

## Attitude of health care workers to patients and colleagues infected with human immunodeficiency virus

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### Abstract

Discrimination against persons living with HIV/AIDS in hospital settings has been documented. This study examined the attitude of health care workers (HCWs) to nurses, doctors and patients infected with HIV. A total of 345 respondents selected by multistage sampling techniques were surveyed, using a semi-structured questionnaire, which explored respondents' attitude to HIV-infected patients and colleagues with HIV/AIDS. HCWs were unwilling to accept that medical procedures be carried out on them by HIV-infected doctors and nurses, with almost 80% refusing surgery or assistance at surgery on them by an HIV-infected doctor or nurse. They were also significantly more unwilling to accept that medical procedures be carried out on them by an infected colleague, compared with their carrying out the same procedure on an HIV-infected patient. Thus, HCWs seemed to believe that the risk of contracting HIV was higher if an infected HCW were to perform medical procedures on them, and fear of contracting HIV seemed to be the driving force for their negative attitudes. Education on occupational risks of HIV, provision of a safe working environment with enforcement of universal precautions, as well as provision of post-exposure prophylaxis are suggested as ways to enable HCWs to change their attitudes.

**Keywords:** Attitude, health care workers, HIV-infected colleagues, HIV-infected patients.

### Résumé

La discrimination à l'encontre des personnes vivant avec le VIH/SIDA en milieu hospitalier a été étudiée. Cette étude porte sur l'attitude des membres du personnel soignant envers les infirmières, les médecins et les patients infectés par le VIH : 345 répondants sélectionnés au moyen d'une technique d'échantillonnage à plusieurs degrés ont été interrogés, en utilisant des questionnaires semi-structurés visant à étudier l'attitude des répondants vis-à-vis des patients infectés par le VIH et des collègues vivant avec le VIH/SIDA. Les membres du personnel soignant étaient réticents à l'idée d'accepter que des procédures médicales leurs soient administrées par des médecins et des infirmières infectés par le VIH, et quasiment 80% refusaient qu'une intervention chirurgicale ou qu'une assistance lors d'une intervention chirurgicale soit pratiquée sur eux par un médecin ou une infirmière infecté par le VIH. Ils étaient beaucoup plus réticents à l'idée d'accepter que des procédures médicales soient pratiquées sur eux par un collègue infecté, qu'à l'idée d'accepter la procédure inverse. Il semblerait ainsi que les membres du personnel soignant pensent que le risque de contracter le VIH est plus élevé si un membre du personnel soignant infecté pratique des procédures médicales sur leur propre personne, et la peur de contracter le VIH semble être l'élément moteur de leurs attitudes négatives. Une éducation aux risques professionnels du VIH, la création d'un environnement de travail sûr où les mesures de précaution universelles sont pratiquées ainsi que la mise à disposition d'une prophylaxie après une exposition sont les moyens qui sont proposés pour permettre aux membres du personnel soignant de changer leurs attitudes.

**Mots clés:** Attitude, membres du personnel soignant, collègues infectés par le VIH, patients infectés par le VIH.

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## Introduction

HIV/AIDS has many physical effects, but perhaps some of the most profound effects are in the psychological, social and economic health of the HIV-positive person, his or her loved ones and the community (Bachmann & Booyesen, 2003; Hilhorst., van Liere, Ode & de Koning, 2006; Hosegood, Preston-White, Busza, Moitse & Timaeus, 2007). Fear, stigma and discrimination have continued to accompany the HIV pandemic (UNAIDS, 2000). Consequently, actions to reduce or protect against discrimination and stigma may be the most significant step that can be taken to improve the psychosocial wellbeing of people living with HIV/AIDS (PLWHA).

The health sector has been identified as one of the areas in which discrimination occurs (Mahendra, *et al.*, 2007). Studies have documented negative attitudes to PLWHA in health care settings in Nigeria and elsewhere (Adelekan *et al.*, 1995; Fido & Al Kamezi, 2002; Hentgen, Jaureguiberry, Ramiliarisoa, Andrianantoandro & Belec, 2002; Quach, Mayer, McGarvey, Lurie & Do, 2005; Reis *et al.*, 2005). Physicians and nurses have been reported to be uncomfortable when administering medical procedures to HIV-infected patients (Oyeyemi, Oyeyemi & Bello, 2006; Oyeyemi, Oyeyemi & Bello, 2008), while in one study (Fransman, McCulloch, Lavies & Hussey, 2000) more than half of respondents were found to be reluctant to perform invasive procedures on HIV-infected children. Stigma and discrimination in the health care setting could jeopardise HIV prevention efforts and HIV care, especially if infected health care workers (HCWs) are unsupported. Negative attitudes may also engender fear in HCWs, such that they are reluctant to be screened for HIV, and put themselves at risk by delaying initiation of treatment in themselves. The HIV-infected HCW may also be at risk of acquiring infections such as tuberculosis from patients. The possibility of discrimination from hospital authorities and stigma from colleagues and patients also exists.

Voluntary screening for HIV is one of the major means of preventing the spread of HIV. Several studies on HIV screening have explored attitudes of different groups of people to HIV screening (pregnant women, undergraduates, youths), with over 75% expressing positive attitudes towards being screened (Daniel & Oladapo, 2006; Ikechebelu, Udigwe, Ikechebelu & Imoh, 2006; Iliyasu, Kabir, Galadanci, Abubaker & Aliyu, 2005; Pool, Nyanzi & Whitworth, 2001). Investigators have reported HCWs supporting various approaches to HIV testing such as mandatory testing of all patients, testing of all surgical patients, and testing as part of routine medical investigations (Ganczak & Barss, 2007; Li *et al.*, 2007; Obi, Waboso & Ozomba, 2005). Few studies however have examined the attitude of HCWs towards their being screened for HIV. In one such study (Tarwirevi &

Majoko, 2003) 77% of respondents were unwilling to undergo screening, and in another (Kiragu, Ngulube, Nyumbu, Njobvu, Eerens & Mwaba., 2007) only 33% of respondents had been screened. Moreover, few studies have evaluated attitudes of HCWs to their colleagues infected with the virus in Nigeria, a country reported to have more people living with HIV than any other country in the world, save for South Africa and India. This study was carried out to assess the attitudes of HCWs to doctors and nurses infected with HIV in comparison to HIV-infected patients. The attitudes of HCWs to HIV screening were also evaluated.

## Subjects and methods

Nigeria has 36 states, and each state is subdivided into local government areas (LGA) that are administered by the third level of government (the others being the state governments and the federal government). The official language is English and training of health care personnel is done in English. This cross-sectional study was conducted in September 2003 in Abeokuta north and south local government areas of Ogun state in Nigeria. At the time of the study seroprevalence of HIV was 1.5% in Ogun state (Federal Ministry of Health, 2004) and there were no organised HIV programmes in the state.

Respondents were selected using a multistage sampling technique. The LGA were the first stage of sampling. A list of all registered health institutions (public and private) from the primary, secondary and tertiary levels of care in both LGA was obtained from the Ogun state Ministry of Health. There were 67 health care facilities in Abeokuta north local government area, consisting of 22 primary health centres, 2 secondary health facilities, 1 tertiary health facility and 42 private health care facilities. In Abeokuta south LGA there were 83 health facilities, consisting of 19 primary health care facilities, 3 secondary care facilities, 1 tertiary facility and 60 private health facilities. One quarter of the health facilities in each LGA were selected randomly. The selected health institutions formed the second stage of sampling.

The list of all HCWs in the selected institutions was obtained from the administrative authority. The list was arranged according to cadres. The respondents were health care workers of various cadres who had direct contact with patients. Random selection of at least a quarter of the personnel in each cadre was done. Where a selected individual was not available or declined to participate in the study, the next person in the same cadre on the list was picked.

A two-part pre-tested self-administered semi-structured questionnaire was employed to evaluate attitudes of respondents

towards HIV-infected colleagues and HIV screening. The first part contained seven items seeking information on bio-data, type of profession and practice of the respondent. The second part had 21 items, the first 10 of which evaluated the attitudes of HCWs to colleagues and patients infected with HIV. The questions required 'yes' or 'no' answers to whether the respondents would be willing to take vital signs, carry out a physical examination, give an injection, and operate/assist to perform a surgical operation on an HIV-infected patient. Another set of questions required respondents to indicate their willingness to accept the outlined procedures to be carried out on them by an HIV-infected doctor or nurse. The other items sought information on whether respondents had been screened for HIV, and their reactions while awaiting the results of their test. For those who had not been screened, their willingness to accept HIV testing was ascertained, while exploring the reasons for refusing testing.

Reliability and validity of the study instrument were ensured by adequate review of related literature. The instrument was further pre-tested in two non-participating private hospitals on 30 HCWs prior to commencement of the study, and necessary adjustments were made. It took about 15 minutes to complete the questionnaire. The questionnaires were distributed by three research assistants who were trained for the purpose of the study.

Ethical approval for the study was obtained from the ethical review committee of the Federal Medical Centre Abeokuta. Permission was obtained from the administrative authority of each study site. Verbal consent was obtained from each respondent, after thorough explanation of the study objectives and assurance of confidentiality of responses.

Completed questionnaires were edited daily. Data entry was done using a microcomputer and data analysis was performed with SPSS version 15. Comparisons and associations were evaluated using the Chi-squared test and Fischer's exact test as appropriate. Significance level was set at 0.05. HCW attitudes were further analysed by awarding one point for each procedure accepted from an HIV-infected colleague. The maximum score was 5. Similarly, 1 point each was awarded for each procedure HCWs were willing to perform on an HIV-infected patient. The maximum score here was also 5. Attitudes were adjudged negative if the score was 3 or less and positive if 4 or 5. Multivariate logistic regression was used to assess independent predictors of attitudes to colleagues infected with HIV.

## Results

A total of 345 HCWs were surveyed. Of these, 290 (84.1%) were females while 55 (15.9%) were males. The profession and type of practice of the respondents is shown in Table 1. The majority (68.4%) were trained nurses, followed by auxiliary nurses (17.9%) and medical doctors (10.1%). Trained nurses undergo a more intensive training (in content and skill acquisition) than auxiliary nurses. Various aspects of HIV are included in the nursing curriculum. Trained nurses also receive some in-service training, which may include HIV training.

Few HCWs were willing to accept that medical procedures be carried out on them by an infected doctor or nurse. Almost 80% would refuse surgery or assistance at surgery on them by an HIV-infected doctor or nurse. The more invasive the procedure, the higher the tendency to refuse (Table 2). Compared with accepting a non-invasive procedure, such as taking vital signs, HCWs were significantly more likely to refuse invasive procedures being carried out on them by an HIV-infected colleague: accepting injections [Odd's ratio (OR) 4.12, 95% confidence interval (CI) 2.97, 5.7]; accepting the setting up of an infusion [OR 5.65, CI (4.06, 7.8)], and accepting surgery or assistance at surgery on them [OR 10.29, CI (7.20, 14.68)].

HCWs were significantly more willing to carry out medical procedures on HIV-infected patients than accepting similar procedures being carried out on them by an HIV-infected colleague (Table 2). Whereas 72.5% and 71.3% of HCWs respectively were willing to give injections and set up an infusion on an HIV-infected patient, only 38.3% and 31.9% respectively

**Table 1. Distribution of HCWs by profession and type of practice**

	N	%
<b>Profession</b>		
Medical doctors	35	10.1
Trained nurses	236	68.4
Auxiliary nurses	62	17.9
Laboratory scientists	5	1.5
Others*	7	2.1
<b>Practice</b>		
Private hospital	154	44.6
General hospital	75	21.7
Tertiary hospital	71	20.6
Government owned maternity	20	5.8
Primary health centre	12	3.5
No response	13	3.8

\*Others – physiotherapists 3, dental therapist 1, records officer 1.

**Table 2. Comparison of willingness of HCWs to carry out procedures on HIV- infected patients with acceptance of same procedures from HIV-infected HCWs**

Procedure	Willingness to carry out on HIV-infected patient		Willingness to accept from HIV-infected HCW		p-value
	Yes (N(%))	No (N(%))	Yes (N(%))	No (N(%))	
Take vital signs	292(84.6)	48(13.9)	249(72.2)	91(26.4)	<0.005
Physical examination	296(85.8)	44(12.8)	226(65.5)	113(32.8)	<0.005
Give injection	250(72.5)	88(25.5)	132(38.3)	206(59.7)	<0.005
Set up intravenous infusion	246(71.3)	86(24.7)	110(31.9)	227(65.8)	<0.005
Perform/assist in surgery	180(52.2)	152(44.1)	71(20.6)	267(77.4)	<0.005

**Table 3. Willingness of different cadres of HCWs to allow HIV-infected HCWs to carry out medical procedures on them**

Procedure	Doctors		Nurses		Auxiliary nurses		Others		$\chi^2$ /p-value
	Yes N(%)	No N(%)	Yes N(%)	No N(%)	Yes N(%)	No N(%)	Yes N(%)	No N(%)	
Take vital signs	32(91.4)	3(8.6)	164(69.5)	67(28.4)	44(71.0)	18(29.0)	7(70.0)	3(30.0)	$\chi^2 = 6.68$ $p > 0.05$
Physical examination	30(85.7)	4(11.4)	150(63.6)	81(34.3)	40(64.5)	22(35.5)	4(40.0)	6(60.0)	$\chi^2 = 10.72$ $p = 0.01$
Give injection	21(60.0)	13(37.1)	79(33.5)	151(64.0)	29(46.8)	33(53.2)	3(30.0)	7(70.0)	$\chi^2 = 11.37$ $p = 0.01$
Set up infusion	20(57.1)	14(40.0)	58(24.6)	171(72.5)	28(45.2)	34(54.8)	4(40.0)	6(60.0)	$\chi^2 = 20.77$ $p < 0.001$
Perform/assist in surgery	8(22.9)	27(77.1)	36(15.3)	193(81.8)	25(40.3)	37(59.7)	2(20.0)	8(80.0)	$\chi^2 = 17.80$ $p < 0.001$

would accept the same procedures from an HIV-infected doctor or nurse. The difference in their willingness to carry out medical procedures on HIV-infected patients and accepting the same procedures to be performed on them by an HIV-infected colleague reached statistical significance for both invasive and non-invasive procedures (Table 2).

There were statistically significant differences between professional groups in their willingness to accept all procedures, except taking vital signs from HIV-infected colleagues (Table 3). Doctors (85.7%) were more willing to accept that a physical examination be carried out on them by an infected doctor or nurse than trained nurses (63.3%) and auxiliary nurses (64.5%). They were also more willing to accept injections and infusions from an infected HCW. They were similar to trained nurses in refusing surgery or assistance at surgery on them by an infected HCW. Auxiliary nurses were less likely to reject surgery or assistance at surgery on them by an infected HCW (Table 3).

The mean attitude score towards HIV-infected HCWs was  $2.29 \pm 1.8$ , with a median score of 2.0, whereas the mean attitude score towards patients infected with HIV was  $3.7 \pm 1.5$ , with a median score of 4. The respondents' attitude towards patients and colleagues with HIV infections and their attitude scores are shown in Table 4. Less than two-fifths of respondents had

a positive attitude towards colleagues with HIV infection. On the contrary, however, their attitude towards patients with HIV infection was the exact opposite, with only about two-fifths showing a negative attitude. There was a statistically significant difference between the mean attitude scores towards patients compared with the mean attitude score towards HCWs with HIV infection ( $p < 0.01$ ).

Table 5 shows the comparison of respondents according to their attitude. A greater proportion of male respondents significantly displayed a positive attitude compared with females [ $\chi^2 = 7.07$ ,  $p = 0.008$ , OR=0.46; 95% CI (0.25 - 0.86)]. Marital status, religion, the setting of care and age group did not significantly influence their attitude. However, the professional group significantly influenced respondents' attitude. A greater proportion of medical doctors exhibited a positive attitude compared with other professional groups.

Multivariate regression analysis was used to assess independent predictors of attitude to colleagues with HIV infection. When entered into the regression model with positive attitude as the dependent variable (Table 6), sex and professional cadre, although significant with univariate analysis, were however not independently predictive of HCWs' attitude.

**Table 4. Respondents' attitude scores and attitude towards HCWs and patients with HIV infection**

Scores	HCWs with HIV infection		Patients with HIV infection	
	N	%	N	%
0	92	26.7	23	6.7
1.0	25	7.2	2	0.6
2.0	95	27.5	39	11.3
3.0	26	7.5	70	20.3
4.0	39	11.3	56	16.2
5	68	19.7	150	43.5
Attitude				
Negative	212	61.4	134	38.8
Positive	133	38.6	206	59.7

**Table 5. Respondent characteristics and their attitude towards HIV-infected colleagues**

Characteristic	Attitude				$\chi^2/p$ -value
	Negative		Positive		
	N	%	N	%	
Sex					
Male	25	45.5	30	54.5	$\chi^2=7.07$
Female	187	64.5	103	35.5	$p=0.008$ (S)
Marital status					
Single	79	59.0	55	41.0	$\chi^2=0.37$
Married	127	62.3	77	37.7	$p=0.54$ (NS)
Religion					
Christianity	186	62.2	113	37.8	$\chi^2=0.001$
Islam	26	61.9	16	38.1	$p=0.97$ (NS)
Setting of practice					
Private	95	61.7	59	38.3	$\chi^2=0.007$
Public	109	61.2	69	38.8	$p=0.93$ (NS)
Age group					
< 20	14	51.9	13	48.1	
21 - 30	87	66.9	43	33.1	
31 - 40	57	56.4	44	43.6	$p=0.44$ (NS)
41 - 50	47	61.8	29	38.2	$\chi^2=0.79$
>50	7	63.6	4	36.4	
Professional group					
Medical doctors	14	40.0	21	60.0	
Nurses	156	66.1	80	33.9	
Laboratory scientists	3	60.0	2	40.0	$\chi^2=10.69$
Physiotherapists	2	66.7	1	33.3	$p=0.03$ (S)
Auxiliary nurses	33	53.2	29	46.8	

S = significant; NS = not significant.

**Table 6. Multivariate logistic regression analysis with positive attitude as dependent variable**

Variable	p-value	Odds ratio	95% CI for odds ratio	
			Lower	Upper
Sex				
*Female		1.00		
Male	0.116	1.86	0.89	4.04
Professional group				
*Doctors		1.00		
Nurses	0.189	0.54	0.21	1.36
Laboratory scientists	0.577	0.57	0.08	4.06
Physiotherapists	0.428	0.36	0.03	4.48
Auxiliary nurses	0.951	0.97	0.34	2.76

\*Female and doctors were used as reference, hence the odds ratio of 1.00.

Of the HCWs surveyed, 74.2% (256) had been screened for HIV; and of these 56.7% (144) reported being calm while awaiting the result of the screening. Apprehension and dread were reported in 31.5% (81) and 6.3% (16) respectively. Reasons for having not been screened included fear of breach of confidentiality in 50.6% (45), fear because there is no cure in 49.4% (44), fear of discrimination in 44.9% (40) and fear of watching oneself die in 41.6% (37). Other reasons were fear of being positive in 42.6% (38), fear of rejection by society in 37.1% (33) and fear of loss of job in 33.7% (30). About 49% (44 of 89) of those who had not been screened were unwilling to be screened.

## Discussion

The occupational risk of becoming HIV infected from patients in a health care setting is low, estimated to be approximately 0.3% with percutaneous exposure to HIV-infected blood, and 0.09% after a mucous membrane exposure (Baggaley, Sulwe, Kelly, MacMillan & Godfrey-Faussett, 1996). Although transmission of HIV from infected HCWs to patients has been documented, the risk is much lower than in the reverse situation (CDC, 2001). Despite the fact that transmission is more likely from patient to HCW than the reverse, we observe more discriminatory attitudes toward infected HCWs compared with infected patients. It can be deduced that the studied HCWs believed that the risk of getting infected was higher if they had clinical contact with an HIV-infected HCW than if the contact was with an HIV-infected patient. The implication of such a myth is grave, as these may include that HIV-infected HCWs receive very little support from their colleagues, and may consequently delay HIV testing and initiation of treatment for themselves.

It is reasoned that HCWs probably feel they have better control over avoiding HIV transmission in situations where they administer procedures to HIV-infected patients than situations where they have to accept procedures administered to them by HIV-infected colleagues. These negative attitudes are similar to those of Chinese medical professionals and students, who were unwilling to sit or work with an HIV-infected person (Buskin, Li, Yin, Yu & McGough, 2002). Negative attitudes towards HIV-infected colleagues were also noted in previous studies in Nigeria, in which 43.6% of the HCWs studied were uncomfortable being assisted by an infected colleague, and 51.1% were uncomfortable sharing a bathroom with an infected colleague (Aisien & Shobowale, 2005). In another study (Reis *et al.*, 2005), 40% of HCWs believed that infected HCWs should not be allowed to work in any area of health care that requires patient contact.

The nurses in this study were more discriminatory than doctors and auxiliary nurses, based on univariate analysis, though this

is not borne out by multivariate analysis. This suggests that the discriminatory attitudes exhibited by the respondents are of multifactorial aetiology and not confined to any group of HCWs. However, the tendency of nurses and auxiliary nurses to be more discriminatory, which has previously been reported (Adelekan *et al.*, 1995), may be due to their poorer knowledge of HIV transmission in comparison to physicians, as has been shown in previous studies (Adelekan *et al.*, 1995; Ezedinachi *et al.*, 2002). The importance of this finding is that in the current roll-out programmes a lot more HIV care is provided through nurses than doctors. Thus specific efforts to deal with negative attitudes towards HIV among HCWs should focus primarily on nurses.

The reluctance of the HCWs to carry out more invasive procedures or accept them indicates the fact that they know that the risk of transmission of infection is higher with more invasive procedures, where there is a higher likelihood of exposure to blood and blood products. These findings are similar to those in other Nigerian studies (Adelekan *et al.*, 1995; Oyeyemi *et al.*, 2006).

The fear of contracting HIV and its associated difficulties, such as stigmatisation, discrimination and loss of jobs may be a major contributor to the negative attitudes towards PLWHA among HCWs. More than a third of those who had not been screened expressed various fears, for example job loss, discrimination, rejection etc., as to why they had not been screened. Also close to half of those who had not been screened were unwilling to be screened. Similar findings have been reported among Zambian HIV counsellors and Zimbabwean HCWs (Erridge, 1996; Tarwirevi 2003). These negative attitudes are detrimental to the prevention of HIV transmission both within and outside the health care setting, as it may result in a pool of undiagnosed HIV-positive HCWs (Chesney & Smith, 1999). Fewer HCWs would voluntarily come forward for HIV testing if it is perceived that a positive HIV status would attract stigmatisation from colleagues. The tendency of non-disclosure of possible positive HIV status to the authorities or colleagues would be high (Chesney & Smith, 1999; Herek *et al.*, 1998). It may be instructive to find out why HCWs were more unwilling to be screened compared with other groups of persons (pregnant women, undergraduates) who have shown more positive attitudes towards screening (Daniel & Oladapo, 2006; Ikechebelu *et al.*, 2006; Iliyasu *et al.*, 2005; Pool *et al.*, 2001). Perhaps a higher perceived risk (occupational) may be responsible for such negative attitudes of HCWs.

## Recommendations

Education on the risks of HIV transmission in the health care setting and means of reducing such risks (universal precaution, post-exposure prophylaxis) should be conducted. Educational

programmes have been shown in previous studies to reduce fear and increase knowledge amongst nurses (Ezedinachi *et al.*, 2002; Pisal *et al.*, 2007), and perhaps among other HCWs. Provision of the wherewithal to maintain universal precautions as well as post-exposure protocols should be facilitated in health care settings. Policies that support HIV-infected HCWs, such that their rights are protected (confidentiality, job security), should be put in place. This should include access to specific HIV counselling and testing for HCWs, and prioritisation of HCWs for antiretroviral therapy. With these in place, workshops to deal with attitudes towards HIV/AIDS among HCWs in the health care setting and society at large should be carried out to enable HCWs to change their attitudes.

## Limitation/strengths

This study was carried out in only one of the states in Nigeria – a larger study involving more states and more HCWs may better identify some of the associations observed in this study. The strengths of this study include the fact that the questionnaires were self-administered and respondents were not required to write their names, thus assuring anonymity. Under the circumstances responses were likely to have indicated the respondents' true practices and attitudes. This study also included various cadres of HCWs from the major settings of health care practice (public and private) in Nigeria.

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