Knowledge, attitudes and prevention practices regarding HIV/AIDS among barbers in Ho municipality, Ghana

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Abstract: Barbering poses risks of HIV transmission if it is not conducted in a hygienic manner. This study assessed the knowledge, attitudes and prevention practices regarding HIV transmission among barbers in the Ho Municipality, Ghana. A cross-sectional design was employed in Ho Municipality, and data were collected from 121 participants and analysed using Stata version 13.0 at the significance level of 0.05. Knowledge was low (63.6%) and was associated with attitude [COR=4.37 (95% CI: 1.98-9.62); p<0.001] and with level of education [COR=4.92 (95% CI: 1.70-14.21); p=0.003]. Attitude was inadequate (58.7%) and was associated with level of education [COR=3.47 (95% CI: 1.18-10.14); p=0.023]. Poor prevention practice was high (87.6%) and was associated with work experience [COR=20.72 (95% CI: 3.86-111.05); p<0.001] and location of operation [COR=4.92 (95% CI: 1.60-15.14); p=0.006]. Programmes aimed at improving knowledge, attitudes and practices should focus on Barbers in urban communities, those without any formal education, and those with less than five years work experience.

Keywords: Knowledge, attitudes and practice, HIV/AIDS, Barbers, Ghana.
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Background

HIV/AIDS remains a major public health problem all over the world, particularly in sub-Saharan Africa (SSA) where it has caused incalculable human suffering, social and cultural disruption and huge economic losses[1]. United Nations AIDS (UNAIDS) estimates 36.7 million people are living with HIV (PLHIV) globally, and among them 25.6 million livein SSA(1). UNAIDS estimates the number of PLHIV in Ghana at 274,600, representing a prevalence of 2.4% and accounting for 9,200 deaths annually[1].

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HIV can be transmitted through unsafe use of therapeutic injections, blood transfusions, mother-to-child transmission (MTCT), unsafe sexual practices, and some beauty treatments like tattooing, piercing, pedicure and barbershop shaving with unsterilized instruments[2].

Given the predominance of several routes of transmission over others[1], efforts so far have focused mainly on prevention of HIV through sex, blood transfusion and MTCT.

HIV transmission through sharing of non-sterile sharp instruments such as those used for barbing, circumcision, facial scarification, incision, tattooing, ear perforation, bloodletting, injections and acupuncture have always been vaguely classified as 'others' and given less attention in the campaign against the spread of HIV.

Barbers are workers that undertake skin-piercing practices involving re-useable sharp instruments, which pose the risk of transmission of HIV and other blood-borne pathogens from one client to another. Though barbers do not carry out procedures that deliberately penetrate the skin, their procedures can inadvertently damage the skin through abrasion or minor accidental cuts[3]. These sharp equipment are not often sterilized, thus exposing clients to blood-borne pathogens, including HIV[4].

A simple nick caused by a clipper or razor blade is enough for HIV infection to occur[5]. Due to the lipid envelope that protects HIV from dehydration, the virus can survive on the surfaces of barbing instruments for a period long enough for transmission to occur, particularly in commercial barber shops[6].

Studying knowledge, attitudes and practices regarding HIV among barbers is of real interest as several studies have shown that contaminated tools used by barbers are a source of transmission of HIV[7-9].

There is little research regarding knowledge, attitudes and prevention practices of barbers in Ghana with respect to the transmission of HIV[10]. This study was therefore conducted to assess the knowledge, attitudes and prevention practices regarding HIV/AIDS among barbers in the Ho Municipality, Ghana.

Materials and method

Study site description

The Ho Municipality found in the Volta region of Ghana is located between latitudes 6º 20º'' N and 6º 55º'' N and longitudes 0º 12º'' E and 0º 53º''E. The municipality shares boundaries with Adaklu and Agortime-Ziope Districts to the South, Ho West District to the North-West and the Republic of Togo to the East. Its total land area is 2,361 square kilometers, representing 11.5 percent of the region's total land area. The population of Ho Municipality according to the 2010 Population and Housing Census is 177,281, representing 8.4 percent of the region's total population. Females constitute 52.7 percent and males represent 47.3 percent. About 62 percent of the population resides in urban localities. The youth (those younger than 15 years) in the Municipality account for 31 percent of the population; there are a small number of elderly persons aged 65 years and older. The employed population represents 47.3 percent. Of the employed population about 21.4 percent are engaged as skilled agricultural, forestry and fishery workers, 26.8 percent are engaged in service and sales, 22.6 percent are involved in craft and related trade, and 15.8 percent are managers, professionals, and technicians[13].

Ho, the Capital of the Volta region of Ghana, has an HIV prevalence of 2.6%, which is above the national prevalence[12].

Study population

All male Barbers in the Municipality who consented were considered in this study. Participants were sampled from the barbers' list taken from the Ghana National Association of Barbers, Ho Secretariat,using a simple random sampling technique.

Inclusion and exclusion criteria

Male Barbers working in barber shops who consented to be part of the study were included. Road-side barbers were excluded.

Study design

A cross-sectional descriptive design was used to determine the knowledge, attitudes and prevention practices of Barbers regarding HIV transmission in the Ho Municipality using structured questionnaires as the data collection tool. This design allows for quick and easy data gathering even from a large target population.

The snapshot nature of cross-sectional studies, while convenient, is limited in that it does not provide a good basis for establishing causality. Three distinct variables were measured in the current study at the same point in time, and thus it could not positively be determined if one caused the other. This uncertainty was countered in the study by decreasing bias in the data collection process, as the questionnaire measured each variable separately and data analysis was performed on the various variables to ascertain if there were associations between them.

Sample size determination

The minimum sample size was obtained for this study by using Cochran formula,

n =, (Where n= Sample size, Z = Z- score, p= estimated prevalence of an attribute that is present in the population, q = 1-p, d = margin of error

n= sample size	n=?
Z= Z-score	z=95%=1.96
P= prevalence	p=0.082
q= 1-prevalence	q=1-0.082
d= Margin of error	d=0.05

Therefore, the minimum sample size for the current study was 121.

Sampling method

The Cluster sampling method was used to divide the municipality into clusters. A simple random sampling technique was used to sample the barbers from the barbers' list of the Ghana National Association of Barbers, Ho Secretariat. A cluster represented a sub-municipality within the Ho Municipality. The names of the communities in each cluster were written on pieces of paper and folded and shaken to ensure they mixed well. Using the lottery method, three communities were selected randomly from each sub-municipality. Barbers were then selected randomly from each selected community using the sampling frame of barbers provided by the Ho barbers' Association, until the required sample size was reached.

Data collection procedure

Data were collected using pretested structured questionnaires. A sample of ten (10) questionnaires was pretested in some barbing salons in Ho Municipality, which were not included in the actual study. The researcher used the barbers' responses during the pretesting to assess the clarity and suitability of the items in the questionnaire to the participants. Data collectors were trained to carefully collect the data. Barbers who were not willing to participate in the study were excluded.

Data analysis

Data were entered using Epi Data Software Version 3 and analyzed using Stata Version 13. Data were represented using tables and graphs; Chi-square and Logistic regression analyses were conducted at the level of significance of 0.05. Knowledge was assessed using 7 items and was rated as good if a barber had 5 or more correct answers and poor if a barber had fewer than 5 correct answers. Attitude was assessed using 4 items and was dichotomized into good attitude and poor attitude. Anyone who responded 'yes' to 3 or more questions was considered as having good attitude. On the other hand, anyone who answered 'yes' to fewer than 3 questions, was considered as having poor attitude towards HIV/AIDS. Practices were assessed by rating them into good and bad practices. Anyone who answered more than 7 questions correctly was rated good, and those who answered fewer than 7 questions correctly were rated poor.

Ethical issues

Ethical approval for the study was sought from the Ghana Health Service Ethics Review Committee through the University of Health and Allied Sciences. Permission was sought from the Ho Municipal Health Directorate and the Ghana National Association of barbers (GNAB) before the study was conducted. Participants were also assured that under no condition whatsoever would their names or any other contacts be linked to the data analysis and dissemination of the findings of the study. It was made clear to the participants that all their responses would be confidential during and after the data collection. Furthermore, participants were assured that storage, analysis and reporting of all data including dissemination would be done in codes, hence identity of the respondents will not be exposed. In addition, an Informed Consent sheet, which provided details and willingness to participate in the study, was administered to the participants and they were required to designate their acceptance and approval to participate in the study.

Results

Demographic and occupational characteristics

Table 1 shows the demographic and occupational characteristics of the participants. The mean age of the participants was 26.5±5.63. A majority of the participants, 81(66.9%) were aged 20-29 years and a majority, 66(54.6%) were single. A majority, 54(44.6%) had secondary education and most, 96(79.3%) were Christians. A majority, 59(48.8%) had less than 5 years work experience and most, 113(93.4%) worked with fewer than 5 assistants. A majority, 53(43.8%) attended to 10-19 clients per day and most were located in the uran area, 93(76.9%).Most, 70(57.9%) learnt the profession through apprenticeship.

Table 1: Demographics and occupational characteristics of Participants

Variable	Frequency (N)	Percent (%)
Mean age (S.D)	26.5(±5.63)	
Age group (Years)		
<20	8	6.6
20-29	81	66.9
30-39	28	23.1
40+	4	3.4
Marital Status		
Single	66	54.6
Married	39	32.2
Cohabiting	13	10.7
Divorced	3	2.5
Educational Level		
None	21	17.4
Primary	42	34.7
Secondary	54	44.6
Post-secondary	4	3.3
Religion		
Christian	96	79.3
Muslim	20	16.6
Traditional	5	4.1
Work Experience		
<5 years	59	48.8
5-10 years	43	35.5
> 10 years	19	15.7
Number of Assistants per barber		
<5 Assistants	113	93.4
>5 Assistants	8	6.6
Number of client attend per day		
< 10	45	37.2
10-19	53	43.8
20+	23	19.0
Location		
Urban	93	76.9
Rural	28	23.1
Mode of learning		
Apprenticeship	70	57.9
Barbering school	6	5.0
On the job training	31	25.6

Knowledge of HIV/AIDS

Table 2 describes the knowledge of HIV/AIDS on the part of the barbers. A majority, 114(94.2%) had heard of HIV/AIDS and less than half, 58(47.9%) knew HIV/AIDS was caused by a virus.

A majority, 88(72.7%) knew barbers were at risk of infecting clients, and a majority,80(66.1%) also knew clients were at risk of infecting barbers. A majority, 76(62.8%) knew HIV is preventable, and a majority, 82(67.8%) also knew sterilization of barbing instruments could prevent HIV transmission.

Table 2: Knowledge on HIV/AIDS of Participants

Variable	Frequency (N)	Percent (%)
Heard of HIV/AIDS		
Yes	114	94.2
No	7	5.8
Causes of HIV		
Germs	37	30.6
Virus	58	47.9
Witchcraft	14	11.7
Bacteria	6	4.9
Others	6	4.9
Barber's risk of infecting clients		
Yes	88	72.7
No	14	11.6
Do not know	19	15.7
Client's risk of infecting barbers		
Yes	80	66.1
No	22	18.2
Do not know	19	15.7
Is HIV preventable?		
Yes	76	62.8
No	22	15.8
Do not know	19	21.4
Does sterilization prevent HIV?		
Yes	82	67.8
No	7	5.7
Do not know	32	26.5

Knowledge level regarding HIV/AIDS

Figure 1 depicts the overall level of knowledge of barbers regarding HIV/AIDS. Of the 121 participants, most, 77(63.6%) had poor knowledge of HIV/AIDS.

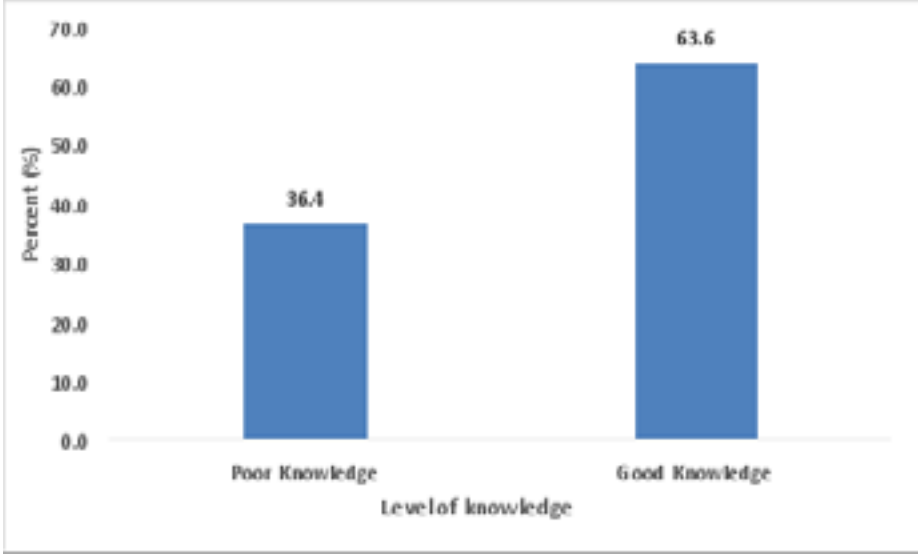

Figure 1: Overall level of knowledge of Barbers on HIV/AIDS

Association between knowledge regarding HIV/AIDS and demographic characteristics

Table 3 shows the association between participants' knowledge regarding HIV/AIDS and demographic characteristics. Barbers with primary and secondary education were more likely to have good knowledge regarding HIV/AIDS than those with no formal education [COR=3.43 (95% CI: 1.16-10.09); p=0.025] and [COR=4.92 (95% CI: 1.70-14.21); p=0.003], respectively. Barbers with 5-10 years' work experience were more likely to have good knowledge regarding HIV/AIDS than those with <5 years' work experience [COR=2.78 (95% CI: 1.16-6.66); p=0.002]. Barbers with good attitudes towards HIV/AIDS were more likely to have good knowledge regarding HIV/AIDS [COR=4.37 (95% CI: 1.98-9.62); p<0.001]. However, barbers who were cohabiting were less likely to have good knowledge regarding HIV/AIDS than those who were single [COR=0.20 (95% CI: 0.06-0.71); p=0.013]. In the same vein, barbers who had 10-19 clients a day were less likely to have good knowledge regarding HIV/AIDS than those who had <10 clients a day [COR=0.34 (95% CI: 0.14-0.83); p=0.019].

Table 3: Association between demographic characteristics of barbers and odds of knowledge

Variable	Knowledge		Chi-square X^2(p-value)	COR(95%CI)p-value	AOR(95%CI)p-value
Age group	**Good knowledge [N=77]**	**Poor knowledge [N=44]**			
<20	5(6.5)	3(6.8)			
20-29	50(64.9)	31(70.5)		0.96(0.21, 4.33)0.966	0.97 (0.13, 7.07) 0.983
30-39	21(27.3)	7(15.9)		1.8 (0. 33, 9.53) 0.490	0.84 (0. 06, 10.76) 0.896
40+	1(1.3)	3(6.8)	4.27(0.233)	0.2 (0. 01, 2.91) 0.239	0.18 (0. 00, 8.77) 0.393
Marital Status					
Single	46(59.7)	20(45.5)			
Married	24(31.2)	15(34.1)		0. 69 (0. 30, 1.58) 0.389	0. 33 (0. 07, 1.54) 0.161
Cohabiting	4(5.2)	9(20.4)		**0. 20 (0. 06, 0.71) 0.013**	**0. 07 (0.01, 0.54) 0.010**
Divorced	3(3.9)	0(0.0)	**8.90(0.031)**	3.08 (0. 15, 62.50) 0.463	1.03 (0.01, 88.80) 0.987
Educational Level					
None	7(9.1)	14(31.8)			
Primary	27(35.1)	15(34.1)		**3.43 (1.16, 10.09) 0.025**	4.34 (0. 91, 20.69) 0.065
Secondary	39(50.7)	15(34.1)		**4.92 (1.70, 14.21) 0.003**	**8.74 (1.95, 39.11) 0.005**
Post-secondary	4(5.1)	0(0.0)	**12.34(0.006)**	17.40 (0. 82, 368.08) 0.067	41.19 (1.15, 1471.84) 0.042
Religion					
Christian	63(81.8)	33(75.0)			
Muslim	13(16.9)	7(15.9)		0.97 (0.35, 2.67) 0.957	0.90 (0.25, 3.27) 0.883
Traditional	1(1.3)	4(9.1)	4.29(0.117)	0.13 (0. 01, 1.22) 0.074	0.38 (0.03, 4.17) 0.434
Work Experience					
<5 years	32(41.5)	27(61.4)			
5-10 years	33(42.9)	10(22.7)		**2.78 (1.16, 6.66) 0.022**	**13.84 (2.67, 71.63) 0.002**
> 10 years	12(15.6)	7(15.9)	5.44(0.066)	1.44 (0.49, 4.18) 0.496	8.42 (0.64, 109.7) 0.104
Number of apprentice per barber					
<5 Assistants	73(94.8)	40(90.9)			
>5 Assistants	4(5.2)	4(9.1)	0.68(0.407)	0. 54 (0. 13, 2.30) 0.412	0.14 (0.00, 2.15) 0.159
Number of client attendance per day					
< 10	35(45.5)	10(22.7)			
10-19	29(37.6)	24(54.6)		**0.34 (0.14, 0.83) 0.019**	**0.14 (0.03, 0.57) 0.006**
20+	13(16.9)	10(22.7)	**6.21(0.045)**	0.37 (0.12, 1.09) 0.073	0.14 (0.04, 1.34) 0.107
Location					
Urban	60(77.9)	33(75.0)			
Rural	17(22.1)	11(25.0)	0.13(0.714)	0.85 (0.35, 2.02) 0.714	0.26 (0.06, 1.11) 0.070
Mode of operation					
Apprenticeship	45(58.4)	25(56.8)			
Barbering school	5(6.5)	1(2.3)		2.77 (0. 30, 25.11) 0.363	3.67 (0.05, 237.0) 0.540
On the job training	15(19.5)	16(36.4)		0.52 (0. 22, 1.22) 0.136	0.47 (0.13, 1.67) 0.247
Others	12(15.6)	2(4.5)	7.08(0.069)	3.33 (0. 69, 16.09) 0.134	7.21 (0.56, 91.77) 0.128
Attitude					
Poor attitude	28 (63.6)	22 (28.6)			
Good attitude	16 (36.4)	55 (71.4)	**14.19(<0.001)**	**4.37 (1.98, 9.62) 0.000**	**3.64 (1.11, 11.92) 0.032**

Attitude of barbers regarding HIV/AIDS

Table 4 shows the attitudes of barbers regarding HIV/AIDS. A majority, 87(71.9%) had not tested for HIV/AIDS before. Of the 121 participants, a majority, 83(68.6%) agreed that they would attend to clients who are HIV-positive. The majority of the participants, 104(85.9%) agreed that they would continue with their profession if they became HIV-positive. The majority, 50(41.3%) were willing to attend to a client who disclosed their HIV status to them, while 14(11.6%) would have attended, but sterilized the instruments after use. Overall, majority, 71(58.7%) portrayed a good attitude regarding HIV/AIDS.

Table 4: Attitude of Barbers regarding HIV/AIDS

Variables	Number N=[121]	Percentage (%)
Have you test for HIV/AIDS before?		
Yes	34	28.1
No	87	71.9
Will you attend to client with HIV?		
Yes	83	68.6
No	38	31.4
Will you continue your profession if you have AIDS?		
Yes	104	85.9
No	17	14.1
How will you attend to client with who discloses his/her status to you?		
Welcome the person	50	41.3
Reject the person	23	19.0
Welcome, but will sterilize afterwards	14	11.6
Others	34	28.1
Overall Attitude towards HIV/AIDS Clients		
Good Attitude	71	58.7
Bad Attitude	50	41.3

Association between demographic characteristic and attitude regarding HIV/AIDS

Table 5 shows the association between demographic characteristics and attitude regarding HIV/AIDS. Barbers with primary education were more likely to have good attitudes towards HIV/AIDS than those with no formal education [COR=3.47 (95% CI: 1.18-10.14); p=0.023].

In the same vein, barbers with more than 10 years' work experience were more likely to have good attitudes towards HIV/AIDS than those with less than 5 years' work experience [COR=4.5 (95% CI: 1.18-17.10); p=0.027]. Likewise, barbers with good knowledge regarding HIV/AIDS were more likely to have good attitudes regarding HIV/AIDS than those with poor knowledge [COR=4.37 (95% CI: 1.98-9.62) p<0.001]. However, barbers who had on-job training were less likely to have good attitudes regarding HIV/AIDS than those who were trained through apprenticeship [COR=0.26 (95% CI: 0.11-0.65); p=0.004].

Table 5: Association between demographic characteristics of Barbers and odds of Attitude

Variable	Attitude		Chi-square X^2(p-value)	COR(95%CI)p-value	AOR(95%CI)p-value
Educational Level	**Poor Attitude [N=50]**	**Good Attitude [N=71]**			
No formal education	13(26.0)	8(11.3)			
Primary	13(26.0)	29(40.8)		**3.47 (1.18, 10.14) 0.023**	4.02 (0.84, 19.07) 0.079
Secondary	24(48.0)	30(42.3)		1.97 (0.72, 5.42) 0.186	2.71 (0.55, 13.19) 0.216
Post-secondary	0(0.0)	4(5.6)	**8.56(0.036)**	14.29 (0. 68, 300.37) 0.087	21.97 (0.56, 854.8) 0.098
Religion					
Christian	38(76.0)	58(81.7)			
Muslim	10(20.0)	10(14.1)		0.65 (0. 24, 1.72) 0.392	1.08 (0. 33, 3.50) 0.898
Traditional	2(4.0)	3(4.2)	**0.74(0.689)**	0. 98 (0. 15, 6.15) 0.985	1.08 (0. 03, 29.83) 0.961
Work Experience					
<5 years	27(54.0)	32(45.1)			
5-10 years	20(40.0)	23(32.4)		0 .97 (0. 44, 2.13) 0.940	0.96 (0. 27, 3.36) 0.959
> 10 years	3(6.0)	16(22.5)	**5.44(0.066)**	**4.5 (1.18, 17.10) 0.027**	2.65 (0. 26, 26.26) 0.404
Mode of learning					
Apprenticeship	23(46.0)	47(66.2)			
Barbering school	4(8.0)	2(2.8)		0.24 (0.04, 1.43) 0.119	0. 23 (0. 03, 1.56) 0.134
On the job training	20(40.0)	11(15.5)		**0.26 (0.11, 0.65) 0.004**	**0. 21 (0. 06, 0.72) 0.013**
Others	3(6.0)	11(15.5)	**12.82(0.005)**	1.7 (0.45, 7.06) 0.403	0. 63 (0. 11, 3.55) 0.606
Community of operation					
Urban	42(84.0)	51(71.5)			
Rural	8(16.0)	20(28.5)	**2.44(0.118)**	1.53 (0.40, 5.14) 0.531	2.05 (0. 82, 5.84) 0.122
Knowledge Level					
Poor Knowledge	28 (56.0)	16 (22.5)			
Good Knowledge	22 (44.0)	55 (77.5)	**14.19(<0.001)**	**4.37 (1.98, 9.62) <0.001**	**3.96 (1.20, 13.03) 0.023**
practices					
Poor Practices	47 (94.0)	59 (83.10)			
Good Practices	3 (6.0)	12 (16.9)	**3.21 (0.073)**	3.18 (0.84, 11.95) 0.086	1.55 (0.21, 11.20) 0.664

Prevention practices of barbers regarding HIV/ AIDS

Table 6 shows the prevention practices of barbers regarding HIV/AIDS. Among the 121 participants, the majority, 101(83.5%) used razors and clippers on clients. Similarly, majority, 61(50.4%) demonstrated hand washing in between clients, and the majority, 76(62.8%) used water and disinfectants to clean their instruments. A majority, 104(85.9%) cleaned their instruments immediately after use on a client, and most, 45(37.2%) demonstrated disinfection and hand washing after every client.

Of the 121 participants, a majority, 75(62.0%) had UV lights; majority 61(50.4%) could not remember how frequently they had changed their UV lights. Overall, the majority, 106(87.6%) exhibited poor HIV prevention practices.

Table 6: Prevention practices of Barbers regarding HIV/AIDS

Variables	Number N=[121]	Percentage (%)
Do you use razors and clippers on clients?		
Yes	101	83.5
No	20	16.5
Do you have frequent hand wash after every hair cut or between clients?		
Yes	61	50.4
No	60	49.6
What do you use to clean your instrument?		
Water and disinfectant	76	62.8
Cotton soaked in a disinfectant	24	19.8
Water and Soap	17	14.1
Others	4	3.3
When do you clean your tools for use?		
Immediately after use on one client	104	85.9
After use on several clients	17	14.1
Never clean them	0	0.0
How frequent do you disinfect/wash your hands?		
After every client	45	37.2
After more than 3 clients	18	14.8
After more than 5 clients	17	14.1
Not at all	40	33.1
Others	1	0.8
Do you have a UV light?		
Yes	75	62.0
No	46	38.0
How often do you change the UV light?		
Weekly	4	3.3
Monthly	36	29.8
Yearly	20	16.5
Others	61	50.4
Overall preventionpractices regarding HIV/AIDS		
Good Practices	15	12.4
Bad Practices	106	87.6

Among the 121 participants, majority, 62.8% used clippers.

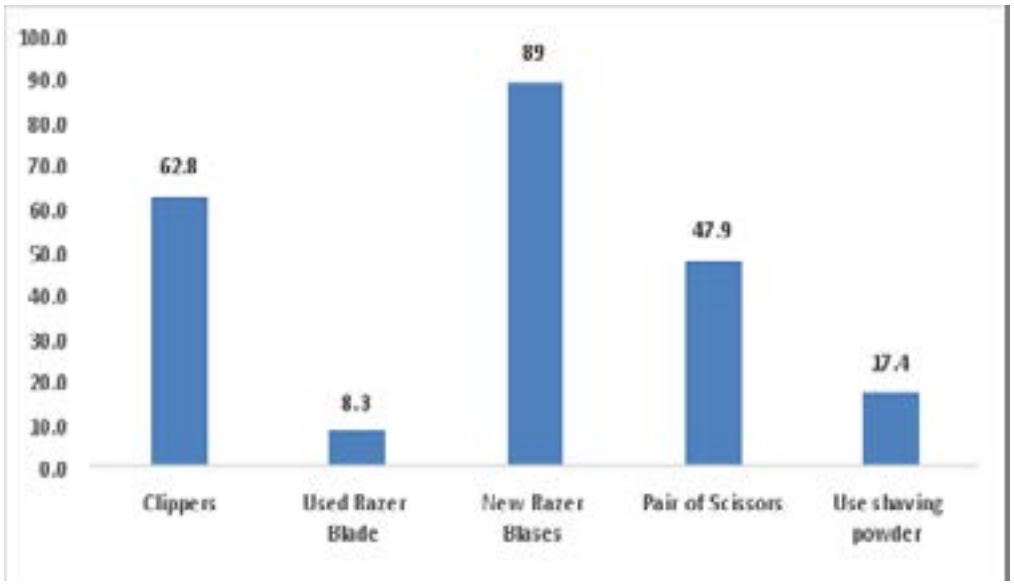

Figure 2: Instruments used for barbing hair

As demonstrated in Figure 3,among the participants amajority, 58.7% cleaned with soap and water.

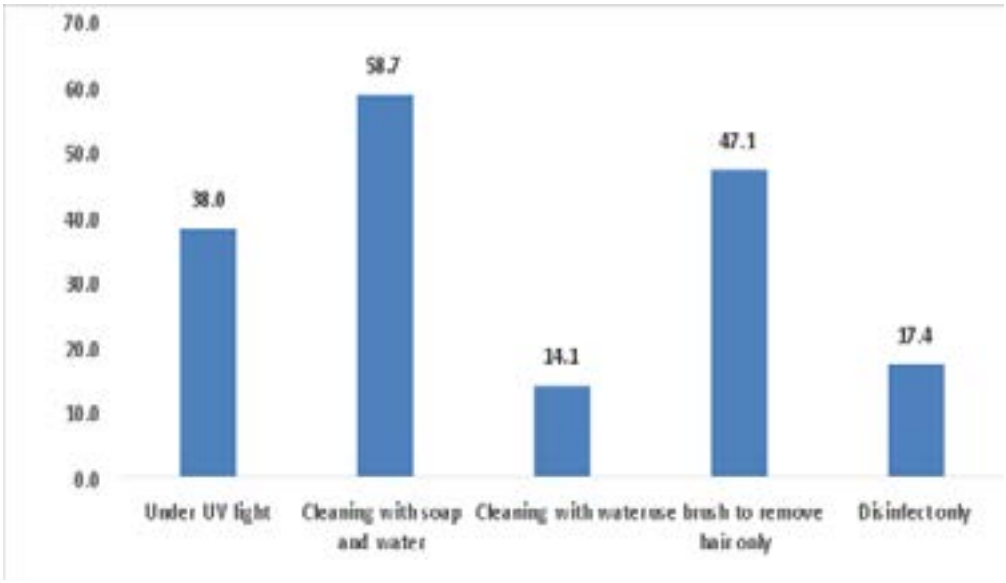

Figure 3: Methods used for sterilization barbing instruments

Among the 121 participants in the study, majority, 72.7% used methylated spirit as disinfectant (see Figure 4).

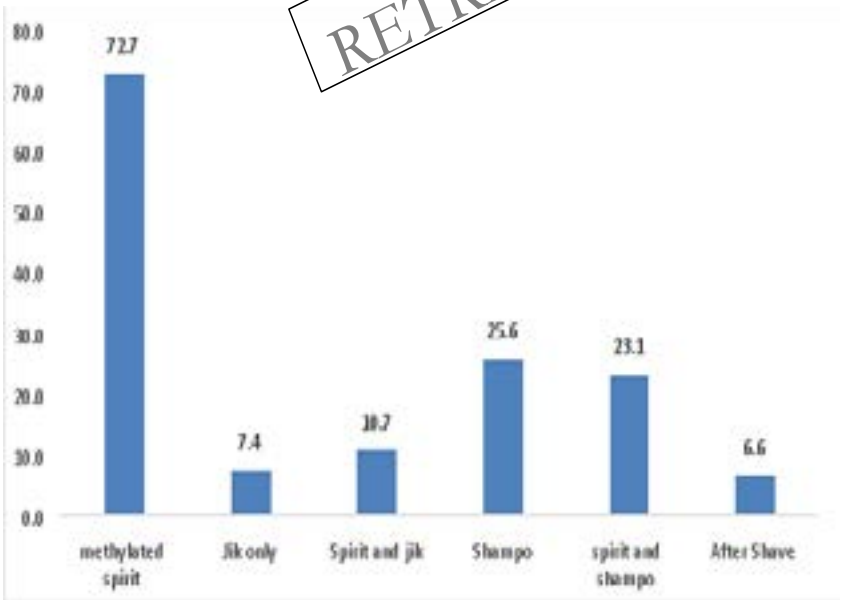

Figure 4: Disinfectants commonly used

Association between prevention practices and demographic characteristics

Table 7 shows the association between practices and demographic characteristics. Barbers who had >10 years' work experience were more likely to exhibit good HIV prevention practices than those with <5 years' work experience [COR=20.72 (95% CI: 3.86-111.05); p<0.001]. In the same vein, barbers who were operating in rural communities were more likely to exhibit good HIV prevention practices than those who were operating in urban communities [COR=4.92 (95% CI: 1.60-15.14); p=0.006].

Table 7: Association between demographic characteristics of Barbers and odds of practices

Variable	Practices		Chi-square X^2(p-value)	COR(95%CI)p-value	AOR(95%CI)p-value
Age group	**Poor practices [N=106]**	**Good practices [N=15]**			
<20	8(7.6)	0(0.0)			
20-29	73(68.9)	8(53.3)		1.96 (0. 10, 37.15) 0.652	1.51 (0.07, 33.90) 0.796
30-39	22(20.7)	6(40.0)		4.91 (0. 24, 96.95) 0.296	0.56 (0.01, 23.71) 0.759
40+	3(2.8)	1(6.7)	4.29(0.231)	7.28 (0. 23, 225.89) 0.257	0.35 (0.00, 50.98) 0.681
Educational level					
No formal education	19(17.9)	2(13.3)			
Primary	36(33.9)	6(40.0)		1.38 (0.29, 6.60) 0.679	1.16 (0.13, 10.44) 0.895
Secondary	47(44.4)	7(46.7)		1.23 (0.26, 5.66) 0.789	1.49 (0.18, 12.42) 0.711
Post-secondary	4(3.8)	0(0.0)	0.87(0.830)	0.86 (0.33, 21.36) 0.930	1.10 (0.02, 63.18) 0.961
Work Experience					
<5 years	57(53.7)	2(13.3)			
5-10 years	38(35.9)	5(33.3)		3.75 (0. 69, 20.33) 0.930	1.74 (0.29,10.43) 0.543
> 10 years	11(10.4)	8(53.4)	**19.87(0.000)**	**20.72 (3.86, 111.05) <0.001**	10.87 (0.72,165.07) 0.085
Mode of learning					
Apprenticeship	61(57.6)	9(60.0)			
Barbering school	6(5.6)	0(0.0)		0.50 (0.03,9.58) 0.644	0.80 (0.03,21.15) 0.894
On the job training	29(27.4)	2(13.3)		0.55 (0.13,2.36) 0.420	0.99 (0.15,6.61) 0.995
Others	10(9.4)	4(26.7)	5.24(0.155)	2.77 (0.76,10.17) 0.124	0.46 (0.07,2.97) 0.412
Community of operation					
Urban	86(81.3)	7(46.7)			
Rural	20(18.7)	8(53.3)	**8.77(0.003)**	**4.91 (1.60,15.14) 0.006**	3.17 (0.72,13.92) 0.127
Attitude					
Poor	47 (44.3)	3 (20.0)			
Good	59 (55.7)	12 (80.0)	3.21 (0.073)	3.19 (0.85,11.95) 0.086	1.07 (0.17,6.69) 0.940
Knowledge					
Poor	42 (39.6)	2 (13.3)			
Good	64 (60.4)	13 (86.7)	**3.92 (0.048)**	4.27 (0.92,19.87) 0.065	6.56 (0.94,45.63) 0.058

Discussion

This cross-sectional study examined the knowledge, attitudes and prevention practices among barbers in Ho, Ghana, regarding HIV/AIDS. HIV/AIDS infection has been widely investigated in many occupational groups, but few data are available on the intensity and severity of the disease in barber shops in Ghana as a whole, and the Volta Region specifically. This study was intended to fill this gap.

The transmission of HIV/AIDS is usually considered to take place through blood transfusions, sexual contacts, MTCT and use of HIV-infected instruments. However, while barbing is not considered a major route of spread of the disease, and though barbers do not carry out procedures that deliberately penetrate the skin, their procedures can inadvertently damage the skin through abrasion or minor accidental cuts[15]. Despite this, barbers have not been given the needed attention to curb the spread of the disease. In part due to the high unemployment rate in the country, barbing has become a means of livelihood for many in the Ho municipality; however, there is little or no training on the standard protocol for barbing.

This study showed that majority of the barbers (63.6%) had overall good knowledge regarding HIV/AIDS and 58.7% had good attitude regarding HIV/AIDS. However, majority (87.6%) displayed poor prevention practices regarding HIV/AIDS.

The level of knowledge of HIV/AIDS of 63.6% among barbers is not in agreement with the Ghana Demographic and Health Survey, which claims 100% knowledge of HIV/AIDS[16]. This difference could reflect the sample size used, or the literacy rate and population size in the GDHS; the data were obtained from the sentinel sites only. The HIV prevalence in Ghana is

consistently higher among at-risk groups such as commercial sex workers, clients at STI clinics and long-distance truck drivers and as such the awareness, education and prevention campaigns are geared towards these groups. These sub-populations with higher prevalences and risk of transmission constitute a reservoir for sustaining the epidemic[7].

A study conducted by Zewudie, Legesse, &Kurkura (2002) in South-Western Ethiopia, reported that only 51% of barbers knew that HIV could be transmitted through barbing equipment, which is lower than the 63.6% found in the current study[17]. This difference could be due to the differences in the sample size, time of the study, prevalence of HIV/AIDS and geographical location between the two studies. However, the 63.6% good knowledge regarding HIV/AIDS as reported in the current study can still be considered inadequate. Knowledge regarding HIV should be universal in order to effectively tackle the disease.

The significant association between educational level and level of knowledge found in the current study is in accordance with a study conducted by Akurniah and Sarfo (2015) in Obuasi, Ghana, which revealed that the knowledge of the barbers increases with increasing educational level[18].This is also similar to a descriptive cross-sectional study conducted by Adoba et al (2015), in Obuasi in the Ashanti Region, Ghana, where it was discovered that 52.2% of the barbers who had knowledge of viral infections had a post-secondary education[19]. Education could decrease the transmission of viral-borne diseases as a result of barbers practicing good sterilization and disinfection procedures.

The current study found a significant association between barbers' knowledge and work experience. This is contrary to the observations by Wazir et al.(2011)[16] in Pakistan[16], in which the level of knowledge among barbers about health hazards was poorly associated with their number of years in the profession. The reason for this discrepancy could be the demographic differences between the study area in Pakistan and Ho. Ho is largely a Christian area while Pakistan is largely a Muslim area.

Most of the participants in this current study did not know their HIV/AIDS status and would continue their profession if they were infected. This could pose a major risk to clients who patronize these barbers,whether or not they are symptomatic, and hence more awareness should be advocated to get the barbers to know their status and observe proper adherence to prevention practices in order to minimize the chances of HIV transmission.

The attitudes of the participants were generally favorable as a majority of the barbers had good attitudes regarding HIV/AIDS (58.7%). This is in line with a previous study conducted in South-Western Ethiopia, which revealed that majority of barbers had favorable attitudes regarding HIV/AIDS (67.8%)[13]. The favorable attitudes of the barbers in the current study may be due to their access to adequate information while learning the barbing profession, leading to knowledge on disease transmission caused by unsterile sharp equipment. However, it is worth noting that the 58.7% good attitude reported in this study is inadequate with respect to HIV/AIDS. To effectively tackle HIV/AIDS, there should be 100% good attitude towards the disease. Poor attitudes towards HIV/AIDS could lead to stigma and discrimination against PLHIV. Just like with knowledge, the current study showed significant associations between attitude and work experience on one hand, and between attitude and level of education on the other. These positive associations could result from the significant relationship between knowledge and attitude asound in the current study, with barbers having good knowledge regarding HIV/AIDS more likely to have good attitudes towards HIV/AIDS.

Barbers in the current study manifested poor prevention practices regarding HIV/AIDS. This study demonstrated that barbers in the study area seemed to be practicing disinfection instead of sterilization. Micro-trauma induced while shaving causes release of blood and other bodily fluids, which can cause transmission of HIV and other virus such as HBV and HCV to barbers when they come in contact with these fluids. Also, contamination of the shaving instruments can pose a great risk to other clients. Despite this, few barbers in the current study were aware of the mode of transmission of HIV/AIDS infections, and the risk posed by unsafe shaving practices. Most of the barbers were found to have UV lights in their barbers' shops but the bulbs were not frequently changed. This is in line with a study conducted in Obuasi, Ghana, which indicated that a UV radiation sterilizer cabinet was seen in all barbershops visited, but the majority of the sterilizers could only be described as storage cabinets or for display purposes as most of the sterilizer cabinets either used mercury bulbs instead of UV bulbs or did not have any light source in them[14].

These flawed professional practices could be attributed to lack of information about the sterilization process. Most barbers were seen placing their hair trimmers into the sterilizer cabinets when not in use or after use on a client. However, for those barbershops with heavy workloads the same set of hair trimmers could be used continuously for multiple clients without sterilization[17].

Skin damage is the prerequisite for inoculation of the scalp with HIV; penetration of the skin with barbing instruments exposes the circulatory system to infection. Skin damage occurs during barbing as an accidental cut or abrasion resulting from blade-to skin contact. Blade-to-scalp contact often occurs during hair shaping, shaving and zero-hair cutting involving use of a detachable plastic comb[17].

Studies carried out in Morocco, Ethiopia and Pakistan showed that the level of knowledge, awareness and practices of barbers about the concept of infectious risk associated with blood was generally very low[18]. This is similar to findings of the current study where a majority of study participants were aware of HIV/AIDS but lacked adequate sterilization practices and did not associate their practices with the risk of transmission. It is also in line with the study by Belbacha, Cherkaoue, Akrim, Dooley and El-Aouad (2012), which found that traditional barbers and their clients in Morocco are unfamiliar with proper practices and are mostly unaware of the transmission of blood borne pathogens through shaving tools[19].

For these reasons, awareness campaigns are imperative and should focus on both barbers and the general population, especially those who are at risk due to their occupation. Also, for other viral diseases easily transmitted through the barbing process, such HBV and HCV, training and vaccination should be encouraged in order to curb the increasing incidence of these viral blood borne diseases[20].

A possible reason for the poor HIV-prevention practices as reported in the current study may be the lack of strict control measures and monitoring by relevant bodies. Unlike in developed countries where activities of barbers are regulated through comprehensive training, licensing and monitoring programs, barbers in Ghana have not been given any noticeable attention to their profession and their activities[10].

There was a significant association between location and level of practice, with more barbers in the rural areas as demonstrating good prevention practices than those in the urban areas. This is contrary to a study conducted in Nigeria to assess the potential risk of HIV transmission in barbing practices among professional barbers in Ibadan, Nigeria, which revealed that barbers in the high-class urban areas were more likely to practice appropriate equipment decontamination than those from the rural location[20]. The difference could be attributed to the fact that Ho municipality is comprised of more rural communities than the city of Ibadan in Nigeria.

Majority of the barbers with poor practices were found to be to aged 20-29 years. This is in line with a cross-sectional study conducted by Dongdem et al. (2013), to estimate the prevalence of HIV/HBV/HCV among blood donors at the Tamale Teaching Hospital in Ghana, which observed that the highest prevalence of HIV/HBV/HCV were among donors within the ages of 20-29[21]. This data supports findings from this study that barbers'practices could serve as a major route of transmission of HIV/AIDS. Barbers with more than 10 years' work experience were more likely to exhibit good prevention practices than those with less than 5 years' work experience.

Limitations

Most participants were reluctant to participate in the study because they thought that they were going to be sanctioned if it was found out that they were not licensed to practice. Those who also consented to participate were afraid that if their poor practices were revealed, the public health authorities would halt their operations. Participants could have answered the questions to their advantage since observation was not used as a tool to collect data because the study design was quantitative. Furthermore, the exclusion of road-side barbers could have introduced in a selection bias. However, against the above limitations, this study stands as the first describing the knowledge, attitudes and prevention practices regarding HIV/AIDS among barbers in Ho municipality, Ghana, which could be used for planning, programming and further research targeting this high risk group. Additionally, the cluster sampling-increased the representational character of the population of the study, despite the small sample size of 121.

Conclusion

Barbers involved in the study had relatively good knowledge and attitudes regarding HIV/AIDS, though they could still be considered inadequate, and also exhibited poor prevention practices regarding HIV/AIDS. Knowledge was influenced by level of education, work

experience and number of clients seen per day, while attitude was influenced by work experience, mode of training, level of education and knowledge. Practice was influenced by work experience and community of operation.

As a recommendation, we suggest that awareness campaigns in HIV prevention in Ho Municipality, Ghana, must include the barbers in order to bridge their knowledge gaps and change their practices. All associated factors identified must be incorporated into those campaigns to tailor them to the local setup.

Conflict of interest

None declared.

References

1. Global AIDS Update 2016 [Internet]. [cited 2018 Jun 8]. Available from: http://www.unaids.org/en/resources/documents/2016/Global-AIDS-update-2016
2. Patel R, Choudhary N, Bhat N, Reddy JJ, Rav N, Goyal N, et al. Knowledge, Attitudes and Practice of Baebers regarding HIV/HBV/HCV infections of Udaipur City, Rajasthan, India. *Int J Oral Health Med Res.* 2015;2(1):27–31.
3. S C, Khan K. Sharing razor blades in salons and risk of spreading HIV in Bangladesh. ,. In: The 3rd IAS Conference on HIV Pathogenesis and Treatment. Bangladesh; 2004. p. 02. (Poster Exhibition).
4. Biadgelegn F, Belyhun Y, Anagaw B, Woldeyohannes D, Moges F, Bekele A, et al. Potential risk of HIV transmission in barbering practice in Ethiopia: from public health and microbiological perspectives. *BMC Public Health.* 2012 Aug 29;12:707.
5. HUMPHRIES G. I determine the following code of practice under the Public Health Act 1997. Dated 12 January 2000. *Public Health.* 2000;15.
6. Khandait DW, Ambadekar NN, Vasudeo ND. Knowledge and practices about HIV transmission among barbers of Nagpur City. *Indian J Med Sci.* 1999 Apr;53(4):167–71.
7. Addo N, Yawson A, Addo AS, Dornoo BT, Seneadza HNA. A Review of National Programme Data on the HIV Epidemic in Ghana: 2005–2010. *Posgraduate Med J Ghana.* 2014;3:73–81 PubMed .
8. 2010 Population And Housing Census, Ghana | Statistical Data Sets | Environmental Social Science [Internet]. Scribd. [cited 2018 Jun 8]. Available from: https://www.scribd.com/document/218586577/2010-Population-And-Housing-Census-Ghana
9. Cochran WC. Snedecor G W & Cochran W G. Statistical methods applied to experiments in agriculture and biology. 5th ed. Ames, Iowa: Iowa State University Press, 1956. :1.
10. Mutocheluh M, Kwarteng K. Knowledge and occupational hazards of barbers in the transmission of hepatitis B and C was low in Kumasi, Ghana. *Pan Afr Med J.* 2015;20:260.
11. Chanda S, Khan K. Sharing razor blades in salons and risk of spreading HIV in Bangladesh. In.
12. Gss GSS-, Ghs GHS-, International ICF. Ghana Demographic and Health Survey 2014. 2015 [cited 2018 Jun 8]; Available from: http://dhsprogram.com/publications/publication-fr307-dhs-final-reports.cfm
13. Zewudie T, Legesse W, Kurkura G. Knowledge, attitudes and Practices among barbers in South-western Ethiopia. *Afr Newslett on Occup Health and Safety.* 2002;12(3):69–71.
14. Akumiah PO. Sarfo LA. Knowledge and Practice of Certified Barbers About Hepatitis B and C Transmission in Kumasi, Ghana. *ARJ.* 2015, 1(2): 27–35
15. Adoba P, Boadu SK, Agbodzakey H, Somuah D, Ephraim RKD, Odame EA. High prevalence of hepatitis B and poor knowledge on hepatitis B and C viral infections among barbers: a cross-sectional study of the Obuasi municipality, Ghana. *BMC Public Health.* 2015 Oct 11;15:1041.
16. Wazir MS, Mehmood S, Ahmed A, Jadoon HR. Awareness among barbers about health hazards associated with their profession. *J Ayub Med Coll Abbottabad.* 2008;20(2):35–8.
17. Arulogun OS, Adesoro MO. Potential risk of HIV transmission in barbering practice among professional barbers in Ibadan, Nigeria. *Afr Health Sci.* 2009 Mar;9(1):19–25.
18. Khuwaja AK, Qureshi R, Fatmi Z. Knowledge about hepatitis B and C among patients attending family medicine clinics in Karachi. *East Mediterr Health J.* 2002 Nov;8(6):787–93.
19. Belbacha I, Cherkaoui I, Akrim M, Dooley KE, El Aouad R. Seroprevalence of hepatitis B and C among barbers and their clients in the Rabat region of Morocco. *East Mediterr Health J.* 2011 Dec;17(12):911–9.
20. Arulogun OS, Adesoro MO. Potential risk of HIV transmission in barbering practice among professional barbers in Ibadan, Nigeria. *Afr Health Sci.* 2009 Mar;9(1):19–25.
21. Dongdem JT, Kampo S, Soyiri IN, Asebga PN, Ziem JB, Sagoe K. Prevalence of hepatitis B virus infection among blood donors at the Tamale Teaching Hospital, Ghana (2009). *BMC Res Notes.* 2012 Feb 22;5:115.