

# KNOWLEDGE ON MODES OF HIV TRANSMISSION AND ATTITUDE RELATED TO WORKING WITH PEOPLE LIVING WITH HIV AMONG HEALTH CARE TRAINEES IN MALAYSIA

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## ABSTRACT

**Background:** Poor HIV knowledge and attitude among health care personnel were reported to compromise the care of people living with HIV (PLWH). This has been shown to arrest the success of HIV preventive, care and support measures in general. The objective of the study was to determine knowledge on modes of HIV transmission and attitude related to HIV among health care trainees.

**Materials and Methods:** A total of 1404 trainees in an allied health sciences college in Malaysia consented in this cross sectional study. The data was collected using a self-administered questionnaire which consisted of knowledge on different modes of HIV transmission and attitudes related to HIV.

**Result:** The overall response rate was 96.6% and majority of the respondents were able to identify different modes of HIV transmission namely sexual transmission (>75%), needle sharing (99.5%), blood transfusion (94.3%) and mother to child (85.8%). However, there were common misconceptions about HIV particularly with regards to HIV transmission via social contacts and other modes of transmission among. Up to 50% still have fears and discriminatory attitudes in relation to HIV.

**Conclusion:** Health care training requires more comprehensive HIV education subject in the curricula in order to improve HIV knowledge and attitude amongst health care trainees.

**Keywords:** HIV, knowledge, attitude, health care trainees, Malaysia.

## 1.0 Introduction

Human immunodeficiency virus (HIV) infection and Acquired Immunodeficiency Syndrome (AIDS) has emerged as an epidemic and has posed a serious threat throughout the world since its discovery in 1981. The number of new HIV cases reached its peak in 1997 with a prevalence rate of 2% in comparison to 1990 where the prevalence was 0.32% (UNAIDS., 2010). However, there has been a 33% decline globally in its incidence since 2001 with a current estimate of 2.3 million new HIV infections in 2012 in comparison to 3.4 million in 2001 (UNAIDS., 2013). Although the change in the trend of new HIV infection is favourable, the number of people living with HIV (PLWH) continues to rise in the world. There is an increase of in numbers of PLWH whereby in 2012 the reported figure was estimated at 35.3 million in comparison to 33.3 million in 2009 (UNAIDS., 2013). It still put the world at risk of increased burden and acts as the virus reservoir in the epidemiology of HIV transmission (McKenzie et al., 2007; Mathers and Loncar., 2006). As such, if preventive efforts were not sustained, global HIV infection would return to its peak.

Malaysia is experiencing similar growth in its HIV infected population. The prevalence of HIV among adults age 15-49 in Malaysia is estimated at approximately 0.44% for general population but remain high at about 5% among most at risk populations such as men sex with men (MSM) (Global AIDS progress report., 2014). The number of people living with HIV has increased steadily from 3 reported cases in 1986 to 85,332 cases in 2013 (Global AIDS progress report., 2014). Lack of awareness and knowledge related to HIV amongst the general public and the presence of stigmatizing and negative attitudes towards PLWH has been found to arrest the spread of the disease only marginally despite rigorous preventive efforts (UNAIDS., 2013).

On the same note, knowledge and attitude of health care providers towards their clients in ensuring the success of HIV prevention, care and support programs is equally essential. Previous studies have shown that lack of awareness and insufficient knowledge on HIV transmission contributed to health care providers' negative attitudes towards PLWH (Kessler and Heeren., 1987; Valimaki et al., 1998). Other studies reported a significant number of health care providers would avoid contact or refuse to treat HIV infected patients (Chen et al., 2004; Reis et al., 2005) in their settings. The resulting effect was damaging to patients because the provision of quality and optimum health care was compromised.

Knowledge and attitudes related to HIV amongst health care providers also were significantly associated with adopting preventive measures against HIV at their workplaces. A study on health personnel in Serbia reported that majority of them had poor knowledge about HIV and almost three quarter had poor adherence to universal precautions (Kocic et al., 2008). On the contrary, despite having good knowledge about HIV/AIDS, safety measures such as using gloves were not adequately translated into practices as the prevalence of reported needle stick and sharp injuries were high (Lee and Hassim., 2005; Jayanth et al., 2009; Rampal et al., 2010). These studies concluded that there were still gaps between knowledge and practice related to HIV prevention amongst health care workers which remain an issue in health care settings.

The implication on training of health care trainees in Malaysia therefore should meet with the needs of the growing HIV/AIDS population. Shaping and development of favourable

behaviour and attitude amongst them are best fostered during their training years. The trainees should be equipped with sufficient knowledge so that their attitudes towards PLWH improve. This in turn would not jeopardize their safety and patients' care. It was the aim of the study to evaluate knowledge and attitude related to HIV/AIDS among them who would ultimately join the work force. As such, this study would help to fill up the knowledge gap in the curriculum of their training pertaining to HIV/AIDS.

## 2.0 Materials and Methods

A cross sectional study was conducted in a major allied health sciences college in Malaysia. The study population consisted of health care trainees enrolled into the nursing, occupational and environmental health programmes. All trainees were invited to participate in the study. Trainees who were absent on the day of the study or refused to participate were excluded from the study. Informed consent was obtained from the participants. Confidentiality and anonymity were guaranteed by the researchers. The researchers were present throughout the study to answer any doubts asked by the participants.

A set of self-rated and validated questionnaire was used in the study and it was adopted from a study by Lim et al 1999. It consisted of questions regarding socio-demographic characteristics, knowledge on HIV transmission and attitudes related to HIV. The socio-demographic section consisted of gender, age, ethnicity, and program of study, year of study and highest level of education. Knowledge on HIV transmission consisted of 19 questions on different modes of HIV transmission. Nine questions were used to assess the attitude of the participants in relation to working with PLWH. The responses to both knowledge and attitude domains were 'agree', 'disagree' or 'don't know/not sure'.

The data collected were analysed using SPSS version 18 (IBM SPSS, Chicago, Illinois). Descriptive statistics were performed to demonstrate the frequency and percentage of each response for all the items.

## 3.0 Result

### 3.1 Socio-demographic of the respondents

The overall response rate of this study was 96.6% (1404/1454).

**Table 1:** Socio-demographic characteristics of health care trainees (n=1404)

Characteristics	Frequency (n)	Percentage (%)
<b>Age group (years old)</b>		
18-19	303	21.6
20-24	1042	74.2
25-29	52	3.7
30-34	7	0.5
<b>Gender</b>		
Male	436	31.1
Female	968	68.9
<b>Ethnicity</b>		
Malay	1184	84.3
Chinese	34	2.4
Indian	106	7.6
Others	80	5.7
<b>Year of study</b>		
First year	563	40.1
Second year	505	36.0
Final year	336	23.9
<b>Highest qualification upon entry to program</b>		
Secondary school certificate	1368	97.4
Diploma or higher	36	2.6

### 3.2 Knowledge about modes of HIV transmission

**Table 2:** Knowledge on modes of HIV transmission among health care trainees\*

Items	Agree n (%)	Disagree n (%)	Don't know n (%)
<b>Modes of HIV transmission</b>			
<b>1)Sexual contact</b>			
A man to a woman during sex	1363 (97.2)	34 (2.4)	5 (0.4)
From woman to a man during sex	1309 (93.5)	74 (5.3)	17 (1.2)
Anyone with multiple sexual partners is more likely to be infected with HIV than someone with a single sexual partner	1281 (91.3)	47 (3.4)	75 (5.3)
A man to another man during sex	1065 (76.1)	101 (7.2)	234 (16.7)
Anyone who is heterosexual is less likely to be infected with HIV than someone who is homosexual	677 (48.3)	400 (28.5)	326 (23.2)
<b>2)Needle sharing</b>			
A drug addict sharing needles with other addicts	1394 (99.5)	5 (0.4)	2 (0.1)
<b>3)Blood transfusion</b>			
Receiving blood transfusions that have not been tested for HIV	1319 (94.3)	42 (3.0)	37 (2.6)
<b>4)Vertical transmission</b>			
A woman to her unborn child	1198 (85.8)	116 (8.3)	82 (5.9)

\* Total number of respondents may vary for each item due to missing values

Table 2 summarizes the percentage of responses for items on knowledge about modes of HIV transmission. The overall results showed the participants demonstrated good knowledge on different modes of transmission. Majority of them (>75%) agreed that HIV could be transmitted from man to woman or vice versa, from man to man and by having multiple partners. However, only 48.3% agreed that a heterosexual individual is less likely to contract HIV in comparison to his homosexual counterpart.

With regards to needle sharing, 99.5% of the respondents agreed that sharing contaminated needle among drug addicts could transmit HIV while the respective 94.3% and 85.8% reported that HIV could be contracted via transfusion of contaminated blood and from mother to her unborn child.

### 3.3 Misconceptions about HIV

Table 3: Misconceptions about HIV among health care trainees\*

Item	Agree n (%)	Disagree n (%)	Don't know n (%)
1. Using the same telephone	12(0.9)	1357(96.7)	34(2.4)
2. Shaking hands with or touching a HIV- infected person	75(5.3)	1291(92.1)	36(2.6)
3. Ordinary office contact	27(1.9)	1259(90.5)	106(7.6)
4. Using the same toilet seat	131(9.4)	1114(79.7)	153(10.9)
5. Cleaning the spoons, forks, plates and drinking glasses used by a HIV- infected person	267(19.1)	996(71.0)	139(9.9)
6. Mosquitoes and other insects	249(17.8)	973(69.6)	176(12.6)
7. Changing bed linens of a HIV- infected person	316(22.7)	906(64.9)	173(12.4)
8. Eating food handled by a HIV- infected person	331(23.7)	830(59.3)	237(17.0)
9. Eating food prepared by a HIV- infected person	362(25.8)	796(56.8)	243(17.4)
10. Sharing spoons, forks, plates and drinking glasses	489(34.9)	744(53.1)	168(12.0)
11. Being coughed and sneezed on by a HIV- infected person	598(42.7)	559(39.9)	243(17.4)

\*The total number of respondents may vary for each item due to missing values

Table 3 shows the results on some misconceptions about HIV transmission amongst the respondents. It revealed that 42.7% of the respondents had misconception about HIV being transmitted through coughing and sneezing, while 17.4% were uncertain about it. In terms of “sharing eating utensils”, 34.9% agreed that it can transmit HIV and another 12.0% were unsure, “eating food prepared by HIV-infected persons” (25.8% agreed, 17.4% unsure) and “eating food handled by HIV-infected persons” (23.7% agreed, 17.0% unsure), “changing bed linen” (22.7% agreed, 12.4% unsure) and “mosquitoes and other insects” (17.8% agreed, 12.6% unsure).

### 3.4 Attitudes towards people living with HIV

Table 4: Attitudes related to working with people living with HIV among health care trainees\*

Item	Agree n (%)	Disagree n (%)	Not sure n (%)
1) There is no reason to fear working together with HIV-infected persons	873(62.3)	315(22.5)	213(15.2)
2) There is no reasons to single out HIV-infected Workers	856(61.5)	270(19.4)	267(19.1)
3) Having a HIV-infected colleague would not bother me	627(44.8)	450(32.2)	322(23.0)
4) Having a HIV-infected colleague would not bother me/someone else	613(43.8)	445(31.8)	343(24.5)
5) Working around HIV-infected people will negatively affect one's prestige and status	382(27.2)	850(60.6)	170(12.2)

6) It may be dangerous for individuals to work around HIV-infected people	524(37.5)	741(53.1)	131(9.4)
7) Working with HIV-infected people places is a life-threatening situation	394(28.3)	668(48.0)	330(23.7)
8) It is embarrassing for someone to be caught with HIV-infected people	541(38.7)	662(47.3)	196(14.0)
9) If someone work with HIV-infected person, they do not want others to know about it	694(49.6)	477(34.1)	228(16.3)

\* Total number of respondents may differ for each item due to missing values

Of the total respondents, about 60 to 63% were willing to work with HIV-infected people and up to 20 - 50% of them had fear, felt uncomfortable or embarrassed to have colleagues who were HIV-infected. A significant percentage of the respondents (up to 25%) answered not sure whether they were willing to work with people who have HIV or unsure of their feeling towards working with HIV infected individuals (Table 4).

#### 4.0 Discussion

In general, the study showed that majority of the health care trainees has good knowledge about different modes of HIV transmission. Most of them recognized (85 – 97%) that there are four main modes of contracting HIV namely via sexual intercourse, infected needle sharing, blood transfusion and vertical transmission. They acknowledged that HIV is at risk of being transmitted when individuals are exposed to multiple sexual partners and homosexual intercourse. The findings are consistent with results from a local study whereby majority of trainees in pharmacy have good knowledge on different modes of transmitting HIV (97-98%) (Ahmed et al., 2009). However, the finding was inconsistent with the result from a study among Nepalese nursing students (Mahat and Eller., 2009). It was reported there were a large knowledge gap about HIV among them regardless of their level of training years. It was also reflected in their practice on universal precautions and also stigmatized attitude towards PLWH.

This finding was also supported by an earlier study on another group of nursing students which reported similar finding (Snowden., 1997). A possible explanation on the results may be owing to difference in outcome measures to assess HIV knowledge across the study settings. Most previous studies used measures that assess overall HIV knowledge while the present study examined specifically on modes of HIV transmission.

Despite having good knowledge about modes of HIV transmission, the lack in depth knowledge has led to some misconceptions about the virus transmission amongst the health care trainees. A substantial proportion of them (5 – 43%) agreed that the virus can be transmitted through coughing or sneezing, mosquito bite, sharing eating utensils and eating food prepared or handled by HIV infected person. This result was supported by reports from surveys on HIV related knowledge and attitude amongst health care trainees in country with generalized epidemic in Sub Saharan region (Azodo et al.,2010) whereby about 29% believed that mosquito bite can transmit HIV. While Ahmed and colleague in 2009 reported that about 6.5% pharmacy students have similar belief. Difference in results is possibly due to the lack of exposure on HIV related subject in different training settings among the study populations.

Health care trainees from the present study came from various training backgrounds with different curricula such as nursing, radiography, physiotherapy and occupational therapy.

With regards to attitudes related to HIV, up to 63% of the trainees were willing to work with people known to have HIV while a significant number of them were not willing to do so or unsure about it. Some reported to have fear, felt uncomfortable or embarrassed to have HIV infected colleagues. The discriminatory attitudes stem from misconceptions about HIV which were reflected in their inadequate knowledge about HIV/AIDS. The link has been reported in previous studies whereby increased knowledge particularly dispelling the misconceptions about HIV may contribute to reduction in fear amongst health care workers in caring for HIV patients (Snowden., 1997). Similarly, most previous studies have shown that health care trainees particularly nursing trainees were willing to care for PLWH and showed positive attitudes towards their patients (Mahat and Eller., 2009; Peate et al., 2002). However, it was reported that they have very low perceptions that they were at risk of contracting HIV infection. This possibly explains the mechanism of their lack of practice on universal precautions while handling HIV infected patients at work (Mahat and Eller., 2009).

In present study, many agreed that HIV can spread via sexual contact but surprisingly, a small group of respondents did not know that HIV can be transmitted from man to man (16.7%). Unlike a previous study conducted in Singapore, only 5.8% of the respondents answered don't know to the same question (Lim et al., 1999). Lack of knowledge on certain unacceptable sexual contact like man having sex with another man (MSM) can lead to failure of HIV preventive programs (Rozina et al., 2009). Based on the estimation of new HIV cases in Malaysia, the total number of cases amongst MSM is gradually increasing every year. Therefore, there is an important role of creating awareness of risk of getting HIV through MSM among health care trainees during their training years. There is a greater risk of HIV transmission through unprotected anal intercourse as compared to vaginal intercourse or oral sex. In this study, only about one-half of the students were aware that heterosexual is less likely to be infected with HIV as compared to homosexual relationship and only 14.3% of youths in Singapore reported similar result.

The results of the study should be interpreted with caution in light of its limitations. The cross-sectional study design did not help in determining the causal relationship between knowledge, attitude related to HIV and other factors among the respondents. In addition, the design also did not permit the use of more complex statistical analysis in order to examine the relationship of the variables. Although the sample size was adequate to differentiate between those who were with or without good knowledge and attitude related to HIV, a larger sample size with more heterogenous groups would be recommended to determine the association between variables. The findings of the study were only generalizable to a specific group of health care trainees.

## 5.0 Conclusion and recommendation

A majority of health care trainees were able to recognize different modes of HIV transmission but a significant proportion of them had common misconceptions about HIV particularly with regards to HIV spread via social contact and other modes of transmission. They were willing to care for PLWH but some expressed fears and discriminatory attitudes because the depth of knowledge about HIV was insufficient. This may have some influences on their practice when



they join the workforce. Therefore, it is possibly helpful to integrate more comprehensive information particularly focusing on the HIV/AIDS misconceptions into the training of health care curricula so as to improve knowledge and attitude about HIV among health care trainees.

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## Declaration

The authors declared that they have no competing interest.

## Author's contribution

KS and NI wrote the manuscript, and carried out statistical analysis with assistance from LKH, SMG and KCC. LKH and KCC were responsible for data collection, design and coordination of the study. NI and KS were involved in interpretation and implications of the analysis. All authors contributed to developing the manuscript, and read and approved the final version.

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