

# Knowledge Attitudes and Practice about HIV Transmission, Prevention and Treatment among Elderly Patients with HIV/AIDS in Rural Lesotho

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## ABSTRACT

**Introduction:** Lesotho is one of the world's countries hardest hit by HIV, with the second highest HIV prevalence after Swaziland. Elderly persons face many prevention challenges such as lack of knowledge in HIV/AIDS, discrimination and stigmatization that can lead to late testing, diagnosis and reluctance in seeking medical services. This is the first study conducted in Lesotho to assess knowledge regarding HIV transmission, prevention and treatment among elderly patients in rural Lesotho.

**Methods:** The study population composed of elderly HIV/AIDS patients aged  $\geq 50$  years, receiving clinical services within the catchment of four rural clinics of Maseru districts. A random sample of medical records of patients living with HIV/AIDS was selected from each of the four clinics. After intervention interview were carried out using the same tool that was used at baseline.

**Results:** Before intervention, a total of 269 patients were interviewed. Majority of the patients were females (65.8%) and had achieved only a primary level of education (71.4%). A composite score was derived from all the questions relating to knowledge about HIV transmission and treatment. A patient who achieved a composite score  $\geq 75\%$  was defined as having 'adequate knowledge'. The results showed that only 34.2% of the patients had adequate knowledge of transmission and treatment of HIV/AIDS. Adequate knowledge about HIV transmission, prevention and treatment was significantly associated with gender, females being more knowledgeable than males (OR=1.9, 95% CI: 1.1-3.5; P=0.022). Patients with secondary or higher level of education being more knowledgeable than those with less education (OR=2.8, 95% CI: 1.1-7.8; P=0.021). After controlling for age, gender and educational level, the results from multivariate logistic regression analysis showed similar associations to the unadjusted ORs. Over one-third of the patients (36.8%) had unprotected sex. After intervention, a total of 183 patients were interviewed. Patients with no formal education gained more knowledge (OR=6.5 95% CI: 1.5-59.3; P=0.005). Males also gained more knowledge after intervention (OR=4.4, 95% CI: 1.6-14.9; P=0.001). Age group of + 65 also gained more knowledge (OR=6.5 95% CI: 1.5-59.3; P=0.005).

**Conclusion:** There is a lack of knowledge about transmission and prevention among elderly patients living with HIV/AIDS in rural Lesotho. It is imperative that a targeted strategy be developed for this vulnerable group, taking into cognisance their inherent lower level of education and to improve access to services. After intervention there was a significant amount of knowledge gained particularly by the groups of patients that had less knowledge about HIV transmission and prevention.

**Keywords:** Elderly; HIV prevention; HIV transmission; ARV treatment; Cultural beliefs and adequate knowledge

## INTRODUCTION

Lesotho is one of the world's countries hardest hit by HIV, with the second highest HIV prevalence after Swaziland. The population of Lesotho is 1.9 million. HIV/AIDS prevalence is 23.6%, which

amounts to more than 289 841 people living with HIV/AIDS [1]. It was noted that 61% of the eligible patients are receiving antiretroviral (ARV) treatment [2]. With first incidence of HIV in 1986, there are many patients who have HIV and are above the age of 50 years. Currently, there is no information of HIV patients above

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the age of 49 in Lesotho, and this leaves unknown information. If the number is not known, it means they are not part of the plan and the nature of disease progression and co-morbidities are not planned for therefore they receive fragmented services. The specific needs of the elderly patients with HIV are not fully met. Due to topography of Lesotho, in rural areas, where this study was based, elderly patients living with HIV walked long distances to the clinic. Some walked for more than 5 hours to come to the clinic.

Elderly persons face many prevention challenges such as lack of knowledge in HIV/AIDS, discrimination and stigmatization that can lead to late testing, diagnosis and reluctance in seeking medical services [3-8]. Elderly patients are excluded in prevention strategies, and they exclude themselves from learning about prevention of HIV, as it is assumed that HIV/AIDS is a disease of young people with bad behaviour. Community health workers do not target elderly people for community prevention strategies. Most elderly patients got infected with HIV in their younger years and aged with HIV, while some elderly patients got infected with HIV in their old age.

Society generally assumes that the elderly people are not sexually active. However, sexuality is coordinated by the neurologic, vascular and endocrine systems [9]. It is associated with family, societal and religious beliefs. It is altered with aging, health status and personal experience. In addition, sexual activity depends on interpersonal relationships, each partner bringing unique attitudes, needs and responses into the coupling [9]. Failure in any of these areas may lead to sexual dysfunction [9]. Physiologic changes can affect the sexual response of men and women and may inhibit or enhance sexual function as people age [10-12]. It was found out that older people consider sex as a very important activity and some have casual sex partners [13]. Women suffer mostly from vaginal dryness and males suffer from erectile dysfunction. It is also reported that elderly people do not discuss their sex and sexuality and associated problems and they hesitate to discuss this with their physicians [9,10]. It was revealed that older people consider condoms use as an annoyance [13].

There is evidence that elderly patients living with HIV/AIDS are vulnerable and need care and support. Due to reduced hormonal control, leading to vaginal dryness, older persons are more vulnerable to HIV infection [14]. Some people come from a long monogamous relationship and when they become widowed they are not aware of HIV infection risks [14]. It was found that older patients report late for testing for HIV hence do not benefit from early treatment and also that they are hardly targeted for prevention strategies [3]. Healthcare providers also hesitate inquire about information relating to sexual risks from the elderly that can expose them to HIV infection [14]. There is a need to have targeted prevention strategies for older persons [13]. Older patients living with HIV/AIDS experience suicidal thoughts and emotional distress and there is need for recommended intervention that is targeted to them [4]. While comparing disclosure and discrimination among younger and older patients, older patients were less likely to disclose their HIV status to their partners, family members, neighbours, church members and even mental health practitioners [5]. It is felt that HIV/AIDS patients above 50 years of age are among the vulnerable groups in terms of care, deterioration due to age and possible co-morbidities, education, support and follow up [13]. Co-morbidities are common in the elderly and they may aggravate the HIV disease progression. With aging, elderly patients'

body functions deteriorate and toxic effects of drugs increase their need for care and support [6]. Financially speaking elderly patients are worse off and they need financial and other forms of support [6]. There is a need for various sectors including health, social care and old age pension to plan in order to meet their needs [12]. This is the first study conducted in Lesotho to assess the knowledge regarding risk factors and treatment among elderly patients in rural Lesotho.

## RESEARCH METHODOLOGY

### Baseline survey

A baseline study was conducted in Lesotho during the period March - June 2015 to assess whether elderly HIV/AIDS patients receive nutrition, psychosocial, economic, environment and health-related support. The primary objective of the baseline study was "to assess the knowledge regarding risk factors and treatment for HIV and AIDS".

The baseline study population composed of elderly HIV/AIDS patients aged  $\geq 50$  years, receiving clinical services within the catchment of four rural clinics of Maseru districts (Matsieng, Marakabei, Matukeng and St. Leonard). The interviews of the patients selected were conducted at their homes accompanied by a community health care worker.

### Sample size

In preparation for this study we anticipated that 50% of the geriatric HIV/AIDS population will have adequate/inadequate community social and health support. Based on this estimate, we calculated a sample size of 384 patients with precision of 5% around the 95% confidence interval (CI). A total of 269 patients were interviewed, giving a total response rate of 70% (Table 1). The lowest response rate was from Matsieng (57%) and Matukeng (43%) clinic catchment areas as a result of patients not residing or moved from their respective addresses as shown on the patient folders. The response rate from Semonkong and Marakebei was 95% and 87% respectively.

Data collectors were trained for one week. The questionnaire was pretested among the data collectors before doing a pilot study. A pilot study was conducted among 8 patients, 2 from each clinic. The questions were then modified accordingly.

### Data analysis

Data were entered into Excel® spreadsheet from the survey forms and all entries were checked to make sure that information in the forms is the same as the one in the spreadsheet. Stata was used to analyse data. Level of knowledge on risk factors and treatment for

Table 1: Determination of sample size from clinic sites.

Code	Clinics	Geriatric HIV/AIDS population	Proposed sample size	Number of patients interviewed	Response rate (%)
1	Matsieng	250	134	76	57%
2	Matukeng	145	77	33	43%
3	Semonkong	219	117	111	95%
4	Marakebei	105	56	49	87%
	Total	719	384	269	70%

HIV/AIDS was assessed from 7 questions [8]. A correct response was assigned a score of 1 and 0 for an incorrect or unknown response. A composite score to determine the overall level of knowledge was derived from all the responses. A patient who achieved a composite score  $\geq 75\%$  was defined as having 'adequate knowledge' [7]. Odds ratios (OR) were calculated to test the association between matched end-line and baseline data. For all analyses, a P-value of less than 0.05 and a 95% confidence interval that does not span unity were considered as thresholds of statistical significance. Focus group discussions were made, and permission to record all the discussions was sort. Information was later transcribed, and themes were formulated. For the purpose of this study, abstinence, faithfulness and condom use were used for discussion.

### Ethical considerations

All participants were required to sign a consent form which will ensure anonymity. No names of patients were used. Informed consent forms were used for patients to give their permission before they participated in the study. Their participation was voluntary and participants were informed that they could withdraw from the study at any time. Enumerators were trained on how to refer participants to address different problems that may arise. The study was approved first by National University of Lesotho Institutional Review Board and also National Ethics committee under the Ministry of Health. Permission letters were received from Christian Health Association of Lesotho and St James Hospital Mantsonyane.

### Intervention

The aim was to educate patients and the community on knowledge about HIV, ARVs and related information.

**Mode of education and training:** The following means of imparting and sharing of information was adopted. The intervention was conducted from July to October 2015.

Focus group discussions were used for training of elderly patients in all four clinics. Community health workers were also involved in order to remind the elderly patients about their ARV treatment. Chiefs and members of public were also taught about HIV prevention in order to increase knowledge and support for the elderly patients with correct information reminders. Discussions were led by the researchers, and they used probing questions to allow for discussion in order to evaluate elderly patients' knowledge, understanding and opinion about HIV related issues. With guidance elderly patients were assisted to come up with correct answers themselves. Enough time was allocated for each discussion to allow thorough debate on these issues. There were some topics that the patients showed more interest in discussing than others, however, the discussions moved towards conclusions with the correct information. Didactic training was used to educate members of public at public gatherings. Discussions were allowed at public gatherings even though time was limited. University Sechabeng radio programme of Radio Lesotho was also used to educate a broader section of members of public.

**Main topics of awareness about HIV/AIDS:** HIV transmission, HIV prevention (abstinence, faithfulness, and condom use) and HIV treatment.

### End-line survey methodology

**Study design:** To assess the patient's knowledge regarding risk factors and treatment for HIV and AIDS after the intervention programme, the end-line survey was conducted using a quasi-experimental study design (pre- and post- survey).

Details regarding the sampling methodology, sample size calculation; measurement tools (survey questionnaire) and ethical considerations are discussed in the baseline report.

**End-line data collection:** The end-line survey was conducted within the same catchment of four rural clinics of Maseru districts (Matsieng, Marakabei, Matukeng and St. Leonard). The questionnaire that was used to collect data for the end-line survey was the same as the baseline survey. A total of 183 patients were interviewed. Table 2 shows the distribution of patients surveyed according to the clinic catchments area.

**Analysis:** End-line questionnaire data was captured in Excel® spread sheet and exported to Stata for statistical analysis [8]. The end-line patient records (n=183) were matched with the baseline data using the patient's identification code. Results are presented as frequency tables and bar charts.

Level of knowledge on risk factors and treatment for HIV/AIDS was assessed from 7 questions (Table 3). A correct response was assigned a score of 1 and 0 for an incorrect or unknown response. A composite score to determine the overall level of knowledge was derived from all the responses. A patient who achieved a composite score  $\geq 75\%$  was defined as having 'adequate knowledge' [7]. Odds ratios (OR) were calculated to test the association between matched end-line and baseline data. For all analyses, a P-value of less than 0.05 and a 95% confidence interval that does not span unity were considered as thresholds of statistical significance [14]. McNamara's test was applied to test the significant difference between baseline and end-line data.

## RESULTS

### Baseline results

A total of 269 patients were interviewed. Majority of the patients were females (65.8%) and had achieved only a primary level of education (71.4%). A composite score was derived from all the questions relating to knowledge about HIV transmission and treatment. A patient who achieved a composite score  $\geq 75\%$  was defined as having 'adequate knowledge' [7]. The results showed that only 34.2% of the patients had adequate knowledge of transmission and treatment of HIV/AIDS. Adequate knowledge about HIV transmission, prevention and treatment was significantly associated with gender, females being more knowledgeable than males (OR=1.9, 95% CI: 1.1-3.5; P=0.022). Patients with secondary or higher level of education being more knowledgeable than those

Table 2: End-line survey (n=183).

Health centre catcment area	Number	Percent
Marakabei	35	19.1
Matsieng	56	30.6
Matukeng	30	16.4
Semonkong	62	33.9
Total	183	100

**Table 3:** Questions to assess the knowledge and understanding regarding risk factors and treatment for HIV/AIDS.

1	1 Yes	Can HIV infection be cured with antiretroviral (ARV) treatment?
	2 No	
	3 Don't know	
2	1 Remain HIV-positive	What will happen to your HIV test result with ARV treatment?
	2 Become HIV-negative	
	3 Don't know	
3	1 Yes	Can taking ARVs as prescribed by a doctor make a person living with HIV/AIDS healthier?
	2 No	
	3 Don't know	
4	1 Yes	Can ARVs eliminate the virus from the body?
	2 No	
	3 Don't know	
5	1 Nothing happens	What happens if you decide by yourself to stop taking ARVs and take them again after sometime?
	2 Sick	
	3 Die	
6	1 yes	Does treatment with ARV medications make using condoms less important?
	2 No	
	3 Don't know	
7	1 Yes	Is it safe to have sex without a condom regardless of your viral load?
	2 No	
	3 Don't know	

with less education (OR=2.8, 95% CI: 1.1-7.8; P=0.021). After controlling for age, gender and educational level, the results from multivariate logistic regression analysis showed similar associations to the unadjusted ORs. Over one-third of the patients (36.8%) had unprotected sex.

### HIV transmission and treatment knowledge

HIV transmission was discussed. Wrong information was corrected and knowledge was improved. HIV treatment was also discussed and results can be seen on Table 3.

### Attitudes and practice

During group discussion, men were separated from women, single women and married women were also separated. This was because when they were together, man were not freely discussing issues, and when married women and single women were together, married women were not free to discuss issues, but when they were separated they freely discussed issues. HIV prevention was discussed using abstinence, faithfulness and condom use. Time was set aside to discuss each topic to saturation. Wrong information was corrected by the facilitator. Towards the end of discussions closed-ended questions were asked to confirm attitude, practice and knowledge.

Most elderly patients were sexually active including those who were not married. Attitude towards abstinence was discussed and it was found that it was not possible to abstain for both males and females, even though they cited different reasons. Most elderly patients were not faithful to one partner, single women said they dated married men, when they were busy with their families, they dated other available men. Individuals who had the opportunity of being faithful because they were married were also unfaithful because husbands were unfaithful. Reasons being that their husbands had been unfaithful throughout, they got tired of fighting with them and started dating as well. Single elderly patients were not ready to

get married because of property ownership and family squabbles. They also said they did not want to be accused of killing their new husband again if he died. They said their adult children would not allow them to get married.

Attitude towards condom use was the same between males and females; they did not want to use condoms. They cited different reasons for their behaviour, men said women want children that was they did not use condoms, while women said condoms cause kidney problems for men. Both men and women have done various experiments on condoms to see if they have worms and use them for other purposes such as rubbing their painful knees with them. Elderly men and women living with HIV were not ready to take responsibility for HIV prevention. Tables 4, 5 and 6 show responses on issues of attitude and practice for males, single women and married women for HIV prevention.

### End-line and baseline knowledge assessment

Table 7 and Figure 1 show the percentage distribution of correct responses assessed from the seven questions regarding risk factors and treatment for HIV/AIDS. The results show a significant increase in the percentage of correct responses after the intervention programme compared to the baseline survey. However, there was no significant difference for questions: “can taking ARVs as prescribed by a doctor make a person living with HIV/AIDS healthier?” and “what happens if ARVs are stopped and take them again after some time?, the reason being that the majority of the patients already had a comprehensive level of awareness regarding these two question at baseline, 91.8% and 92.9% respectively.

Table 8 and Figure 2 show the percentage distribution of “adequate knowledge” based on the composite score to determine the overall level of knowledge regarding risk factors and treatment for HIV/AIDS. Among the total sample of patients surveyed (n=183), there was a significant increase (31.2%) in the level of “adequate



**Table 4:** Response on attitude and practice among elderly males living with HIV.

Topic	During discussion	At the end of discussion
<b>Abstinence</b>	Males said it was not possible to abstain	No change in attitude and practice
<b>Faithfulness</b>	Males viewed faithfulness as weakness on their part, therefore they said it was also not possible to have one partner	No change in attitude and practice
<b>Condom use</b>	Males were still unwilling to use condoms after discussion. One male when visited at home he said he was not using condoms because he did not know how to use them. He was referred to the nurse to learn how to use a condom. Upon follow up he said he could use a condom because he knew how to use it, however, he said “take it out of your mind that I would ever use condoms” Some males said they did not use condoms because women wanted bought condoms not the free ones you get from the clinic	No change in attitude and practice

**Table 5:** Response on attitude and practice among single elderly females living with HIV.

Topic	During discussion	At the end of discussion
<b>Abstinence</b>	Some single women said they were not sexually active. While other single women said they were sexually active, with partners they were not married to. When asked why they did not marry some said they did not want to get married because they did not want to be accused of killing that husband if he died. Some said they enjoyed their freedom and they did not want a man who would tell them what to do. Some said they did not want property squabbles with family members.	No change in attitude and practice
<b>Faithfulness</b>	Single women said it was not possible to have one partner because the men they date were married.	No change in attitude and practice
<b>Condom use</b>	Women said partners did not use condoms because they made men suffer from kidney problems. Some single women said they could not negotiate condom use with a partner because of the gifts men provide them with.	No change in attitude and practice

**Table 6:** Responses on attitude and practice among married elderly females living with HIV.

Topic	During discussion	At the end of discussion
<b>Abstinence</b>	Married women said they abstain from sex when they are angry because a husband failed to fulfil household obligations such as buying shoes for children.	Married women realised that they have to separate sex from household needs
<b>Faithfulness</b>	Married women said they were not faithful because their husbands were not, and they were the ones who made them unfaithful.	Married women realised that it was wrong to be unfaithful, as they said men they date disrespect their husbands in public gatherings
<b>Condom use</b>	Women said partners did not use condoms because they made men suffer from kidney problems. Women also said they collect condoms from the clinic, even though, they collect them when there was no one around to see them. Option of female condoms were considered Options of female condoms were discussed and they said when they used female condoms men called them plastic.	

**Table 7:** Analysis of responses given by the elderly patients.

Question to assess knowledge regarding risk factors and treatment for HIV/AIDS	% Correct response (n=183)		Difference	P-value	OR	95% CI
	Baseline	End Line				
Can HIV infection be cured with ARV?	55.2	70.5	15.3	0.001	2.2	1.3-3.8
What will happen to your HIV test result with ARV treatment	38.3	69.4	31.2	<0.001	4.3	2.5 - 7.9
Can ARVs as prescribed by a doctor make a person with HIV/AIDS healthier ?	91.8	90.7	-1.1	0.706	0.9	0.4 -1.9
Can ARVs eliminate the virus from the body?	48.1	70.0	21.9	<0.001	3.5	2.0 - 6.5
What happens if you stop taking ARVs and take them again after sometime ?	92.9	94.5	1.6	0.513	1.3	0.5 - 3.6
Does treatment with ARV medications make using condoms less important ?	73.8	81.4	7.7	0.061	1.7	0.9 - 3.0
Is it safe to have sex without a condom regardless of your viral load ?	71.0	85.8	14.8	<0.001	2.5	1.4 - 4.6

knowledge” after the intervention compared to the baseline survey (OR=4; 95% CI: 2.4-7.0). The baseline and end-line comparisons were also analysed by clinic site; age-group; gender and education.

**Clinic site:** There was a significant increase in the level of “adequate knowledge” after the intervention compared to the baseline survey

by clinic site except for patients in Matukeng the percentage difference was not significant (16.7%), however, the OR is 2 (95% CI: 0.6-7.4) this reflects that exposure to intervention increases ones knowledge 2 fold. Patients from Matsieng had the highest percentage of adequate knowledge after intervention (82.1%).

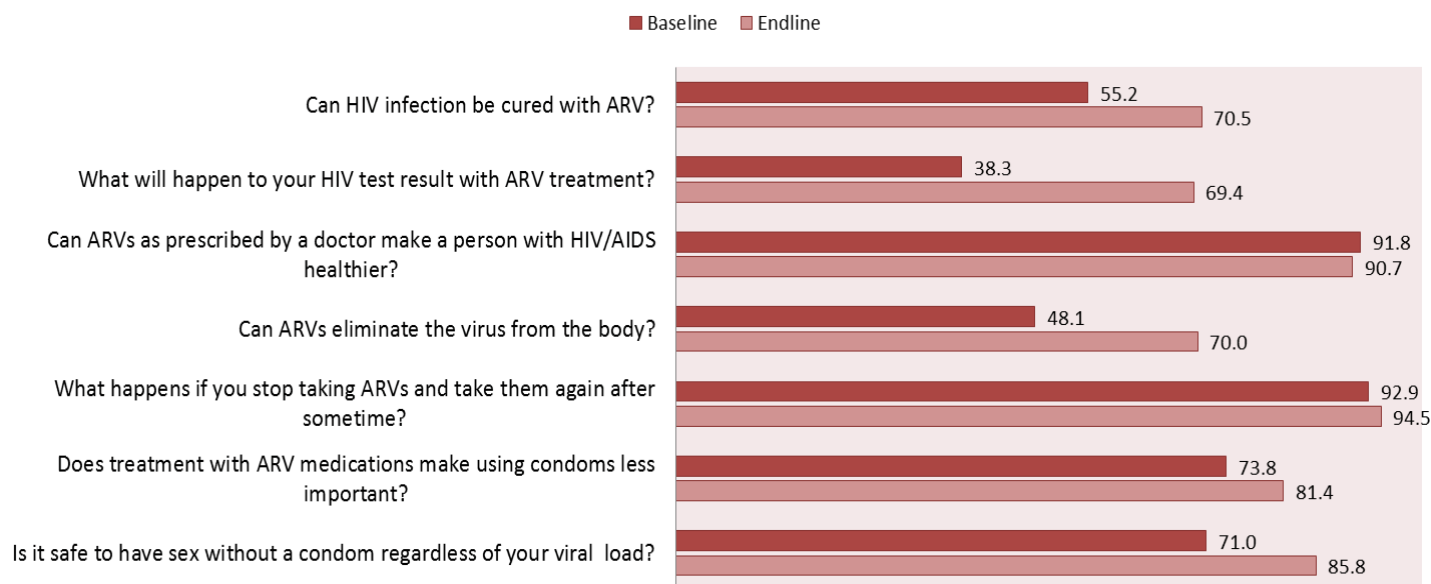


Figure 1: Percentage of correct response, elderly patients with HIV/AIDS, Lesotho.

Table 8: Comparing patients' knowledge at baseline and end line.

Composite score for knowledge regarding risk factors and treatment for HIV/AIDS	% Adequate knowledge (n=183)		Difference	P-value	OR	95% CI
	Baseline	Endline				
<b>Clinic site</b>						
Marakabei	34.3	68.6	34.3	0.0047	5.0	1.4 - 26.9
Matsieng	37.5	82.1	44.6	<0.001	13.5	3.3 - 117.1
Matukeng	56.7	73.3	16.7	0.302	2.0	0.6 - 7.4
Semonkong	27.4	51.6	24.2	0.009	2.7	1.2 - 6.5
Total	36.6	67.8	31.2	<0.001	4.0	2.4 - 7.0
<b>Age-group</b>						
50-54	37.5	75	37.5	<0.001	4.5	1.8 - 13.3
55-59	35.9	71.8	35.9	0.003	4.5	1.5 - 18.3
60-64	38.0	60.0	22.0	0.028	2.6	1.0 - 7.3
65+	34.2	63.2	29	0.005	6.5	1.5 - 59.3
<b>Gender</b>						
Male	35.4	70.8	35.4	0.001	4.4	1.6 - 14.9
Female	37.0	66.7	29.6	<0.001	3.9	2.1 - 7.5
<b>Education</b>						
No formal education	17.2	55.2	37.9	0.005	6.5	1.5-59.3
Primary	37.8	68.9	31.1	<0.001	4.0	2.2-7.8
Secondary and higher	57.9	79.0	21.1	0.206	2.3	0.5-13.9

**Age-group:** Patients in the age group 50-54 years had the highest percentage of adequate knowledge after intervention (75%).

**Gender:** Male patients had the highest percentage of adequate knowledge after intervention (70.8%).

**Education:** Patients with secondary and higher level of education had the highest percentage of adequate knowledge after intervention (79%). As shown previously from our baseline study, the end-line survey data also reveals education as a strong predictor of knowledge of risk factors and treatment for HIV/AIDS.

## DISCUSSION

### Attitudes and practice

Abstinence, faithfulness and condom user used to measure attitude and practice. For abstinence males and females were unwilling to abstain from unsafe sexual activities. They understood risky behaviour and consequences of such. They were also unwilling to be faithful to one partner. However, married women admitted that it was not good to be unfaithful to their husbands because men they dated disrespect their husbands in public gatherings and shebeens. Condom use was also another matter that they did not accept to use, however married women said they picked condoms from the clinic for their husbands to use. Single women said they

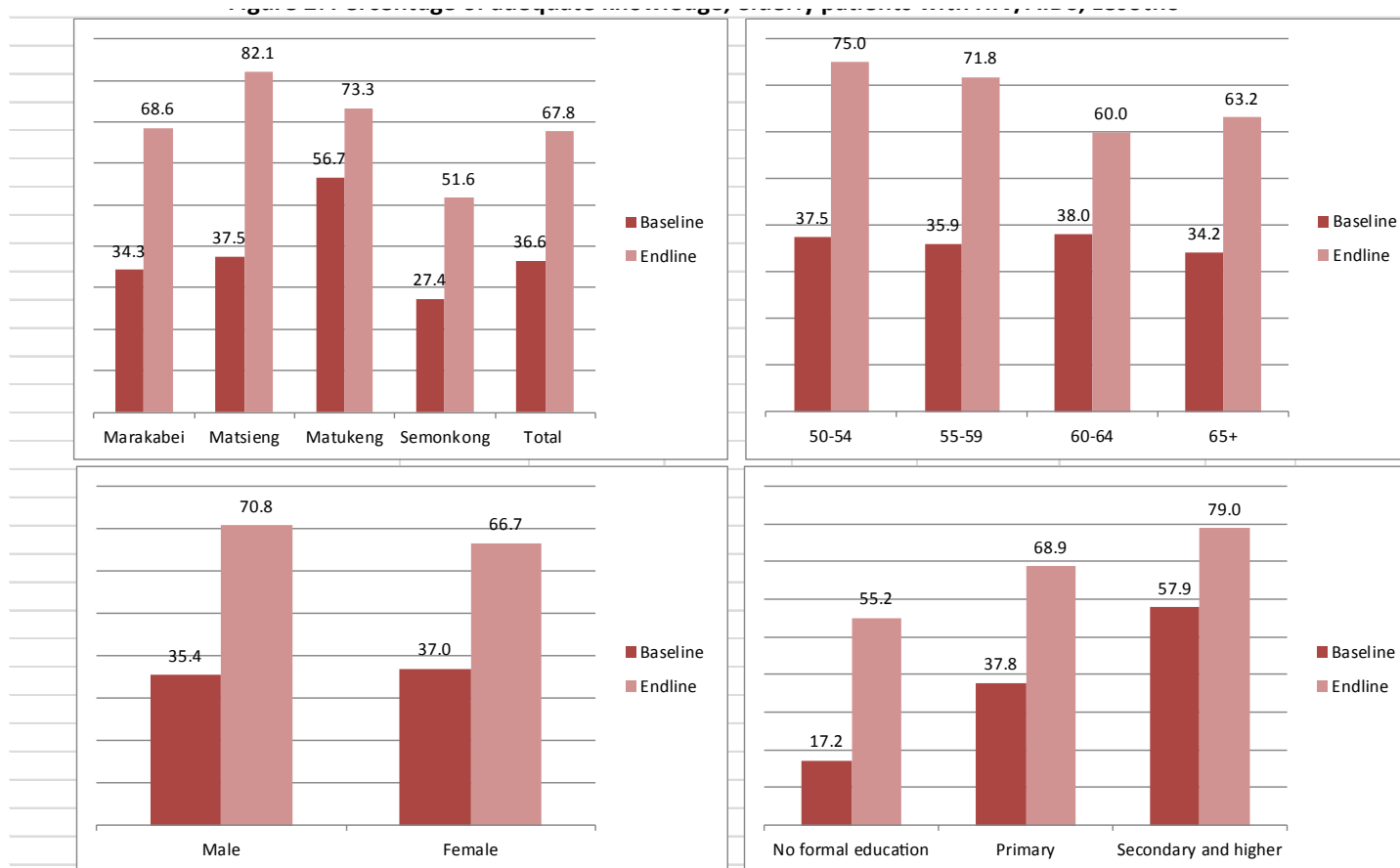


Figure 2: Percentage of adequate knowledge, elderly patients with HIV/AIDS, Lesotho.

asked their partners to use condoms, but when they refused they did not force them to do so, because they would forfeit some of the benefits they got from their sexual partners. There was a need to discuss further with men living with HIV to understand why they did not want to abstain, be faithful and use condoms.

One of the challenges discussed was that issues regarding sex and sexuality were never discussed in the families by husband and wife. However, they mentioned that it was easier to discuss sex and sexuality issues at home after the group discussions. They acknowledged that it was necessary to change behaviour however, this was still a challenge. Elderly patients could be the role models for younger adults facing marriage problems and issues of unfaithfulness. Therefore during discussions they did discuss this and viewed themselves as such, in order to influence younger adults to abstain from risky sexual behaviour. Intervention through education, discussion, counselling and referral was carried out and this significantly increased patients' knowledge, though attitude and practice were still wanting, however their thoughts were provoked into thinking about the future of Lesotho with regard to spread of HIV infection. There was a need for more in depth analysis to understand why people still continue with behaviour that was known to increase incidence of HIV in Lesotho.

### Knowledge

The overall knowledge about HIV/AIDS and ARVs was low at the baseline. Patients became more aware and their knowledge improved after the intervention programme. There was a significant change in their level of knowledge specifically on the question relating to "what will happen to their HIV status with ARV treatment"; "can ARVs eliminate the virus from the body"; and "whether it is safe to have sex without a condom regardless their viral load

status". However, even with knowledge, use of condoms was still poor because of embedded attitudes and myths about condoms. Elderly patients know about transmission of HIV and its modes of transmission. They also understood that if not protected they could have reinfection with virus from other partners and they had to avoid that.

### CONCLUSION

It can be concluded that even though the elderly patients lacked adequate knowledge about HIV and ARV treatment, this improved after intervention through focus group discussion. Elderly patients should adopt preventive measures and take leadership in teaching younger generation about abstinence, faithfulness and condom use. Cultural beliefs and practices have to be discussed in open forums in order to understand how they contribute to HIV infection. Basotho have to find their solutions which could be embedded in their own cultural practices for preventing HIV spread in order to reduce new infections. It is recommended that Lesotho must continue to educate communities about HIV prevention and ARV treatment, as communities make better decisions when they have adequate knowledge. It is also recommended that elderly patients should be included in the national statistics in order to include them in the national plans and improve health and social services.

### COMPETING INTERESTS

No conflict of interest.

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## AUTHORS' CONTRIBUTIONS

MR: PI and writing of the article

RS: Technical assistance, editing, data analysis and tables

LM: Co PI and literature review

LM: Data collection and data entry, report writing

GM: English editing and organization of the article

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