 1999 summarized important features of studies of community (including the family) contribution to TB care which emphasized the involvement of the family members in supporting TB patients (including DOT) to complete their treatment. Several key themes emerge from these studies. Establishing the family approach involves several steps, including health education of patients and the general family, training and supervision of the family members contributing to TB care and of health workers, improved provision and supply of drugs, and establishment of a suitable recording and reporting system (WHO/CDS/TB/2003.312).

Studies conducted in Guguletu, Nyanga show that TB treatment outcomes were better for patients supervised by family members than for patients supervised in health facilities. However, because of other confounding variables associated with patient choice of treatment supervision option, it is not possible to conclude that treatment supervision by family members was superior to treatment supervision by health facility staff (WHO/CDS/TB 2001).

Other studies carried out in Kampala, Uganda show that National TB programme has faced specific challenges in implementing effective TB control in Kampala, on account of the greater complexity of health service provision, and less cohesive nature of urban communities, in comparison with rural areas. Considerable improvements are necessary in the process of decentralizing the provision of TB care to the urban health centre. Acceptance of family options for DOT supervision was lower than expected. The main reasons included: unwillingness of the TB patients to accept DOT; lack of confidence in adequate provision of care from the health unit. Further exploration of the reasons for lack of acceptance of family DOT supervision would be useful: on the supply side, the health service delivery for difficulty in decentralizing care; on demand site, the reason why patients did not take up family options (WHO/CDS/TB 2003).

In Ndola, Zambia it was found that integration of TB care into family-based care programme has generally worked well on the small scale of the population of a compound. However there have been some problems. Patients move without informing staff and provide wrong addresses so that tracing defaulters is difficult. Because of problems with National TB programme, there was an erratic supply of drugs. Now that two out of the township/ shanty 30 compounds have successfully integrated TB care with family-based HIV/AIDS care, it is now necessary to develop a plan for scaling the approach to cover the whole of Ndola district (WHO/CDS/TB 2003).

According to Kingdom of Lesotho National Tuberculosis Programme Policy and Manual, to ensure compliance to anti-TB treatment, the public health priority of the NTP is to cure smear-positive cases, while preventing the emergence of drug resistance. Ensuring adherence to treatment through Directly Observed Treatment, which involves participation of family members by directly observing the TB patient is necessary to achieve this goal of compliance to anti-TB treatment. Treatment support should be given to TB patients throughout the entire treatment period.

Patients' compliance is a key factor in treatment success. In many parts of the country, a significant proportion of patients stop treatment before the end, for various reasons. The premature interruption of treatment presents a problem for patients, their family members, those who care for them, and for health workers.

Promotion of compliance through a patient-centred approach include families to facilitate access to treatment, choosing with the patient the most convenient time and place, as well as a family member for direct observation of treatment and, when possible, providing other social and medical services, is much more effective than spending resources on defaulter tracing. Facilitating access includes providing drugs and sputum smears examinations free of charge, reducing the time and cost to the patient to obtain treatment, and providing good and rapid attention.

Convenience to the patient must be balanced with the assurance of regular drug intake and monitoring by families, important to give the patient the best chances of cure. When patients receive self-administered treatment, that is, when patients take their treatment without supervision of family members, they often take drugs irregularly, and tracing is difficult and often unproductive. In addition, there is a much longer period between interruption of treatment and initiation of treatment after tracing the patient. It is vital for families together with health staff to offer polite and efficient attention, and to consider the patient's needs at every contact with the patient.

Treatment of TB in children should be administered on an ambulatory basis. Families should be educated about TB and the importance of completing treatment. The support of the child's parents and immediate family is vital to ensure a satisfactory outcome of treatment. Children with severe forms of TB should be hospitalized for intensive management where possible

Management of a baby born to a mother with infectious pulmonary TB is very crucial. If a mother is found to have pulmonary TB, then the baby, and if possible, the placenta, should be investigated for evidence of congenital TB infection and the baby treated. Once the mother has been on treatment for at least 2–3 weeks, she is generally no longer infectious. If a mother has been on treatment for TB for several weeks before delivery, it is less likely that the baby will become infected, and the responsibility of the family is to make sure that the baby does not contact TB. The risk is highest if a mother is diagnosed at the time of delivery or shortly thereafter. A breastfeeding infant has a high risk of infection from a mother with smear-positive pulmonary TB, and has a high risk of developing TB. The infant should receive 6 months of isoniazid preventive therapy, followed by BCG immunization. Breastfeeding can be safely continued during this period. An alternative policy is to give 3 months' isoniazid, then perform a TST. If the test is negative, isoniazid should be stopped and BCG vaccination given. If the test is positive, isoniazid should be continued for another 3 months, after which it should be stopped and BCG given (Tuberculosis handbook WHO 1998).

METHODOLOGY

This chapter describes the methods used to aid data collection from the informants liable to the research project, and how data were analyzed and could be used by health stakeholders. This chapter describes Variables, study type or study design, settings for study, sample, sampling procedure, data collection tool, data collection procedure, data handling, data analysis, and ethical consideration.

3.1 table shows the variables, their definitions and how they were analyzed

VARIABLES	DEFINITIONS OF VARIABLES	ANALYSIS
Biographical data	Compare age, sex, marital status and the level of education	Determine the proportion in regard to age, level of education and marital status of TB patients
Family involvement	Determine the involvement of families in TB management	Assess the involvement of the family members in TB management
Knowledge about TB	Assess the knowledge of family members about ways of preventing TB transmission	Determine whether family members know about ways of preventing the spread of TB
Roles of family	Determine the roles played by families to control TB	Determine the role that family members play to support TB patients and to control TB
Motivation of TB patients by families	Find out how family members motivates and supervise TB patients	Identify if family members motivate TB patients to take their treatment as prescribed
Contact between health care workers and families	Find out if there is contact between health care workers and families in management of TB	Find out whether families work together with health care providers in TB management

STUDY AREA

The study area for this research study was Ntšekhe Hospital in the district of Mohale's Hoek, TB patients and the family members of TB patients who presented in Ntšekhe hospital

BACKGROUND OF THE STUDY AREA

Mohale's Hoek is a district of Lesotho. It has an area of 3530 square kilometres and a population in 2006 of approximately 174,924. Mohale's Hoek district has seven community councils whereby Ntšekhe hospital occupies the entire Mohale's Hoek urban council. There is one facility in Mohale's Hoek that is inaccessible and it is called Kuebunyane. The district has one government hospital and 18 health centers of which 5 of them are owned by CHAL, 12 are owned by government and one is private. The TB notification in Mohale's Hoek district was 618 per

100 000 population for the period under review. Thirty two percent of the 881 new pulmonary tuberculosis cases were smear positive and 78 percent was the TB treatment success rate. The proportion of TB clients that tested positive and were enrolled on ART was 68 percent (AJR 2012-13).

STUDY POPULATION AND SAMPLE

Population and sample of this study was consisting of all nurses who worked in TB ward in Ntšekhe hospital who were willing to participate in this study. It also included TB patients and family members of TB patients who presented to Ntšekhe hospital. Assuming an estimated target population size of 150, a margin of error of 5% at 95% confidence interval, and assuming a response rate of 90%, the minimum sample size required was 109 (Raosoft, 2004).

SAMPLING PROCEDURE

Stratified random sampling technique was employed to select subjects in each stratum such that, everybody stood equal chance of being selected, but still considering different educational level; the first person met in the each educational level was selected until the required number of such stratum or sub-stratum was achieved. The above mentioned technique only applied to nurses while for TB patients and their family members non probability purposive sampling was used, and nurses helped to trace TB patients and their family members.

STUDY DESIGN

The research project was a quantitative descriptive type of study. The researcher used questionnaires with an attached consent to the nurses, who have worked in TB ward for at least a month, to TB patients who are already on treatment, and to family members of those TB patients.

PILOT STUDY

For reliability of the questionnaires pilot study was conducted in Likhutlong village in Mohale,s hoek. Ten families of TB patients were identified and questionnaires were distributed to family members of TB patients. From data obtained, findings were found to have picture of what was expected, and this indicated that questionnaires were reliable.

DATA COLLECTION

The questionnaires were used as data collection tool.

DATA ANALYSIS

Data analysis was done using SPSS version 16 in order to determine the involvement of families in TB management. The graphs, and frequency tables and percentages were utilized in the analysis of data.

DATA HANDLING

The questionnaires were numbered for easy identification of missing responses. They were stored in sequence in which they were collected for easy analysis of data. Before and during data processing, the information was

checked for completeness and internal consistency. Questionnaires are locked in the supervisor's locker where people will not have access to information collected except the researcher and the supervisor.

LIMITATIONS OF THE STUDY

The main limitation of the study was the reliability of the sampling method chosen. Use of a questionnaire as a data collecting tool has its own limitations. Time frame, availability of nurses, TB patients who are on treatment as well as their family members and their willingness to participate limited the study. Availability of resources was also a limitation to the study.

ETHICAL ASPECTS AND GOOD CLINICAL PRACTICE

The research proposal was sent to ethical research unit in the ministry of health for ethical clearance. An informed consent was as well asked from informants and their names remained anonymous, there was no harm to them thereafter. There were no benefits for participation but the research study results were beneficial to all people, not specifically to participants. The community will benefit if there will be any need towards implementation of any of their suggestions. The participants were made aware that they could withdraw from the study if they felt uncomfortable with participation. Consent was asked from Nt'sekhe hospital, TB patients and families of those TB patients before administering questionnaire. Whereby it became almost impossible to reach the respondents, other communications such as email and telephone were employed to aid data collection by sending written questionnaire.

DATA ANALYSIS

- ❖ SPSS version 16.0 software was used to analyse data
- ❖ Constructions of frequency tables and correlations was done
- ❖ Microsoft excel was used to construct bar charts and pie charts

PRESENTATION OF RESULTS

This section demonstrates the involvement of families in TB management in Mohale's Hoek district. The tables and pie charts below show the results

Table 1: demographic information of family members of Tb patients who take their treatment at Nt'sekhe hospital (n=50)

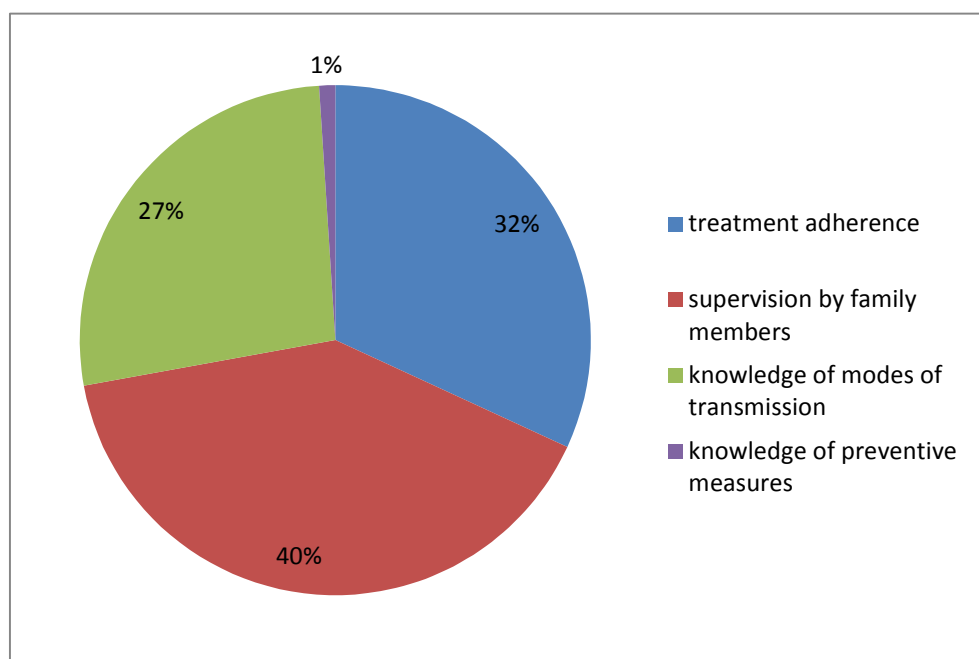
	variables	Frequency	Percent%
Age group	20-40	7	14%
	40-60	36	72%
	60-80	5	10%
	Above 80	2	4%

INVOLVEMENT OF FAMILY IN TB MANAGEMENT

Sex	Males	16	32%
	Females	34	68%
Marital status	Married	38	76%
	Single	3	6%
	Others	9	18%

Table 1 above shows that majority of respondents who were interviewed were aged between 40-60(n=36), and of all the respondents, most of them are females who were married (n=38)

Figure 1: contribution of families in TB management



According to figure 1 majority of families interviewed mentioned that they supervised their TB patients (40% : n=20), while (32% : n=16) families mentioned that their patients adhered to treatment, (27% : n=14) of families mentioned that they knew modes of transmission of TB, only (1% :n=1) of families knew preventive measures of TB.

Table 2: TB patients who took their treatment at Nt'sekhe hospital Mophale's Hoek (n=50)

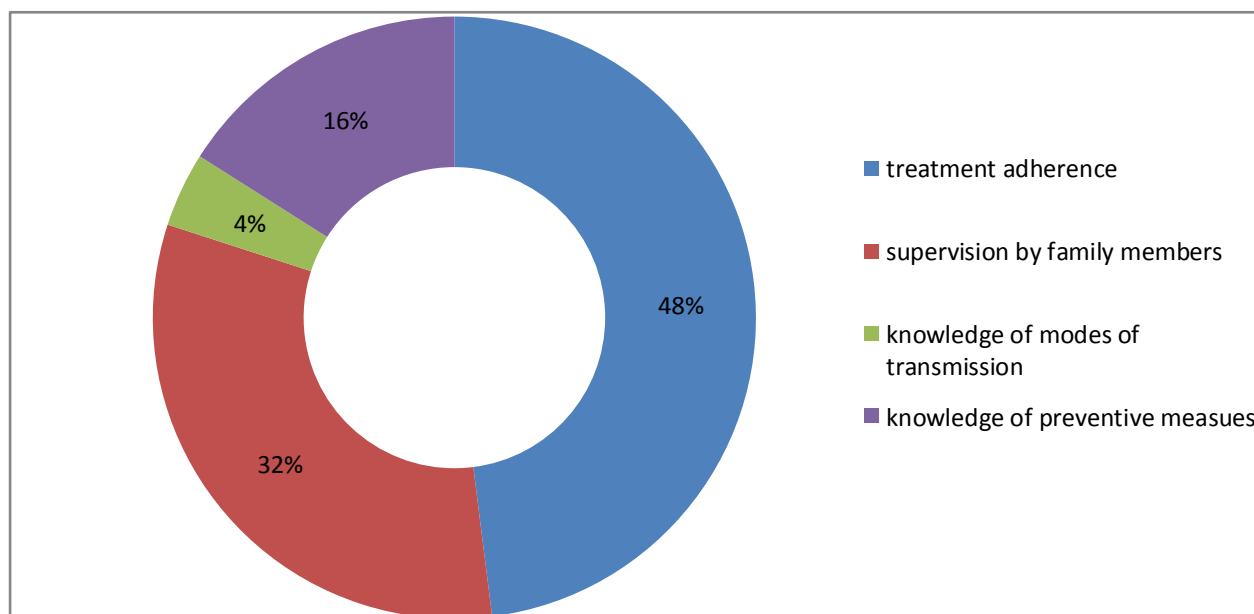
		frequency	Percent%
Age group	20-40	13	26%
	40-60	18	36%
	60-80	4	8%

INVOLVEMENT OF FAMILY IN TB MANAGEMENT

	Above 80	15	30%
Sex	Males	32	64%
	Females	18	36%
Marital status	Married	16	32%
	Single	25	50%
	Others	9	18%

Table 2 shows that majority of TB patients who were interviewed were aged between 40-60 (36%: n=26), amongst the respondents (64% : n=32) were males and (50% : n=25) were single.

Figure 2: contributions of families in TB management according to TB patients



According to figure 2 above, (48% : n= 24) of TB patients mentioned that they adhered to TB treatment which is majority of interviewed patients.(32% : n=16) of patients indicated that they are supervised by their family members, (16% :n=8) of patients mentioned that they know preventive measures of TB, while the remaining (4%:n=2) patients indicated that they know modes of transmission of TB.

Table 3: nurses who worked in TB ward at Nt'sekhe hospital in Mohale's hoek (n=10).

		frequency	Percent%
Age group	20-40	5	50%
	40-60	3	30%

INVOLVEMENT OF FAMILY IN TB MANAGEMENT

	60-80	2	20%
	Above 80	0	0%
sex	Males	3	30%
	females	7	70%
Marital status	Married	7	70%
	Single	2	20%
	Others	1	10%

Table 3 shows that majority of nurses who were interviewed were aged between 20-40 (n=5). With regard to gender, 70% (n=7) of the nurses were females. Marital status of interviewed nurses is also shown in the table and it indicated that of all interviewed nurses 70% (n=7) were married.

FIGURE 3: Shows contribution of families in TB management according to nurses who worked in TB, at Nt'sekhe hospital in Mophale'hoek.

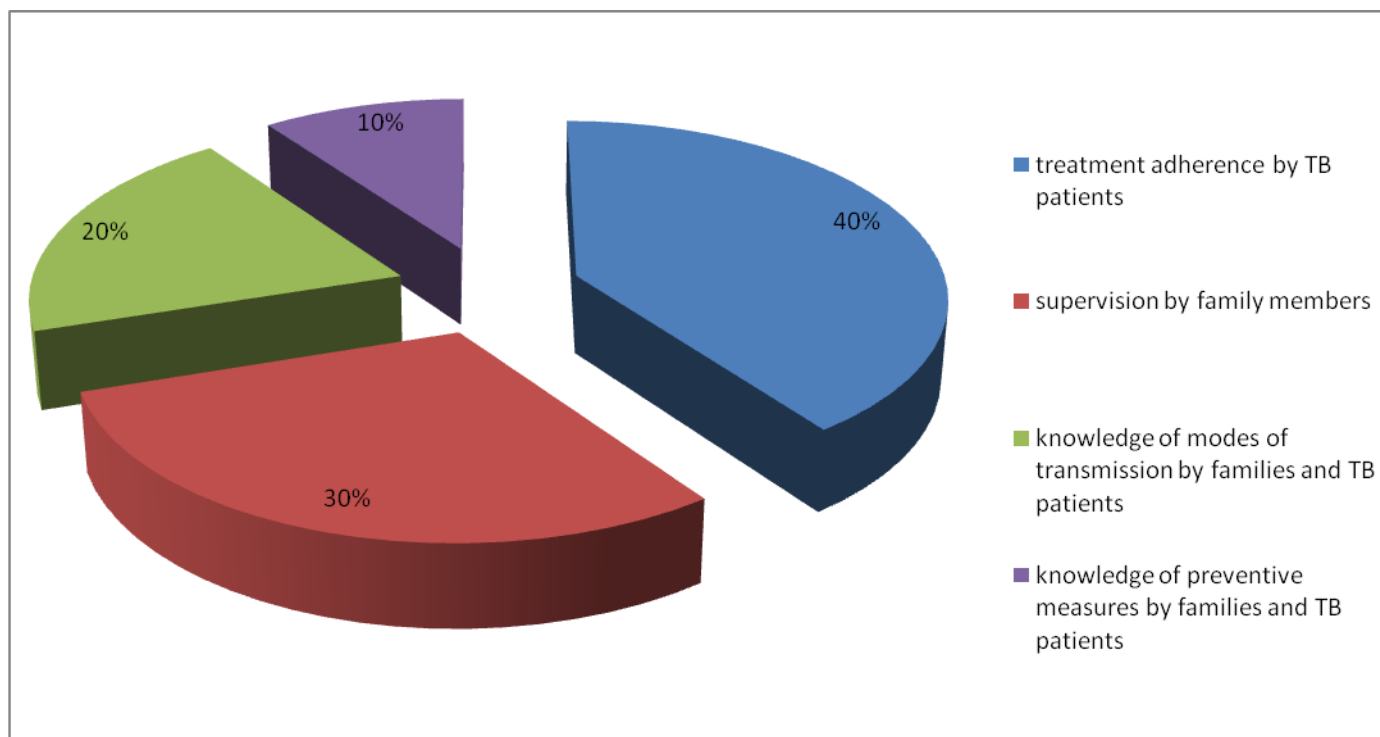


Figure 3 indicates that 40%(n=4) of nurses who worked in TB ward at Nt'sekhe hospital mentioned that TB patients adhere to treatment, 30%(n=3) of nurses mentioned that families supervise their TB patients, while knowledge of modes of TB transmission by both TB patients and families was indicated by 20%(n=2), knowledge of preventive measures by both TB patients and families was found to be 10% (n=1).

DISCUSSION OF RESULTS FOLLOWING STUDY

This chapter focuses on discussing the results from data collected, so as to find out whether the objectives were achieved, and the experiences from the research project the researcher encountered.

According to family members, their involvement in TB management contributes to adherence of TB patients to their treatment through their supervision. This is mentioned by Weyer K 2004. Also knowledge of modes of transmission of TB by families seems to have more impact on TB management. This implies that supervision by family members, knowledge of modes of transmission of TB, and adherence to TB treatment are important factors to be addressed, since they are seen to major indicators of involvement of families in TB management.

On the category of TB patients, patients were found to adhere on their treatment and many of them were found to be supervised by their families. Unlike family members who knew modes of transmission, patients knew preventive measures of TB. Supervision by family members, adherence to TB treatment as well as knowledge of preventive measures of TB are major indicators of involvement of families in TB management.

Adherence to TB treatment, supervision by families, knowledge of modes transmission of TB have shown to have more impact on involvement of families in TB management according t nurses. This pattern which is evident here, also predominant in TB patients as well as family members as they stated that adherence to TB treatment and supervision of TB patients by family members are major indicators of involvement of families in TB management.

From other studies conducted in Guguletu, Nyanga TB treatment outcomes were better for patients supervised by family members than for patients supervised in health facilities and this supports the results of the study which shows that supervision of family members in treatment of their TB patients contributes to adherence of those TB patients to their treatment. This is mentioned by (WHO/CDS/TB 2001).

Ensuring adherence to treatment through Directly Observed Treatment, which involves participation of family members by directly observing the TB patient is necessary to achieve this goal of compliance to anti-TB treatment this is according to Kingdom of Lesotho National Tuberculosis Programme Policy and Manual

In the family and community, family support interventions for people living with TB should include supporting TB patients to complete treatment. Where successful, this may pave the way for family support for the introduction of antiretroviral treatment for patients who are HIV positive. TB and HIV/AIDS programmes need to collaborate in order to implement the health service interventions at the family and community level (WHO/CDS/TB/2003.312). This supports the results of this study which indicate that families play a pivotal role in adherence of TB patients to their treatment.

World health organization (WHO) Global plan to stop TB implemented DOTS strategy which focuses on five main points of action. This is where the family intervenes in TB management. WHO advices that all TB patients should have at least the first two months of their therapy observed (and preferably the whole of the treatment observed). This means there should be an independent observer watching patients swallowing their anti-TB therapy (WHO/CDS/TB/2003.312).

Promotion of compliance through a patient-centered approach include families to facilitate access to treatment, choosing with the patient the most convenient time and place, as well as a family member for direct observation of treatment and, when possible, providing other social and medical services, is much more effective than spending resources on defaulter tracing. Facilitating access includes providing drugs and sputum smears examinations free of charge, reducing the time and cost to the patient to obtain treatment, and providing good and rapid attention. This is mentioned by Kingdom of Lesotho National Tuberculosis Programme Policy and Manual.

Moreover on another study carried out by WHO 2004 which emphasized that involvement of the family members in supporting TB patients (including DOT) assist TB patients to complete their treatment. These findings are also supported by the results of this study.

SCOPE AND LIMITATIONS OF THE STUDY

I managed to collect data from all 110 respondents and there were three categories.

The limitations of the study were:

- I was not able to as much material as was required because the internet was not always available and there are not much research done on involvement of families in Tb management.
- I was unable to make follow-ups to family members to clarify some of the questions they misunderstood.

CONCLUSION

According to family members, adherence to TB treatment by TB patients, supervision by family members, and knowledge of modes of transmission of TB indicated much contribution to involvement of families in management of TB, while were lack of knowledge of preventive measures of TB had least impact. Adherence to TB treatment, supervision by family members, and knowledge of preventive measures also contribute to involvement of families in management of TB whereas knowledge of modes of transmission of TB had least impact according to TB patients view point. Nurses stated that, adherence to treatment, supervision by family members, knowledge of modes of transmission of TB showed much contribution to involvement of families while knowledge of preventive measures of TB showed least impact.

Adherence to TB treatment by TB patients and supervision of TB patients by their family members seemed to be the most contributing factors to involvement of families in management of TB in all categories, and finally the results of this study concludes that knowledge of the modes of transmission of TB, and Knowledge of preventive measures do not contribute to involvement of families in TB management but through the involvement of families by supervising TB patients on their treatment, patients adhere to treatment.

RECOMMENDATIONS

The findings show that, adherence to TB treatment by TB patients and supervision by family members of TB patients are major factors that contribute to involvement of families in TB management in Mohale's hoek district. I therefore recommend that:

- ❖ Community nursing should be improved and families being included in the entire treatment of their patient, that is, health education should also be provided to family members for effective health care delivery.
- ❖ Health care services should be improved by including members of families in the treatment of their patients not only in tuberculosis but in all other conditions, being communicable and non-communicable diseases for effective health care delivery.
- ❖ Health campaigns should be held to motivate families, thus make them aware of their significance in supporting and contributing to treatment of their patients.

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The Effect of Tenofovir on Immunological Response in HIV-Positive Patients in Lesotho

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ABSTRACT

Background: Lesotho has one of the highest adult HIV and AIDS prevalence rates in the world. The impact of TDF on immunological outcomes at RHSA has not been reported since TDF was introduced in 2008.

Objectives: The study evaluated the effects of TDF on immunological outcomes at Roma area in Lesotho based on CD4 counts.

Methods: This was a retrospective study on CD4 count outcomes of 516 adult HIV patients enrolled on ART between December 2006 and December 2013 at St Joseph's Mission Hospital the RHSA.

Results: The proportion of patients who developed immunological failure in this study was low (6.8%, n=516). The mean CD4 count increased significantly after 36 months ($p < 0.001$). TDF's outcomes were not significantly better than non-TDF based regimens ($p = 0.442$). Logistic regression analyses using STATA[®] 11 revealed that baseline CD4 count < 50 cells/mm³ ($p = 0.049$) and male gender ($p = 0.005$) were significantly associated with immunological failure outcome.

Conclusion: TDF does not have superior immunological outcomes to zidovudine. Males and patients with low baseline CD4 counts should be closely monitored while on antiretroviral treatment.

Key words: *Tenofovir; CD4; immunological failure; Lesotho*

INTRODUCTION

Human immunodeficiency virus (HIV) is a lentivirus that causes acquired immunodeficiency syndrome (AIDS).^[1] According to a report by the Government of Lesotho (GoL), Lesotho has one of the world's highest adult HIV and AIDS prevalence rate of 23%.^[2] HIV and AIDS alone has caused a drop in life expectancy over the past two decades from over 50 years to the current estimate of 41 years.^[2] HIV and AIDS is a huge burden on the national budget. In 2010, the total annual expenditure on HIV and AIDS was 12.6% of the national budget.^[2]

Tenofovir disoproxil fumarate (TDF) was introduced at Roma Health Service Area (RHSA) in 2008. The assessment of treatment outcomes in terms of immunological outcomes as assessed by clusters of differentiation 4 (CD4) counts in Lesotho is important because access to viral load tests is very limited. ART outcomes in Lesotho are still measured by CD4 counts despite the limited utility of CD4 counts in detecting HIV treatment failure.^[3] Some authors contend that Lesotho may be a fertile ground for the emergence of drug resistance and treatment failure mainly due to poor adherence to antiretroviral drugs.^[4] The study sought to determine immunological outcomes based on CD4 counts and identify variables associated with immunological failure outcome.

HIV infects cells expressing CD4 receptor molecules on their surfaces. CD4 molecules are found on the surfaces of antigen presenting cells such as macrophages, T helper cells, dendritic cells and monocytes.^[5] A progressive decrease in the number of T cells expressing CD4 molecules is the hallmark of HIV infection because HIV enters the cells carrying the CD4 receptors, usually destroying the cells.^[6] The CD4 count is therefore used as a marker of HIV disease progression, including when to begin treatment during HIV infection and the success of ART.

Currently the WHO recommends defining immunological failure based on CD4 counts in HIV patients whose CD4 count have either declined to pre-ART values, CD4 count dropped to less than 50% of peak on-treatment value or failure of the CD4 count to achieve a value greater than 100 cells/mm³ over six month intervals.^[11, 12] As a guideline, effective antiretroviral therapy should result in CD4 counts rising by at least 100 cells/mm³ in the first year and about 50-80 cells/mm³ in the subsequent years.^[6]

The current practice in Lesotho recommends the use of three ARV drugs given as a combination when the CD4 counts fall below the threshold of 350 CD4 cells/mm³. In HIV patients who have never been on HIV treatment before (treatment naïve), the first line treatment consists of two nucleoside reverse transcriptase inhibitors (NRTI) selected from Lamivudine, TDF or zidovudine.^[9] and one non-nucleoside reverse transcriptase inhibitor (NNRTI) selected Nevirapine and Efavirenz.^[9]

The number of second-line ART regimens is severely limited with only four drugs Didanosine, Abacavir, Lopinavir/r and Atazanavir/r available. The Government of Lesotho also switched patients on Stavudine-based antiretroviral drug regimens to TDF-based regimens in 2008 as recommendations by the World Health Organisation (WHO).^[8] Since then, TDF has become the cornerstone of antiretroviral treatment of HIV and AIDS in Lesotho.

METHODOLOGY

Study design

This study utilised an analytical design which was based on retrospective CD4 count outcomes of 516 adult HIV patients enrolled on ART between December 2006 and December 2013 at St Joseph's Mission Hospital in Roma Health Service Area (RHSA). RHSA has about 6% of Lesotho's population according to the 2006 national census. The study was approved by the Ministry of Health of Lesotho on the 13th of January 2012.

The study included adult patients (≥ 18 years) treated for at least six months with TDF or non-TDF based ART regimen from December 2006 up to December 2013. The patients were only included if they had their baseline CD4 counts recorded in the medical records and at least one other CD4 count result recorded over six months.

Immunological failure^[12, 14] cut-off values were defined as follows:

- i. The latest CD4 count values which were less than baseline CD4 count by more than 25%;
- ii. Patients with the latest CD4 count values which were less than 50% of the peak CD4 count result.
- iii. Patients with the latest CD4 count results which were lower than 100 cells/mm³.

Statistical analysis

Logistic regression analyses were performed to determine the variables associated with immunological failure. *P-value* and odds ratio outputs of the different variables tested were then compared. Predictors with a *p*-value less than 0.1 in the univariate analysis were included in the multivariate logistic regression. Significant covariates ($p < 0.05$) were selected to remain in the final regression model. Data was analysed using STATA[®] version 11 (StataCorp, Texas, USA).

RESULTS

Out of the 516 patients included in the study, 35 patients (6.8%) had sub-optimal treatment outcome based on CD4 counts. Although on average 6.8% of the patients developed IMF, the benefits of ART were still noticeable based on the CD4 counts. Generally, CD4 counts increased significantly by more than double (233%) from a baseline mean of 163 cells/mm³ to an mean of 380 cells/mm³ for the latest CD4 counts ($p < 0.001$). The histogram of the latest CD4 counts was transformed towards a normal distribution with a less prominent positive skew found in the CD4 counts histogram at baseline (See Figure 1).

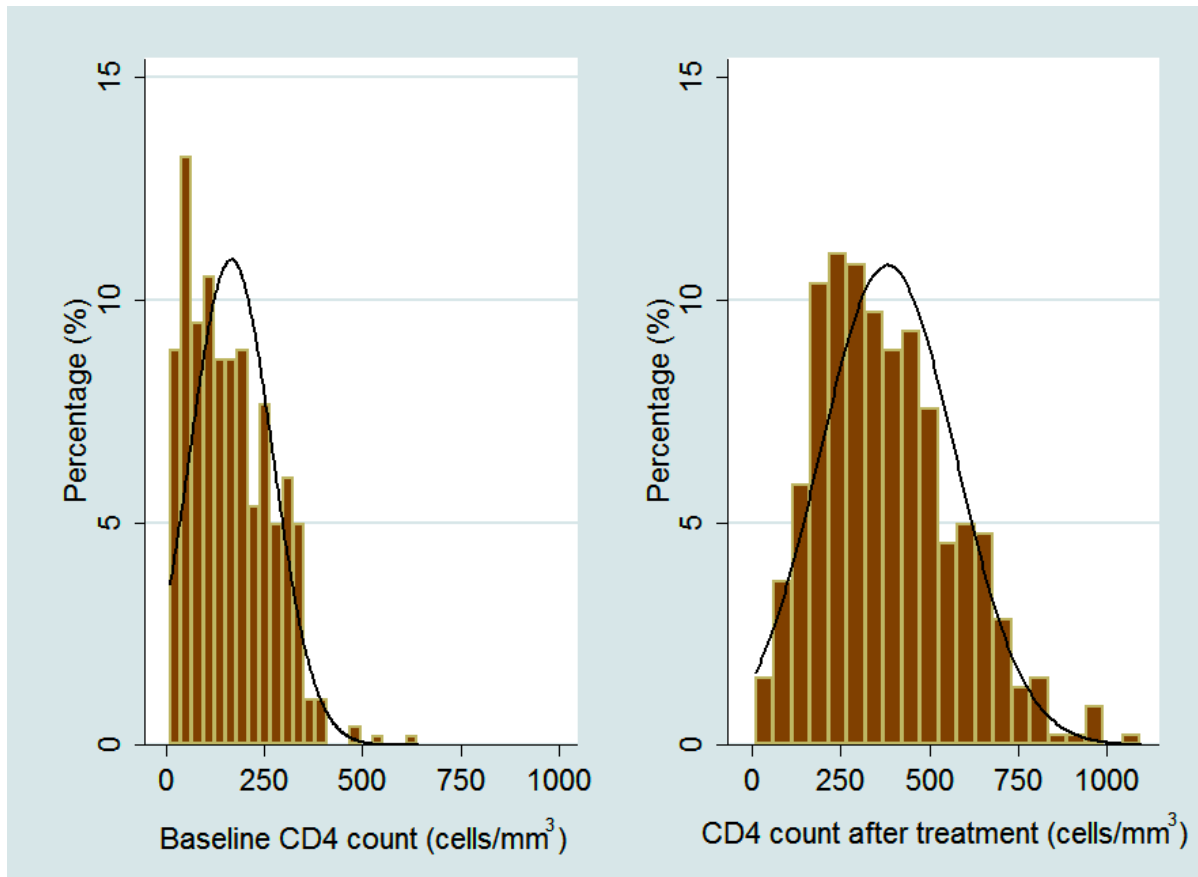


Figure 1: Histogram of baseline CD4 counts and CD4 count outcomes

In this study, TDF and zidovudine-based ART regimens were the two main regimens used at RHSA (see table 1). The highest rates of IMF occurred in the patient category with baseline CD4 counts below 50 cells/mm³. The proportion with Immunological failure outcome for TDF-based regimens (7.4%, $n=309$) was not significantly different ($p=0.458$) from that of AZT-based regimens (5.7%, $n=192$). This indicates that immunological outcomes of TDF-based ART regimens were not significantly different from AZT-based regimens.

Table 1: Comparison of immunological failure outcomes versus ART regimens and baseline CD4 cut-off values.

BL CD4 cut-off values	D4T+3TC+	AZT+3TC+	TDF+3TC+	Total
	EFV/NVP	EFV/NVP	EFV/NVP	
<50 cells/mm³ [IMF (n)]	0 (5)	4 (32)	6 (44)	10 (81)
IMF%	0	12.5	13.6	12.3
50-100 cells/mm³ [IMF (n)]	0 (4)	3 (35)	3 (51)	6 (90)
IMF%	0	8.6	5.9	6.7
100-200 cells/mm³ [IMF (n)]	0 (5)	3 (70)	4 (95)	7 (170)
IMF%	0	4.3	4.2	4.1
>200 cells/mm³ [IMF (n)]	1 (1)	1 (55)	10 (119)	12 (175)
IMF%	100	1.8	8.4	6.9
Total [IMF (n)]	1 (11)	11 (192)	23 (309)	35 (516)
IMF%	9.1	5.7	7.4	6.8

BL = baseline; IMF = immunological failure outcomes; %IMF = Percentage of patients with IMF in each category; CD4 counts are in cells/mm³; AZT = Zidovudine; EFV = Efavirenz; D4T = Stavudine; and 3TC = Lamivudine; EFV/NVP means regimen contained either EFV or NVP.

Table 2 presents variables that were significantly associated with IMF in the univariate analysis. The variables that were significantly associated with IMF in the univariate analysis included male gender (p=0.002); baseline CD4 counts below 50 cells/mm³ (p=0.020); and weight loss of more than 5% from baseline (only significant at 90% confidence level).

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Table 2: Variables and baseline CD4 cut-off points associated with immunological failure outcomes.

Variables	IMF Negative (n=481)	IMF Positive (n=35)	Unadjusted OR (95% CI)	P-value	Adjusted OR (95% CI)	p-value
Female	298 (61.0%)	12 (34.3%)	1			
Men	183 (38.0%)	23 (65.7%)	3.1 (1.5-6.4)	0.002**	2.8 (1.3-5.8)	0.005**
Age 19-29	59 (12.3%)	6 (17.1%)	1			
Age 30-39	172 (35.8%)	17 (48.6%)	1.0 (0.3-2.6)	0.954	-	-
Age 40-49	133 (27.6%)	9 (25.7%)	0.6 (0.2-2.0)	0.459	-	-
Age 50-59	80 (16.6%)	2 (5.7%)	0.2 (0.04-1.3)	0.093		
Age 60-78	37 (7.7%)	1 (2.9%)	0.3 (0.03-2.3)	0.228	-	-
BL Weight>60	141 (29.3%)	9 (25.7%)	1			
BL Weight 50-60	211 (43.9%)	18 (51.4%)	1.3 (0.6-3.1)	0.492	-	-
BL Weight <50	129 (26.8%)	8 (22.9%)	1.0 (0.4-2.5)	0.954	-	-
Weight loss <5%	440 (91.5%)	29 (82.9%)	1		1	
Weight loss ≥5%	41 (8.5%)	6 (17.1%)	2.2 (0.8-5.6)	0.095	2.3 (0.9-6.0)	0.095
No treatment default	440 (91.5%)	33 (94.3%)	1		-	-
Defaulted treatment	41 (8.5%)	2 (5.7%)	0.7 (0.2-2.8)	0.564	-	-
Non-TDF Group	181 (37.6%)	11 (31.4%)	1			
TDF Group	300 (62.4%)	24 (68.6%)	1.3 (0.6-2.8)	0.465	-	-
BL CD4>200 cells/mm ³	165 (34.3%)	10 (28.6%)	1	-	1	
BL CD4 100-200 cells/mm ³	164 (34.1%)	6 (17.1%)	0.6 (0.2-1.7)	0.339	0.6 (0.2-1.7)	0.308
BL CD4 50-100 cells/mm ³	83 (17.3%)	7 (20.0%)	1.4 (0.5-3.8)	0.518	1.3 (0.5-3.7)	0.584
BL CD4<50 cells/mm ³	69 (14.4%)	12 (34.3%)	2.8 (1.2-7.0)	0.020**	2.5 (1.0-6.1)	0.049*

BL = baseline; * = Marginally significant; OR = Odds ratio; IMF = immunological failure; ** = Significant p-value.

In multivariate analysis, male gender ($p=0.005$) and baseline CD4 count below 50 cells/mm³ ($p=0.049$) remained significant predictors of IMF outcome. Although weight loss of 5% or more was an important variable determining the development of sub-optimal immunological outcomes ($p=0.097$), the variable was not statistically significant at 95% confidence level ($p=0.095$). With respect to the use of TDF-containing ART, there were no significant differences in immunological responses between the patients using TDF and the other patients using non-TDF based ARVs ($p=0.587$).

DISCUSSION

With regard to clinical profiles of the patients, more males had results indicating IMF than females ($p=0.005$) although there was no indication that males defaulted treatment more than females. Defaulting rates between males and females did not differ significantly ($p=0.564$). With respect to baseline CD4 count, the baseline CD4 count values for the group that developed IMF were significantly lower than the group that did not develop IMF ($p=0.014$).

The proportion of patients with IMF (6.8%) was lower than the one reported in South Africa^[11] where a failure rate of 20.4% occurred. However, the results of this study were closer to findings in Uganda^[12] where immunological failure occurred in 11.0% of the patients. The reasons why the rates of immunological failure differ by wide margins from virological failure rates may be because of low specificity of the CD4 count results in detecting treatment failure and the differences in the definitions of immunological failure. While most settings use the criteria recommended by WHO^[8], some settings define immunological failure as a decrease in CD4 counts by more than 25% from baseline.^[10]

Another reason why reports of immunological failure differ widely may be because of the different thresholds at which patients start ART. For example, in this study, the median baseline CD4 count value was 154 cells/mm³ (IQR 11-641) which means that some patients started ART despite having CD4 counts above 500 cells/mm³ (patients sometimes start ART with higher baseline CD4 counts if they happen to have a life-threatening condition such as TB). Unfortunately, using the criteria for defining immunological failure without modifications in such patients may lead to errors because patients with higher baseline CD4 counts would probably need a higher percentage decrease in CD4 counts before the CD4 counts can indicate immunological failure.

The IMF outcomes highlight the challenge of measuring poor adherence to treatment in Lesotho. Poor adherence to treatment has been reported as the most common cause of ART treatment failure in Lesotho.^[4] Male patients on ART especially migrant workers who work in South Africa sometime default treatment due to constant relocations.^[13] A study in Central African Republic^[14] reported that 24% of patients with virological failure showed wild-type viruses, which indicated poor adherence. The existence of poor adherence in African settings therefore poses a major setback to the success of ART programmes.

Low baseline CD4 count is one of the risk variables for immunological failure^[7]. Close monitoring of patients with baseline CD4 counts below 100 cells/mm³ to ensure strict adherence to ART is therefore recommended.^[7] The results of this study therefore further emphasize the need to closely monitor patients with low baseline CD4 counts.

Adherence to ART drugs could be one possible reason why the male gender was more likely to have immunological failure than females. However, there were no significant differences in the defaulting records of males and females ($p=0.556$). Contrary to the findings in India^[7], this study did not find any significant association between the development of IMF and poor adherence and co-morbidities such as Hepatitis B or C possibly because of the small sample size of patients who were positive for Hepatitis B or C.

The major limitation of this study was that the number of patients who had immunological failure was not compared to the number of patients who had virological failure. This was due to the fact that Lesotho does not test for viral load in many of the patients whose CD4 count results indicate immunological failure due to resource limitations.

CONCLUSION

In this study, the benefits of ART were noticeable based on the CD4 counts as indicated by the increase in CD4 counts during treatment. The proportion of patients with sub-optimal immunological outcomes or IMF was low. TDF-containing regimens have immunological outcomes comparable to other ART regimens. Males and patients with low baseline CD4 counts should be closely monitored while on ART.

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DECLARATION OF CONFLICT OF INTEREST

There is no conflict of interest.

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