

**ORIGINAL ARTICLE**

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**NURSES AWARENESS AND ATTITUDE TOWARDS HIV/AIDS AND UNIVERSAL PRECAUTIONS: A CROSS-SECTIONAL STUDY IN UKMMC**

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**ABSTRACT**

**Introduction :** AIDS stigma and incorrect HIV/AIDS information among health care workers will influence the quality of care received by persons living with HIV/AIDS (PLHA). A cross-sectional study was conducted amongst nurses in the Hospital University Kebangsaan Malaysia (HUKM) with the objective of determining their knowledge and attitudes regarding HIV/AIDS and Universal Precautions (UP).

**Methods :** A total of 450 female nurses were recruited in this study and data were collected via a self-administered questionnaire.

**Results :** A total of 393 female nurses had completed the questionnaires and majority of them were Malays (95.4%) with mean age of 28.4±3.9 years old. The mean duration of work in the hospital was 6.2±3.6 years. The study results showed a satisfactory level of good knowledge among nurses (69%) and this is statistically significant ( $p<0.05$ ) according to surgical or non-surgical based departments. Those working in surgical departments and those with work experience more than 6 years have higher level of knowledge compared to those from non-surgical departments. It was also found that more than half (57.3%) have positive attitude towards HIV/AIDS patients and this is significantly related ( $p<0.05$ ) to their training status. Those who had been trained regarding UP have shown more positive attitudes compare to those who did not. However, this study found that knowledge level was not significantly associated with their general attitudes.

**Conclusion :** This study showed that in general, nurses have good level of knowledge regarding HIV/AIDS and UP, and they also have positive attitude towards HIV/AIDS patients. However, being part of the health professional team, more comprehensive education programs and intervention strategies need to be implemented to improve their knowledge regarding HIV/ AIDS and UP as well as to minimize the negative attitude towards HIV/AIDS patients.

**Keywords :** *HIV/AIDS, Universal Precautions, knowledge, attitudes, nurses.*

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## **INTRODUCTION**

Acquired Immunodeficiency Syndrome (AIDS) has become one of the most serious health problems worldwide. Since the epidemic of Human Immunodeficiency Virus (HIV) started more than three decades ago, no part of the globe has proved immune<sup>1</sup>. The estimated number of persons living with HIV worldwide in 2007 was 33.2 million. The estimated number of deaths due to AIDS was 2.1 million and new infections were estimated around 2.5 million in 2007, of which over two thirds (68%) occurred in sub-Saharan Africa<sup>2</sup>. Overall in Asia, an estimated 4.9 million people were living with HIV in 2007, including 440 000 people who became newly infected in the past year. Approximately 300 000 died from AIDS-related illnesses in 2007<sup>2</sup>. Malaysia is home to one of the fastest growing AIDS epidemics in the East Asia and Pacific region with its current rate of HIV infections doubling every three years. With the increase of AIDS sufferer, nurses are at an increased risk of getting the infection since they are the largest professional group in the health care system providing care for HIV/AIDS patients<sup>3</sup>.

The impact of HIV/AIDS on health care workers has been a subject of recent research. It has been identified that there are three potential impacts of the HIV/AIDS pandemic on the health workforce. First, the health sector has lost some of its workers due to the HIV/AIDS pandemic. Many nurses are dying and are not being replaced. Second, healthcare workers are faced with extra workloads, as HIV/AIDS patients comprise a majority of the patients they attend to. Third, fear of exposure may be a source of attrition, especially in developing countries where universal precautionary measures are not strictly adhered to due to a shortage of protective clothing<sup>4</sup>.

Each year, 170 000 health care workers worldwide are exposed to HIV, resulting in 1000 infections mostly in low and middle income countries. Furthermore, WHO estimates that 2.5% of HIV cases among health care workers around the world are as a result of needle-stick injuries (NSI). In general, lack of safety equipment such as gloves and safe means to dispose sharp objects, as well as lack of procedures to observe universal precautions, place health care workers at risk of occupational transmission<sup>3</sup>.

The knowledge and attitudes of healthcare workers (HCWs) in relation to HIV infection is an important factor which will influence the willingness and ability of people with HIV to access care, and hence determine

the quality of care they receive. Healthcare workers (HCWs) perception of their own risks with regards to caring for HIV-positive patients potentially influences their willingness to provide care<sup>5</sup>

Nurses are the largest paramedical group who are directly involved in the care of AIDS and HIV- positive patients. Fear and anxiety, related to ignorance or lack of knowledge, might contribute to nurses' attitudes and concerns when caring for these patients.

In numerous health professions' literatures, studies have documented that nurses have negative attitudes toward AIDS patients and people living with HIV. From the early years of the epidemic to the mid-nineties, reports have highlighted that significant percentage of nurses expressed their intention to avoid caring for people living with HIV or felt that they should have a personal right to refuse providing such care. While there is a risk of transmission of the virus from patient to health care worker, this risk has been estimated at 0.3% after a single percutaneous exposure to HIV infected blood<sup>4</sup>.

In a study involving nurses in Taiwan, it was reported that Taiwanese nurses' attitudes about giving care to HIV-positive patients was generally negative and they lacked knowledge regarding HIV infection in workplace<sup>6</sup>. In another study, Taiwanese nurses demonstrated less fear of AIDS if they had higher level of education. Therefore, it seems plausible that lack of knowledge regarding HIV/AIDS had an impact on Taiwanese nurses' attitudes, concerns and work practices in relation to HIV/AIDS<sup>7</sup>.

Nurses in Singapore fear treating HIV/AIDS patients, which was significantly associated with their knowledge regarding HIV transmission modes and Universal Precautions<sup>6,7</sup>. Studies have shown that nurses' knowledge regarding HIV/AIDS and Universal Precautions and their attitudes towards patients with HIV/AIDS are significantly influenced by their socio demographic features and other work characteristics<sup>5</sup>. In a study by Mbanja et al, which was conducted among nursing staffs in Cameroon had found that HIV/AIDS knowledge level of nurses was significantly influenced by the grade of the staffs, where the higher grade staffs such as senior registered nurses tend to have higher level of knowledge, younger staffs appeared to be more knowledgeable about HIV/AIDS compared to elder staffs<sup>8</sup>.

With the varied background of nurses knowledge and attitude towards HIV/AIDS and with not many studies carried out to assess

HIV-related knowledge and attitudes among nurses in Malaysia, this study was conducted to determine the knowledge and attitudes with regards to HIV/AIDS and Universal Precautions (UP) among nurses in UKM Medical Centre.

**MATERIALS AND METHODS**

A cross sectional study was conducted among staff nurses working in Hospital UKM from May to July 2007. Nurses were purposively sampled from the following wards: surgical, pediatrics, Obstetrics and Gynecology, medical, orthopedic, trauma, spinal, and emergency. These were the wards which assigned by the head of nursing department. Student nurses as well as male nurses were excluded. After adjusting for 10% non response rate, a total of 422 nurses were recruited.

Data were collected by using self administrated questionnaires containing information regarding respondents' socio-demographic and work characteristics, knowledge regarding HIV/AIDS and universal precautions such as basic characteristics of the disease, route of vital transmission and risks of occupational exposure, as well as contents of UP guideline and also awareness regarding

hospital policy and training programs. Likert Scale was used to score the attitude questionnaire with five response categories (strongly agree, agree, undecided, disagree, and strongly disagree)<sup>9</sup>.

Data were analyzed using Statistical Package for Social Science (SPSS) programme version 13. Pearson chi square test was used for the qualitative data to determine the associations between dependent and independent variables. For further analysis, multiple logistic regressions were done to predict the factors that influence nurses' knowledge levels and attitudes.

**RESULTS**

A total of 393 staff nurses returned the questionnaires with 83.3% response rate. Their socio-demographic and working characteristics were shown in Table 1. The mean age of the respondents was 28.4±3.9 and ranged from 22 to 45 years old. Majority (76.6%) were less than 30 years old. With regards to ethnicity, majority (95.4%) were Malays. More than half of the respondents (64.1%) were married. The rest were either single (33.3%) or divorced (1.3%).

**Table 1 Socio- demographic characteristics of respondents (n=393)**

	Frequency (n)	Percentage (%)	Mean	SD
<b>Age (years)</b>			28.4	3.9
<b>Age group</b>				
20-29	301	76.6		
30-39	85	21.6		
40-49	7	1.8		
<b>Ethnic</b>				
Malay	375	95.4		
Indian	13	3.3		
Chinese	2	0.5		
Others	3	0.8		
<b>Education</b>				
Primary	11	2.8		
Secondary	121	30.8		
Undergraduate	246	62.6		
Postgraduate	15	3.8		
<b>Marital status</b>				
Single	131	33.3		
Married	257	65.4		
Divorced	5	1.3		

In Table 2, it has shown that out of all, 59.9% of the respondents were working under surgical departments at the point of recruitment, while 48.1% were working under non surgical departments. The mean duration of service in hospital was 6.2±3.6 and ranged

between 1 and 22 years. More than half (51.4%) had had working experience ranging from 6 to 15 years, while 48.1% with five years or less working experiences in the hospital. Among all, majority (59.3%) work less than 40 hours per week.

**Table 2 Work characteristics of respondents (n=393)**

	Frequency (n)	Percentage (%)	Mean	SD
<b>Working years</b>			6.2	3.6
<b>Department</b>				
Surgical	204	59.9		
Non surgical	189	48.1		
<b>Work Experiences (years)</b>				
≤5 years	189	48.1		
6-15	202	51.4		
≥16	2	0.5		
<b>Work hours(p/w)</b>				
<40	233	59.3		
≥40	160	40.7		

All respondents had at least heard about HIV/AIDS. However not all (89.3%) have heard about Universal Precautions. Based on Table 3, Majority of them (73.3%) had attended some form of training regarding HIV/AIDS, while 26.7% never attended any training. Less than half of the respondents (48.1%) had been trained regarding UP, while 51.9% of them had not been trained. More than

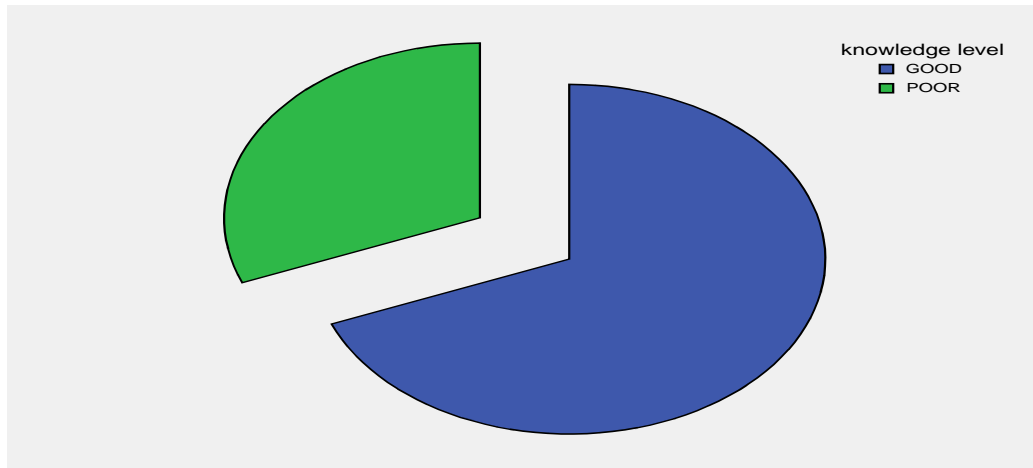
half of the respondents were aware about hospital policy regarding HIV/AIDS and UP (78.4% and 58.8% respectively), while 19.1% and 29% were not aware of the existence of such policy. When asked about procedures that could expose them to NSI, 86.2% agreed that recapping needles and 53.4% said putting IV lines were related.

**Table 3 Awareness about hospital policy and training programs regarding HIV/AIDS and UP (n=393)**

	Frequency (n)	Percentage (%)
<b>Have heard about HIV/AIDS</b>		
Yes	393	100
No	-	-
<b>Have heard about UP</b>		
Yes	351	89.3
No	42	10.7
<b>Been Trained about HIV/AIDS</b>		
Yes	288	73.3
No	105	26.7
<b>Been Trained about UP</b>		
Yes	189	48.1
No	204	51.9
<b>Hospital has policy regarding HIV/AIDS</b>		
Yes	308	78.4
No	10	2.5
Don't know	75	19.1
<b>Hospital has policy regarding UP</b>		
Yes	231	58.8
No	48	12.2
Don't know	114	29

Using mean score 21 as a cut of point of knowledge levels of respondents which was either good or poor. Out of all 393 respondents, more than half (69%) had good knowledge regarding HIV/AIDS and UP, while 31% had poor knowledge (Figure 1). With regards to

attitude towards HIV/AIDS, (57.3%) were positive, whilst 42.7% were negative towards HIV/AIDS patients (Figure 2).



**Figure1 Distribution of nurses' knowledge level regarding HIV/AIDS and UP**



**Figure 2 General attitudes of nurses regarding HIV/AIDS patient**

As shown in Table 4, none of the socio-demographic characteristics showed a significant association with knowledge level. However, there were significant associations between knowledge level and whether respondents were working in medical or surgical departments ( $\chi^2=28.18, p=0.000$ ) and duration of working experience ( $\chi^2=28.63, p=0.000$ ) (Table 5). Majority of the nurses

with good level of knowledge with regards to HIV/AIDS and UP were working under surgical-based wards and had been working more than six years. Among those with good knowledge level, majority had had NSI experience before ( $p<0.05$ ). However, there were no significant associations between knowledge levels of respondents who had been trained regarding HIV/AIDS or UP.

**Table 4 Association between socio-demographic characteristic and knowledge level (n=393)**

	Knowledge level				$\chi^2$	p-value
	Good		Poor			
	f	%	f	%		
<b>Age group</b>						
Less than 30 years old	210	69.8	91	30.2	0.395	<b>0.523</b>
30 years and above	61	66.3	31	33.7		
<b>Ethnic group</b>						
Malay	260	69.3	115	30.7	0.542	<b>0.446</b>
Non-Malay	11	61.1	7	38.9		
<b>Educational background</b>						
Secondary school and below	83	62.9	49	37.1	3.430	<b>0.066</b>
Undergraduate and above	188	72	73	28		
<b>Marital status</b>						
Married	172	66.9	85	33.1	1.431	<b>0.253</b>
Single/divorced	99	72.8	37	27.2		

**Table 5 Association between work characteristics and knowledge level (n=393)**

	Knowledge level				$\chi^2$	p-value
	Good		Poor			
	f	%	f	%		
<b>Department</b>						
Surgical	165	80.9	39	19.1	28.18	<b>0.000*</b>
Non surgical	106	56.1	83	43.9		
<b>Work experience</b>						
6 years and below	133	58.3	95	41.7	28.63	<b>0.000*</b>
Above 6 years	138	83.6	27	16.4		
<b>Work hours(p/w)</b>						
<40	160	68.7	73	31.3	0.022	<b>0.912</b>
≥40	111	69.4	49	30.6		

\* Significant at p-value< 0.05; Chi- square test

None of the respondents' socio-demographic and work characteristics showed a significant association with the general attitudes regarding HIV/AIDS patients. It is also not significantly associated with regards

to whether they had had training on HIV/AIDS or even had had NSI experience. However among nurses with positive attitudes, majority had been trained about UP ( $\chi^2=8.545$ ,  $p=0.004$ ) (Table 6).

**Table 6 Association between nurses' training, experience of NSI and general Attitude (n=393)**

	General attitude				$\chi^2$	p-value
	Positive		Negative			
	f	%	f	%		
<b>Have Trained about HIV/AIDS</b>						
Yes	170	59	118	41	1.021	<b>0.356</b>
No	56	53.3	49	46.7		
<b>Have Trained about UP</b>						
Yes	123	65.1	66	34.9	8.545	<b>0.004*</b>
No	103	56.5	10	49.5		
<b>Have ever experienced NSI</b>						
Yes	136	57.9	99	42.1	0.032	<b>0.917</b>
No	90	57	68	43		

\* Significant at p-value< 0.05; Chi- square test

There was no significant association between knowledge levels and their general attitudes towards HIV/AIDS and UP. As summarized in table 7, all the significant variables were put into multiple logistic

regressions and it was found that whether work in surgical or non-surgical based wards as well as longer working experience (more than six years) remained significantly associated with knowledge levels.

**Table 7 Association between selected associated factors and knowledge level among nurse (multivariate logistic regression analysis) (n=393)**

Variables	Regression Coefficient (B)	p-value	OR	(95%Confidence Interval)
Constant value	0.210	0.266		
<b>Departments</b>	1.084	<b>0.000*</b>	0.338	0.189-0.606
Surgical**				
Non surgical				
<b>Work experience</b>	1.248	<b>0.000*</b>	0.287	0.174-0.475
6 years and below**				
Above 6 years				

\* Significant at p-value<0.05, \*\* reference category.

## DISCUSSION

In general, a relatively high level of knowledge was seen among the nurses in HUKM with regards to HIV/AIDS and UP, whereby 69% of respondents obtained good level of knowledge. This was quite similar to a study by Mbanya et al.<sup>8</sup> which was carried out among nursing staffs in a rural hospital in Cameroon whereby 71% had good level of knowledge. However, in a study by Hasnah, among health personals in Tapah hospital in Malaysia, it was reported that a much higher percentage of respondents (86.9%) had good knowledge regarding HIV/AIDS and UP<sup>10</sup>.

In this study, there were many misconceptions related to the basic knowledge regarding HIV/AIDS. For instance, regarding HIV transmission, 14.5% of them believed shaking hands could transmit HIV infection and 18.8% thought mosquitoes bites could cause HIV infection. The similar finding was found in a study by Aleksandra et al.<sup>11</sup> among health care workers in Serbia that there were misconceptions relating to HIV transmission by saliva/tears, sweat, stool and urine. This problem was also addressed in previous study by Anahita et al.<sup>12</sup> among Iranian students where 33% of the respondents believed mosquitoes bites was a route of transmission. Although these studies were done among different populations with different background, the similarity of misconceptions regarding HIV transmission reflects nurses' knowledge and understanding about the disease were not as good as expected. This is because being a health care personnel, they are expected to have a better knowledge than the ordinary population.

This study also found that among the respondents, a higher proportion claimed that they were aware of the existence of a hospital policy regarding HIV/AIDS (78.4%) compared to policy regarding UP (58.8%). When asked about policy with regards to needle stick injuries (NSI) a high proportion (86.0%) were aware of such policy. This is in accordance with the fact that more than half of the respondents in this study (73.3%) had been trained with regards to HIV/AIDS and 48.1% had been trained with regards to UP. The findings from this study regarding awareness to such policy was much higher compared to a study by Fredrich and Maritta among nurses in sub-Saharan Africa where by 75% nurses were not aware of the existence of a hospital policy and /or guidelines on NSI<sup>13</sup>. Another study by Aleksandra et al.<sup>11</sup> found that among health care workers in Serbian only 12% of the Health Care Workers had received education

about HIV/AIDS in the last year and 37% within the last 5 years.

In this study, it was found that knowledge was not significantly associated with respondents' socio-demographic characteristics and work characteristics except for whether they were working in surgical or non surgical departments, as well as their working experience ( $p < 0.05$ ). Knowledge levels of nurses in surgical department was significantly higher compared to those nurses in non surgical department ( $\chi^2 = 28.18$ ,  $p < 0.05$ ). Nurses who had 6 years and above working experience had higher level of knowledge compared to nurses who have less than 6 years working experience ( $\chi^2 = 28.63$ ,  $p < 0.05$ ). In a study by Mbanya et al., among nursing staff in a rural hospital in Cameroon, it was reported that nurses' grade and specialization significantly influenced their knowledge. They found that senior, well-trained nurses had higher level of knowledge ( $p < 0.001$ )<sup>8</sup>. In a study by Hasnah<sup>10</sup> which was done among health personnel, she found that there was a significant association between knowledge and specialization of health personals in the hospital and whether they worked in the ward or non ward setting ( $p < 0.05$ ).

This study results has also shown that more than half of the nurses (57.3%) had positive attitude towards HIV/AIDS patients, while 42.7% of them had negative attitudes. This was similar to a study by Mbanya et al.<sup>8</sup> who reported that 50.5% of nurses had positive attitudes towards HIV/AIDS patients. Another study by Lohrmann et al.<sup>14</sup> among nursing students also found that their general attitudes towards people with HIV/AIDS were positive. Similarly, Hasnah also found that a much higher proportion of health personals (73.5%) had positive attitude towards HIV/AIDS<sup>10</sup>.

The general attitudes of respondents was not significantly associated with their socio demographic features and work characteristics ( $p > 0.05$ ) except for their training experience regarding UP. It was shown that nurses who had been trained regarding UP had more positive attitudes towards HIV/AIDS patients ( $\chi^2 = 8.545$ ,  $p = 0.004$ ). This finding was also supported by a study carried out by Armstrong et al.<sup>15</sup> among nurses. It was shown that institution with appropriate HIV/AIDS educational programs had the potential to change the nurses' attitudes. Another study which was done by Williams et al.<sup>1</sup> among Chinese nurses found that nurses' knowledge, attitudes towards patients with HIV/AIDS and willingness to provide nursing care to these patients were



significantly improved after the workshop ( $p < 0.001$ ).

Nurses knowledge levels regarding HIV/AIDS and UP were not significantly associated with their general attitude ( $p > 0.05$ ). Other studies also supported these findings, which concluded that knowledge alone is not sufficient enough to ensure the change of the negative attitudes towards HIV/AIDS patients and the willingness to deliver care<sup>1</sup>. However, there were some different findings found regarding association between knowledge and attitudes. In a study by Lohrmann et al<sup>14</sup>, among nursing students in German, it was found that the students with high knowledge levels had less negative attitudes ( $r = 0.35; p < 0.0001$ ).

### CONCLUSION

In this study, it was found that 69% of staff nurses had good knowledge regarding HIV/AIDS and UP. Knowledge levels of respondents were significantly associated with whether they were working in surgical or non-surgical based departments. The longer the duration of working showed a significant association with knowledge levels. Among all the respondents, 57.3% had positive attitudes towards HIV/AIDS patients. Nurses who had been trained regarding UP had significantly more positive attitude towards HIV/AIDS patient.

Almost half had been trained regarding UP and majority (78.4%) claimed that they knew the existence of a hospital policy regarding HIV/AIDS and UP. However, it was found that they had rather poor knowledge with regards to the basic concepts and guidelines of HIV/AIDS and UP which is recommended by CDC. This was because not all of them felt that recapping needles, unattended needles and putting IV lines were at risk for NSI. This reflects the need for a more comprehensive education and training programs for them especially to the less experienced staff.

This study also found that there was no significant association between knowledge and nurses general attitudes towards HIV/AIDS patients. Therefore it is suggested that despite giving input with regards to knowledge about HIV/AIDS and UP, emphasis should also be made in making sure that the nurses consider all patients as potential HIV/AIDS carriers and hence inculcate in them the proper UP protocols when handling patients. Once this is inculcated, they would feel more secure and this would change their attitudes towards HIV/AIDS patients.

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