

Attitudes and Willingness of Nursing Students towards Caring for Patients Infected with HIV in South Africa

Odila Sehume & Lindiwe Zungu

Department of Health Studies,
University of South Africa

Muhammad Hoque

Department of Public Health, University of
Limpopo (Medunsa Campus), South Africa

The objective of this cross-sectional study was to assess attitudes and willingness of caring for patients infected with HIV in South Africa among 122 nursing students using self-administered questionnaires. Majority of the nursing students possess positive attitudes towards patients infected with HIV and are more than willing to provide care to such patients but lacked knowledge regarding HIV policies. Nursing curricula should include extensive teaching about HIV legislation including internal and external work policies on HIV/AIDS.

Keywords: Attitude, willingness, patient infected with HIV, nursing students, South Africa

It is estimated that 33.3 million people were living with HIV/ AIDS globally, of which 68% was in sub-Saharan Africa by the end of 2009 (Avert, 2010). Ethiopia, South Africa, Zambia, Nigeria and Zimbabwe were leading in the HIV/AIDS epidemic between 2001 and 2009 (South Africa: The Good News, 2010). Nursing sick patients is one of the professions that carry a high risk of exposure to HIV, Hepatitis B and C. Researchers have concluded that occupational risk associated with exposure to infected body fluids is high in countries with poor resources like Kenya and South Africa (Taegmeyer, Suckling, Nguku, Meredith, Kibaru, Chakaya, et al, 2008; Zungu, Sengane, Setswe, 2008; Cornelius, 2006).

Health care providers are concerned about being infected with HIV during the provision of care to HIV/AIDS patients. As a result of fear of contagion, nurses consequently became reluctant or refused to care for HIV-infected patients (Van Dyk, 2007). Researchers have highlighted that health care workers (HCW) did experience anxiety when they were accidentally exposed to blood (Rissi, Machado, Figueiredo, 2005).

Hodgson (2006) cited fear as the driving force towards negative attitudes. A study conducted in Lesotho, Malawi, South Africa, Swaziland and Tanzania on health care providers and on people living with HIV/AIDS found that health care providers were a source of stigma towards patients with HIV/AIDS (Holzemer, Uys, Makoae, Stewart, Phetlhu, Dlamini, et al, 2007). Another South African study reported that nurses were very emotional and physically stressed because they were working in high risk infection area (Davhana-Maselesele and Igumbor, 2008). Researchers have concluded that attitudes are perhaps fuelled by lack of control over the disease, that is, the fact that anti-retrovirals (ARVs) are effective only to subside progression of the disease and not to cure it (Bektas and Kulakac, 2007; Hodgson, 2006).

Despite the level of stress and depression, nurses still managed to form good relations with their patients. Nurses had a feeling of responsibility to fight the scourge of HIV (Davhana-Maselesele and Igumbor, 2008). Researchers have indicated that HCWs were willing to care for HIV/AIDS patients (Cornelius, 2006; Andrewin & Chien, 2008). Turkish students were willing to take care of a HIV/AIDS patient, especially if the transmission was through mother-to-child or sexually. Students portrayed feelings of wanting to help the patients especially because they

Corresponding Author: E-Mail: Muhammad.Hoque@embanet.com;
muhammad.ehsanul@gmail.com Tel.: +270125213055; Fax:
+270125214670.

were helpless and needed support to pull through (Bektas & Kulakac, 2010). A Chinese study concluded that willingness to care for HIV-positive patients by the concerned health care workers were of an unfavourable nature (Cai, Moji, Honda, Wu, Zhang, 2007).

HIV epidemic has put a burden on the providers of health care especially in South Africa with its huge number of people living with HIV/AIDS. This situation thus put health care providers under occupational stress. Fear of occupational exposure to HIV gives rise to occupational stress which then manifests with signs such as burnout, fear to care for HIV-infected patients and negative attitudes (Van Dyk, 2007). Student nurses are a subgroup of health care providers and they are future professional nurses. Nurses and student nurses take part in the provision of direct bed-side nursing to patients infected with HIV, as a result, they are vulnerable to the risk of acquiring blood-borne infections (Zungu, Sengane, Setswe, 2008). Due to this possibility of exposure to blood and bodily fluids, factors which were related to negative attitudes among student nurses as; knowledge deficit, fear of contagion and death. (Bektas & Kulakac, 2007).

The outcry concerning shortage of nurses is a problem nationally, but in the already resource- stricken rural areas, the shortage brings the worst out of our health care system. Of the three districts of Mpumalanga, Gert Sibande district has the highest prevalence rate of HIV/AIDS and yet, the lowest population (Department of Health, Welfare and Gender Affairs, Mpumalanga, 1996). The plights of the nurses are overwhelmed by the situation of taking care of HIV-infected patients' day in and out. Student nurses are also faced with the same circumstances that other health care workers encounter on the day-to-day basis. It is true that negative attitudes and fear to care for HIV-infected patients are issues of concern among health care givers and student nurses; nevertheless, nurses have a significant role to play in the provision of HIV treatment and care (Li, Scott, Li, 2008). Nurses should be able to readily accept patients infected with HIV without passing judgements which end-up putting stigmatising labels on the patient

(Li, Scott, Li, 2008). There is no study conducted so far to investigate the attitudes and willingness of student nurses in the Gert Sibande district in Mpumalanga, South Africa, towards caring for HIV-infected patients. Therefore, the aim of this study was to assess the attitudes and willingness of nursing students towards caring for patients infected with HIV in some public hospitals in Gert Sibande district of Mpumalanga province in South Africa.

Methodology

Study Setting, and Population

The study was conducted among nursing schools in the Gert Sibande district of Mpumalanga Province. The nursing schools which are accredited to place student nurses for their clinical practice are: Embhuleni, Bethal, Carolina, Ermelo, Evander and Piet Retief nursing schools. Another part of the research setting was the Mpumalanga College of Nursing which is situated in the Ehlanzeni district, and it is the main Institution of Higher Learning for nurses in the Mpumalanga province. Nurses are given theoretical content at the College on a block system, for the clinical component of their training; they are placed in different accredited nursing schools throughout the province. The population consisted of all student nurses studying towards a Comprehensive Course in Nursing, with the resultant qualification of a Diploma in General Nursing (with midwifery, community and psychiatric qualification as well, as per the SANC Regulation R425). The student nurses that formed the study population were all trainees of the Mpumalanga College of Nursing, where they are given the theoretical content of the course of training. The students are in their first, second, third and fourth year of training.

Study design, sampling, and data collection

This was a descriptive cross-sectional study conducted among student nurses enrolled for a 4 year diploma in Mpumalanga nursing college. Non probability sampling design was used to select the samples for the study. The

sample comprised of both male and female comprehensive nursing students in the Gert Sibande nursing schools. A total of 172 students were invited to participate in the study.

A self-administered questionnaire was used to collect data during class and clinical attendance. The questionnaire consisted of two parts: the first part was focusing on the socio-demographic data and the second part sought the student nurses' attitudes and willingness towards caring for HIV/AIDS patients (Gallin & Ognibene, 2007; Giuseppe, 2006). Part II subsection (i) comprised of questions assessing the attitudes of students towards caring for HIV-infected patients. The 5-point Likert scale was used in this part of the tool. The responses ranged from "strongly agree", "agree", "I don't know", "disagree", and "strongly disagree". The subsection had seven attitude items in a closed ended form. One item out of the seven had a portion of an open ended response where respondents were asked to state a reason for their choice. Part II subsection (ii) was made up of five items which assessed the respondents' willingness to care for HIV-infected patients. All five items were in the closed ended form of questioning, where respondents were required to respond with a "Yes", "No", "I don't know", "Neutral", or "I can't remember". Four out of the five items had a portion where the respondent could give an open ended response by providing a reason for the choice he/she had made. Piloting of the data tool was done, though on a very small scale. The tool seemed clear and understandable.

Two weeks prior data collection, e-mail messages were sent to the Heads of the targeted institutions informing them of the dates for data collection. The researcher visited respective institutions, reporting to the Nursing Service Managers and the Principals of the nursing schools where the student nurses were placed. Respondents were briefed about the research project, purpose and the data collection method thereof. Ethical issues were explained and maintained throughout.

Ethical Considerations

Ethical permission was granted by the Ethics Committee of the University of South Africa. Furthermore, the Mpumalanga Department of Health Research and Ethics Committee's approval was sought and granted. Consent was sought from the respondents. Respondents were assured about the confidentiality of their responses. No student was coerced to participate in the study. All participation was voluntary, without any intimidation or conditions out of free will. Also, no form of identification of respondents in terms of names or numbers was used on the data tool.

Data Analysis

Data were entered into Microsoft excel 2003 spreadsheet and analyzed using SPSS 17.0.1. All the variables were summarized using descriptive summary measures: expressed as mean (standard deviation, SD or range) for continuous variables and percent for categorical variables. In the case of Likert Scale assessments, the counts in the two categories "SA" (strongly agree) and "A" (agree) were combined and the outcome was described as "agreed to a greater or lesser extent". Similarly the counts in the two categories "SD" (strongly disagree) and "D" (disagree) were combined and the outcome was described as "disagreed to a greater or lesser extent. Chi-square/Fisher exact test, where necessary, was used to find association between categorical variables. All statistical tests were performed using two-sided tests at the 0.05 level of significance. P-values reported to three decimal places with values less than 0.001 reported as <0.001.

Results

A total of one hundred and seventy two student nurses were eligible to participate in the study, but only 122 took part in the study with a response rate of 70.9%. Table 1 summarises participants' socio-demographic characteristics. The mean age of the students was 27 years (SD=6.09). Majority of the students (83.6%) were between 19 and 34 years. With regards to gender, about two-thirds (64.8%) were females. Majority (86.9%) of the students were single. The results indicated that almost half of them (43.0%) were in their first year of training followed by third

years (32.2%). Regarding HIV testing, most of the respondents (87.7%) reported that they underwent testing for HIV and among 53.3% indicated that they had recently (i.e. during the year 2011) tested for HIV.

Table 1: Summary of demographic characteristics of respondents

Demographic characteristic	Frequency	Percentage
Age in years (n=120)		
19-26	72	60.0
27-34	30	25.0
35-42	15	12.5
43-50	3	2.5
Gender (n=122)		
Females	79	64.8
Males	43	35.2
Marital status (n=122)		
Co-habiting	1	0.8
In a relationship	1	0.8
Married	13	10.7
Single	106	86.9
Widowed	1	0.8
Level of training (n=121)		
1 st year	52	43.0
2 nd year	22	18.2
3 rd year	39	32.2
4 th year	8	6.6
Tested for HIV (n=122)		
No	15	12.3
Yes	107	87.7
Year tested (n=105)		
2002-2007	11	10.5
2008-2009	15	14.3
2010	23	21.9
2011	56	53.3

Table 2 shows the summary of the statements related to participants' attitude and the participants' responses. It should be noted that two of the questions (B6 & B7) did not depict attitudes but rather

Table 2: Summary of participants' responses to attitude statements (n=122)

Statements	Frequency	Percentage
HIV-infected patients should be nursed in isolation (B1)		
Agree to a greater or lesser degree (sa + a)	25	20.5
Disagree to a greater or lesser degree (sd + d)	81	66.4
I don't know	13	10.7
No response	3	2.5
HIV-infected patients have themselves to blame (B2)		
Agree to a greater or lesser degree (sa + a)	16	13.1
Disagree to a greater or lesser degree (sd + d)	90	73.8
I don't know	16	13.1
There should be a policy stating that all patients must be tested for HIV when admitted to hospital (B3)		
Agree to a greater or lesser degree (sa + a)	80	65.6
Disagree to a greater or lesser degree (sd + d)	35	28.7
I don't know	7	5.7
Nurses should always use protective gear when taking care of HIV-infected patients, irrespective of the type of procedure they are doing (B4)		
Agree to a greater or lesser degree (sa + a)	85	69.7
Disagree to a greater or lesser degree (sd + d)	30	24.6
I don't know	6	4.9
No response	1	0.8
HIV-infected patients are better off at home than in hospital (B5)		
Agree to a greater or lesser degree (sa + a)	13	10.7
Disagree to a greater or lesser degree (sd + d)	94	77.0
I don't know	14	11.5
No response	1	0.8
I experience anxiety when dealing with HIV-infected patients (B6)		
Agree to a greater or lesser degree (sa + a)	50	41.0
Disagree to a greater or lesser degree (sd + d)	62	50.8
I don't know	8	6.6
No response	2	1.6
I am concerned about the possibility of infection through accidental exposure to blood of a patient who is HIV-positive (B7)		
Agree to a greater or lesser degree (sa + a)	110	90.2
Disagree to a greater or lesser degree (sd + d)	8	6.6
I don't know	2	1.6
No response	2	1.6

concern regarding the care of HIV-infected patients. About two-thirds of the participant's (66.4) displayed positive attitudes regarding isolating HIV infected patients, 73.8% showed positive attitude with regards to the item on whether HIV-infected patients have to blame themselves for being HIV-infected by disagreeing with the statement. More than three-quarters (77.0%) of the participants' displayed positive attitude by disagreeing to a greater or lesser extent on whether HIV-infected patients are better off at home than in Hospital. The results showed that about two-thirds (65.6%) of the respondents showed negative attitudes towards having an institutional policy to enforce HIV testing when patients are admitted to hospitals, and 69.7% indicated negativity on whether nurses should always wear protective gear irrespective of the type of procedure they are doing. Results indicated that half of the respondents (50.8%) disagreed to a greater or lesser extend on responses on experiencing anxiety when dealing with HIV-infected patients. With regards to participants' responses on being concerned about the possibility of acquiring infection through accidental exposure to blood of a patient who is HIV-infected, the results showed that most of the respondents (90.2%) agreed to a greater or lesser extent with the statement, which did not elicit attitudes of the respondents, but rather, concern about caring for HIV-infected patients.

Respondents' willingness to care for HIV-infected patients has been summarised in table 3. Almost all the nursing students (99.2%) showed willingness to nurse a patient who is HIV-positive. Regarding ever taken care of a HIV-infected person at home, 51.2% answered positively. Result illustrated that the majority of respondents (91.8%) did not support the statement of avoiding nursing a patient on the basis that he/she refused to undergo the HIV testing, which displayed strong positivity and willingness to care for any patient, irrespective of the HIV infection. According to the results, a strong willingness to continue caring for HIV-infected patients despite being accidentally exposed to the HIV-infected body fluids was demonstrated

by 74.6% of the participants. More than two-thirds (68.1%) of the participants mentioned that they were not comfortable nursing a HIV-infected patient.

Table 3: Summary of participants' responses to willingness item statements (n=122)

Variable	n	%
Are you willing to nurse a patient who is HIV-positive?		
Yes	121	99.2
No	1	0.8
Have you ever taken care of a HIV-positive patient at home?		
Yes	62	51.2
No	55	45.5
I can't remember	4	3.3
I will avoid nursing a patient if he/she refuses to test for HIV		
Yes	10	8.2
No	112	91.8
After Accidental exposure to HIV-infected body fluids from a patient, I would still be willing to take care of HIV-infected patients		
Yes	88	74.6
No	7	5.9
I don't know	23	19.5
I am comfortable nursing an HIV/AIDS patient		
Yes	13	10.9
No	81	68.1
Neutral	25	21.0

The study did not find any significant association between respondents' demographic characteristics and their willingness to nurse a HIV-positive patient ($p>0.05$) (data not shown). The results showed a statistically significant association ($p=0.0120$) between those who did the HIV test (78.6%) and those who never tested (46.7%) regarding their willingness to care for HIV-infected patients after being accidentally exposed to HIV-infected body fluids from a patient. The respondents who previously tested for HIV demonstrated higher willingness to

continue caring for HIV-infected patients despite having been put at risk of HIV infection (data not shown). A significant statistical association ($p=0.0099$) existed between different age groups and being comfortable with nursing a patient infected with HIV.

Table 4: Association between participants' demographics and their comfortableness towards nursing a patient infected with HIV

Variable	Total	I am uncomfortable nursing an HIV-infected patient (row %)	P-value
Age			0.0099
19-26	70	60.0	
27-34	29	86.2	
35-42	15	86.7	
43-50	3	33.3	
Gender			0.6319
Females	79	69.2	
Males	43	65.8	
Marital status			0.5489
Co-habiting	1	0	
In a relationship	1	100	
Married	12	75	
Single	104	67.3	
Widowed	1	100	
Level of training			0.7793
1 st year	51	62.8	
2 nd year	22	72.7	
3 rd year	37	70.3	
4 th year	8	87.5	
Tested for HIV			0.3958
No	15	73.3	
Yes	104	67.3	
Year tested			0.523
2002-2006	7	100	
2007-2009	18	72.2	
2010-2011	77	62.3	

Respondents within the age group from 35-42 (86.7%) were found to be more comfortable with providing care to HIV-infected patients compared to other age groups. No association was found with gender ($p=0.6319$), marital status ($p=0.5489$), level of training ($p=0.7793$), tested for HIV ($p=0.3958$) and year of testing ($p=0.5230$) (table 4).

Discussion

The present study investigated the attitudes and willingness of student nurses towards caring for HIV-infected patients. The study highlighted that the nursing students in the Gert Sibande district of the Mpumalanga province, South Africa possess positive attitudes towards patients infected with HIV and are more than willing to provide care to such patients.

The results revealed that a generally positive attitude existed among the student nurses regarding their provision of care to patients infected with HIV. This finding are similar with previous study conducted among nurses in Limpopo province of South Africa and Nigerian nurses where generally positive attitudes and or willingness were observed among respondents (Davhana-Maselesele and Igumbor, 2008; Oyeyemi, Oyeyemi, Bello, 2006). Other researchers found contrasting results. For example, Andrewin and Chien (2008), Bektas and Kulakac (2007), Holzemer, Uys, Makoae, Stewart, Phetlhu, Dlamini, et al, (2007) and Mathole, Lindmark, Ahlberg, (2006) indicated that the HCWs had generally negative attitudes and had tendencies of stigmatising the HIV-infected patients.

The majority of the students in the current study felt it was wrong to isolate HIV-infected patients for no particular reason, especially one that was not favourable to the patient because isolating patients was associated with rejection, stigma and discrimination and this had negative psychological effects on the patients. This is in line with the study from China. The Chinese study conducted among nursing students reported that the majority of participants in their study indicated that patients with HIV must be isolated (Li, Scott, Li, 2008).

The Patients' Rights Charter was born out of The Constitution of the Republic of South Africa, which clearly indicates that all citizens have equal rights. Students demonstrated respect to human rights by expressing that they would encourage and teach patients to undergo HIV testing, rather than to avoid caring for a patient who refused to undergo HIV testing, and strongly indicated that the right to test lies with the patient. Having acknowledged that patients had rights, the majority of students contradicted their responses by indicating that a policy which enforces patients to test for HIV when admitted in hospital, should be in place. There might be an existence of knowledge gaps in terms of HIV legislation.

The results of this study indicated that the majority of the students were willing to provide care to patients infected with HIV, which is consistent with the study conducted by Sadoh et al (2009). An interesting finding was that those who had tested for HIV before were more willing to provide care to the patients. Mixed feelings were depicted from the results, as small majority were not anxious about it, but large majority were strongly concerned about the possibility infection. A study conducted among Turkish nursing students reported that fear of contagion was expressed by the participants (Bektas and Kulakac, 2007). It is possible that in this study setting students created an impression which was suggestive of their lack of choice in the situation where they found themselves having to provide care to HIV-infected patients or be without a job. Another possibility is that of acknowledgement of 'duty to provide care' and 'duty to protect themselves' against any risk of infection.

The results of this study showed that the respondents felt that they could not put blame on the patient for accidental exposure to HIV-infected body fluids; they also felt that it is their responsibility to be more careful when dealing with HIV-infected patients. Students strongly felt that nurses have a duty to protect themselves against any threat of infection, as a result, they cannot put any blame on the patients should such infection take place. The same sentiments were expressed by participants

in the study which was conducted by Stevens and Dickinson (2007), who stressed the importance of protecting oneself when handling HIV-infected patients. The current study results yielded expressions by student nurses, regarding their role and obligation towards their patients, as Orem's Self Care Theory postulates that a nurse has to play a role of supporting and helping patients to meet and maintain their health and wellness needs (Bruce, Gagnon, Gendron, Puteris, Tamblyn, 2010).

The study did not find any association existed between demographic characteristics and the students' willingness to care for a patient who is HIV-positive, and a patient who refused to test for HIV whilst admitted in hospital and was under their care. Students who indicated that they had previously tested for HIV, significantly showed strong willingness to continue caring for HIV-infected patients even after being exposed to HIV-infected body fluids from patients, than those who were never tested. Contrasting the current research was the study conducted by Li, Scott, Li, (2008) showing that nursing students tended to be unwilling to provide care to HIV-infected patients after they were exposed to a needle-stick injury. Again in the current study, nursing students within the age bracket 43-50 showed significant discomfort towards caring for HIV-infected patients, which was found to be consistent with the study by Adrewin and Chien (2008) which depicted a tendency by the older age group of HCW's of being uncomfortable towards caring for HIV-infected patients. The results of Oyeyemi, Oyeyemi, Bello, (2006) indicated neutrality of participants in terms of being comfortable or uncomfortable towards caring for patients infected with HIV. The discomfort experienced by the student nurses in this research did not suggest that they were unwilling to care for patients infected with HIV.

We are aware of the possible biases that could arise from the study methodology: selection bias is possible due to the nature of the sample. Information bias is also possible. Because of the nature of the study, students might have given false answers particularly regarding their

willingness. To minimise this type of bias, we ensured their confidentiality. The respondents were obtained in only one district thus the results therefore are limited to that particular district and cannot be generalised to the comprehensive nursing students in the other two districts.

Conclusion

The results of this study basically indicated that the student nurses had generally positive attitudes towards HIV-infected patients and were willing to take care of them. Nursing students lacked HIV legislation. Nursing curricula should include extensive teaching about HIV legislation including internal and external work policies on HIV/AIDS. Nursing students need to attend more workshops on values clarification before they are exposed to HIV-infected patients in their clinical practice. The government still has a big role to play, that of providing continuous workshops on HIV/AIDS, to let nurses remember that they also have a critical role to play in meeting the health care demands of the patients, infected or not infected with HIV.

References

- Avert. (2010). *The worldwide AIDS and HIV statistics*. Available at: <http://www.avert.org/aidssouthafrica.htm> (accessed 24 May 2011).
- Andrewin, A., & Chien, L. (2008). Stigmatization of patients with HIV/AIDS among doctors and nurses in Belize. *AIDS Patient Care and STDs*, 22(11), 897-906.
- Bektas, H. A., & Kulakac, O. 2010. Knowledge and attitudes of nursing students toward patients living with HIV/AIDS (PLHIV): a Turkish perspective. *AIDS Care*, 19(7), 888-894.
- Bruce, E., Gagnon, C., Gendron, N., Puteris, L., Tamblyn, A. (2010). *Dorothea Orem's Theory*. Available at: <http://www.slideshare.net/jben501/dorothea-orem-theory> (accessed 24 May 2011).
- Cai, G., Moji, K., Honda, S., Wu, X., Zhang, K. (2007). Inequality and unwillingness to care for people living with HIV/AIDS: A survey of medical professionals in south-east China. *AIDS Patient Care and STDs*, 21(8), 593-601.
- Cornelius, J. B. (2006). HIV-related knowledge, attitudes, and perceived risk of exposure of African-American nursing students from a high prevalence AIDS area. *The Journal of Multicultural Nursing and Health*, 12(1), 41-50.
- Davhana-Maselesele, M., & Igumbor, J. O. (2008). The impact of caring for persons living with HIV and AIDS on the mental health of nurses in the Limpopo Province. *Curationis*, 31(2), 67-73.
- Department of Health, Welfare and Gender Affairs, Mpumalanga. (1996). *Primary health in Mpumalanga: guide to district-based action*. Available at: www.hst.org.za/uploads/files/phcmputp.pdf (accessed 11 April 2011).
- Gallin, J. I., & Ognibene, F. P. (2007). *Principles and practice of clinical research*. 2nd edition. Boston: Elsevier/Academie.
- Giuseppe, I. (2006). The power of survey design: a user's guide for managing surveys, interpreting results and influencing respondents. Washington DC: The International Bank for Reconstruction and Development/The World Bank.
- Hodgson, I. (2006). Empathy, inclusion and enclaves: the culture of care of people with HIV/AIDS and nursing implications. *Journal of Advanced Nursing*, 55(3), 283-290.
- Holzemer, W. L., Uys, L., Makoae, L., Stewart, A., Phetlhu, R., Dlamini, P.S., et al. (2007). A conceptual model of HIV/AIDS stigma from five African countries. *Journal of Advanced Nursing*, 58(6), 541-551.
- Li, Y., Scott, C. S., Li, L. (2008). Chinese nursing students' HIV/AIDS knowledge, attitudes and practice intentions. *Applied Nursing Research*, 21, 147-152.
- Mathole, T., Lindmark, G., Ahlberg, B. M. (2006). Knowing but not knowing maternity care in the context of HIV/AIDS in rural Zimbabwe. *African Journal of AIDS Research*, 5(2), 133-139.
- Oyeyemi, A., Oyeyemi, B., Bello, I. (2006). Caring for patients living with AIDS: knowledge, attitude and global level of

- comfort. *Journal of Advanced Nursing*, 53(2), 196-204.
- Rissi, M. R. R., Machado, A. A., Figueiredo, M. A. (2005). Health care workers and AIDS: a differential study of beliefs and affects associated with accidental exposure to blood. *Cad Saude Publica*, 21(1), 285-291.
- Sadoh, A. E., Sadoh, W. E., Fawole, A. O., Oladimeji, A., Sotiloye, O. (2009). Attitudes of health care workers to patients and colleagues infected with Human Immunodeficiency Virus. *Journal of Social Aspects of HIV/AIDS*, 16(1), 17-23.
- South Africa. (1996). *The Constitution of the Republic of South Africa Act*, no. 108, 1996. Pretoria: Government Printers.
- South Africa: The Good News. (2010). South Africa cuts new HIV infections by one-third. Available at: www.sagoodnews.co.za (accessed 24 May 2011).
- South African Nursing Council. (1985). Regulations relating to the approval of and the minimum requirements for education and training of a nurse (general, psychiatry and community) and midwife leading to registration. R425, in terms of the Nursing Act, (Act no. 50, 1978, as amended). Pretoria: Government Printers.
- Stevens, M., & Dickinson, D. (2007). Needle stick injuries in an era of HIV: technical and personal aspects. *African Journal of AIDS Research*, 6(1), 41-48.
- Taegmeyer, M., Suckling, R. M., Nguku, P. M., Meredith, C., Kibaru, J., Chakaya, J. M., et al. (2008). Working with risk: occupational safety issues among healthcare workers in Kenya. *AIDS Care*, 20(3), 304-310.
- Van Dyk, A. C. (2007). Occupational stress experienced by caregivers working in the HIV/AIDS field in South Africa. *Africa Journal of AIDS Research*, 6(1), 49-66.
- Zungu, L. I., Sengane, M. L., Setswe, K. G. (2008). Knowledge and experiences of needle prick injuries (NPI) among nursing students at a university in Gauteng, South Africa. *South African Family Practice*, 50(5), 48a-c.