Original Article

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Pharmacology Section

An Assessment of the Level of Awareness, Attitudes, and Opinions of the Medical Students Concerning HIV and AIDS in Malaysia

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ABSTRACT

Introduction: Human Immunodeficiency virus infection (HIV) and Acquired Immunodeficiency Syndrome (AIDS) has become one of the most serious health problems in the world. Medical students awareness, attitudes and opinions must be assessed as they are leading health care professionals who provide treatment and care to the HIV and AIDS individuals. This survey was conducted to assess the level of awareness, attitudes and opinions of third year till fifth year medical students concerning HIV and AIDS from universities around Klang Valley area, Malaysia.

Materials and Methods: A total of 327 medical students of third to fifth year took part in the survey. Self prepared and self validated questionnaire was used to assess the study outcomes. Students were asked to fill the consent forms before filling the questionnaires. The results were analyzed by using SPSS version 17. A cross-sectional study among medical students was performed. Data was analyzed with non-parametric spearman's correlation test to find the difference at p-value < 0.05.

Results: A great majority knew that HIV can be spread via tattoo or body piercing (89.3%), from mother to child (97.9%), being a homosexual (93.3%) and even having circumcision for protection (71.9%). Also, they were aware that HIV cannot be transferred via sneezing and cough (95.1%), swimming pools (89.0%), and toilet seats (89.6%). However, only a few were aware of other modes of transmission, such as visiting the barbers (41.3%) , and having blood splashed on outer body surface including mouth and eyes (49.2%). Only a few negative attitudes were shown such as being unsure about keeping close vicinity to HIV patients and being unsure of whether HIV negative people should be allowed to marry HIV positive patients (median=3).

Conclusion: An optimal plan of education with awareness campaign and preclinical experiences should be made in the future curriculum to increase the knowledge, confidence and minimize phobia among students.

Keywords: Cross-sectional study, Transmission, Prevention

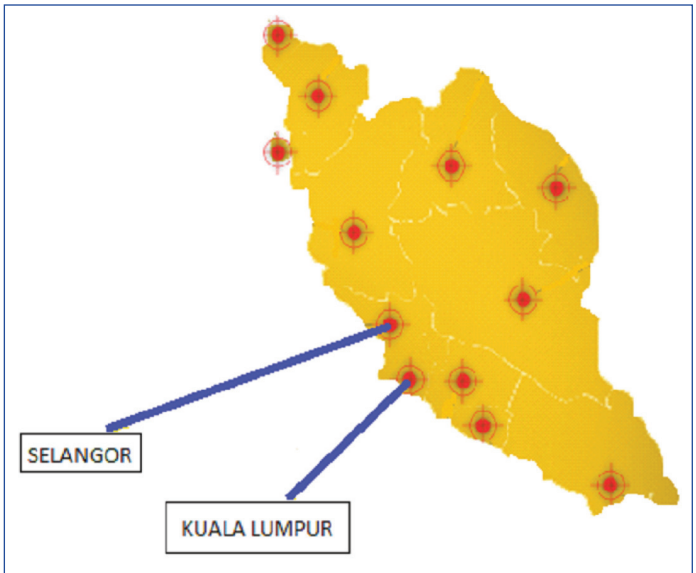
INTRODUCTION

Human immunodeficiency virus (HIV) is one of the world's leading killer infections with more than 25 million lives taken over the past three decades [1]. According to Global HIV/AIDS response progress report 2011, estimates of 34 million people were living with HIV in the end of year 2010 [2].

In Malaysia, from 1986 to 2011, the total number of people living with HIV (PLHIV) is approximately 81,001. There were 3,479 new cases reported to the Minister of Health in 2011, with an average of 9 new cases daily. Also, the reported number of AID-related deaths has been reduced annually due to the introduction of more affordable and accessible first and second line Antiretroviral (ARV) treatment. It is predicted that there will be 81,317 people living with HIV by the end of 2015 [3].

It had been suggested in a study done by Hentegen et al., poor knowledge of routes of transmission and negative attitudes among health professionals towards HIV were found [4]. Similarly, negative attitudes were reported in the study done by Szadkowsai et al., [5]. Also, findings of incomplete knowledge of routes of transmission and unwillingness to provide care were shown in a study done by Moshim et al., [6]. Besides, a study done by Ni et al., revealed a weak knowledge of mother to child transmission through breast feeding [7]. Another study which was done by David et al., reported that students feel it is hazardous to treat AIDS patients and they have the right to reject treating AIDS patients [8].

Medical students are one of the leading health care professionals who provide treatment and care to the HIV individuals. It is believed that the findings of deficiency in knowledge and negative attitudes towards HIV in some studies could become a barrier for the medical students to provide treatment to HIV individual in the future. Therefore, it is important to access their current level of awareness, attitudes and opinions towards HIV/AIDS. Based on the findings, it will be useful as a guide for us to see what should be implemented in the future curriculum.



[Table/Fig-1]: Targeted universities within Klang Valley area where data were collected

MATERIAL AND METHODS

The main objective of the survey was to assess the level of awareness, attitudes, and opinions concerning HIV/AIDS among the third to fifth year medical students. The data collection was done between the months of August and September 2012. The study was a descriptive, cross-sectional study design and was conducted in a form of survey. Convenience sampling design with non-probability process was used in the survey. The study was conducted within Klang Valley area (Selangor & Kuala Lumpur) [Table/Fig-1]. Participants from two medical universities were selected as the target subjects for the study. The calculated sample size was 288, using RAOSOFT calculator with 95% confidence interval and 5% error margins. Ethical approval had been obtained from International Medical University (IMU) Joint Research and Ethics Committee (4.26/JCM-57 II/2012). Informed consent letters were obtained from the respondents who voluntary participated the survey. Questionnaire items were developed from literature reviews and consultation with experts from different related fields. To validate and check the reliability of the questionnaires, a pilot study was carried out on 50 students for feedback. A good reliability index (cronbach alpha) of 0.75 was shown as the result of the pilot study. The questionnaire was comprised of three sections: [A] Awareness, [B] attitudes, and [C] opinions. Awareness part is subdivided into: (1) modes of transmission (10 questions) and (2) prevention (5 questions). It was assessed on 'Yes', 'No' and 'Don't Know' basis. Each right response scored 2 and incorrect response scored 1. Attitudes and opinions part consisted of 6 and 5 questions separately. The scores for the responses ranged from 1-5 for the answers from strongly disagree to strongly agree. Only 91% (327 out of 359 participants) of the survey questionnaires were taken and the other 9% was discarded due to incomplete information and answers. Statistical Package for Social Sciences (SPSS) version17 was used for data management and analyses. To give general descriptions of the data, descriptive statistics including frequencies, means, standard errors of mean, medians, and standard deviations were performed. Non-parametric Correlations (spearman's correlation) was performed to measure the correlation of any two questions. P-value < 0.05 was considered statistically significant.

RESULT

A summary of the demographic characteristics of the respondents was presented in [Table/Fig-2]. The range of age for all 327 respondents was between 20-28 years; the median age was 23. 42.2% were male and 57.8% were female. More than half of the respondents were Malay, followed by 34.4% of Chinese, 9.5% of Indian and 2.1 % of other races.

AWARENESS ABOUT HIV AND AIDS

Awareness of Modes of Transmission

The study revealed that most of the respondents knew that HIV can be spread via tattoo or body piercing; from mother to child, being a homosexual and even having circumcision for protection. Majority of the respondents were also aware that HIV infection cannot be transferred through sneezing and cough, swimming pools, and toilet seats. However, a smaller majority were aware of other modes of transmission, such as visiting the barbers, and having blood splashes on outer body surface including mouth or eyes. Only a small amount of respondents knew that there is no occupational risk of getting HIV by having contact with HIV infected patients [Table/Fig-3].

Awareness of HIV Prevention

[Table/Fig-4] shows that, on questions about ways of HIV prevention, most of the respondents were aware that HIV infection can be prevented by using a condom correctly for every sexual intercourse, by avoiding previously used needles and cannot be prevented by vaccination. A minor amount of the respondents were not aware that HIV infection cannot be prevented by abstaining from sex only, and by staying faithful to one partner.

Attitudes Towards HIV/AIDS

[Table/Fig-5] summarizes the descriptive statistic data of the students' attitudes concerning HIV/AIDS. For question A1, the data indicated that the medical students were unsure about keeping HIV patients in close vicinity to them. The data also revealed that the students agreed that receiving blood transfusion puts them at HIV

Sex	No. of Respondents	Percentage (%)
Male	138	42.2
Female	189	57.8
Race	No. of Respondents	Percentage (%)
Indian	31	9.5
Malay	177	54.1
Chinese	112	34.3
Others	7	2.1

[Table/Fig-2]: Sociodemographic Characteristics of the Students (n= 327)

Modes of Transmission	Number of respondents (% of correct answer)
Transferred through sneezes and cough	311 (95.1)
Having tattoo or body piercing	292 (89.3)
Visiting the barbers	135 (41.3)
Contact with HIV infected patients	73 (22.3)
Circumcision protect against HIV	235 (71.9)
Blood splashes on outer body surface including mouth or eyes	161 (49.2)
Spread through swimming pool	291 (89.0)
Contacted through toilet seats	293 (89.6)
Homosexuality play an important role in HIV transmission	305 (93.3)
From mother to child	320 (97.9)

[Table/Fig-3]: Correct Responses on Mode of Transmission

Prevention	Number of respondents (% of correct Answer)
Abstaining from sex	70 (21.4)
Staying faithful to one partner	66 (20.2)
Using a condom correctly for every sexual intercourse	279 (85.3)
Avoiding previously used needles	311 (95.1)
By vaccination	301 (92.0)

[Table/Fig-4]: Correct Responses on the Prevention of HIV

Statement	Median score	Percentile of the score (Q_1-Q_3)
A1: I will keep an HIV patient in close vicinity to me and my family.	3	3-4
A2: Receiving blood transfusion puts me at risk of HIV.	4	3-5
A3: I will provide proper care/counseling to HIV patient.	4	4-4
A4: If I become an HIV patient, I will take the initiative to educate others and also admit that I too belong to this category of patients.	4	4-5
A5: I would like to continue my friendship/respect if my friend had HIV/AIDS.	4	4-5
A6: People with HIV should be kept out of school/university/family.	1	1-2

[Table/Fig-5]: Descriptive statistic data of attitude toward HIV/AIDS

risk. Referring to the question A3, A4, and A5, whether the students will provide care/counseling to the HIV patient, whether they will take initiative to educate others and whether they would continue their friendship/respect with HIV/AIDS friends, the response was towards the agreeing side. On the other hand, in question A6, data showed the students strongly disagreed to keep HIV patients out of school/university/family.

Opinions about HIV/AIDS

[Table/Fig-6] summarizes the descriptive statistic data of the students' opinions concerning HIV/AIDS. Based on the data shown, for question O1 and O3, most students strongly agreed that a law should be enacted on pre-marriage HIV testing and parents should be the first educating initiators for their children. Also, they think that cartooning is a way of message delivery about risk factors of HIV to the children in question O3. For question O4, Most students indicated that they were opposed to quarantine HIV patients. Majority of respondents were unsure whether HIV-positive patient should be allowed to marry HIV-negative patients.

Non-parametric Correlations – Spearman's Rho correlation

[Table/Fig-7] summarized the correlation between awareness, attitudes and opinions towards HIV.Spearman's correlation suggested a significant weak negative linear relationship between the question of O1 and O5, A3 and O4, A5 and O4. While for question A6 and O4, A4 and O2, and A4 and O3, a significant weak positive linear relationship was shown.

DISCUSSION

The level of overall awareness regarding HIV/AIDS transmission was encouraging with 71.9–97.7% correctly answering, most of the questions. However few questions showed unsatisfactory level of awareness. Only 41.3% of the respondents were aware that HIV can be transmitted through visiting the barbers, a finding which differs from a study conducted by Tavoosi at el., (91% of the students were aware that HIV can be transmitted through shaver blade) [9]. The transmission of virus through shaver blade was due to unsatisfied frequency and quality of decontaminating the instruments [10]. This finding is similar to some previous studies on barbers' practices [11-13]. Also, skin damage occurs during barbering will expose the circulatory system to infection [10].

Statement	Median of the score	Percentile of the score (Q_1-Q_3)
O1: A law should be enacted on pre-marriage HIV testing.	5	4-5
O2: Cartooning is a way of message delivery about risk factors of HIV to children.	4	4-5
O3: Parents should be the first initiators to provide education and awareness to their children.	5	4-5
O4: Patients with HIV should be quarantined.	2	1-3
O5: HIV-positive patient should be allowed to marry HIV-negative patient.	3	2-3

[Table/Fig-6]: Descriptive statistic data of opinions toward HIV/AIDS

Students were less aware that HIV can be transmitted by having blood splashes on outer body surface including mouth or eyes. Likewise, a study which was done by Silva et al., demonstrated that the risk of blood splashes to the eyes is underestimated and not fully appreciated by health care workers in general. Such splashes are unlikely to cause a reflex blink when hitting the eyes, and eventually unlikely to cause an infection to occur [14].

The misconception regarding the belief of having occupational risk of getting HIV infection by having contact with HIV patients was still held. Similarly, a study done by Lal P et al., reported that majority of the medical interns (68.3%) perceived themselves to be at high risk of acquiring HIV infection during their medical career [15]. This finding indicated that the students still lack confidence in dealing with HIV patients. In a study by Hu et al., it reported that although the risk for HIV transmission and other blood borne pathogens in health care settings is certainly real, it can be largely preventable [16]. Centers for Disease Control and Prevention (CDC) have recommended some

Questions	Spearman's rho correlation coefficient (rs)	p-value
Item 1-T1 VS A1		
T1-Can HIV be transferred through sneezes and cough?	–0.083	0.136
A1-I will keep an HIV patient in close vicinity to me and my family.		
Item 2-T2 VS A2		
T2-Is there any risks of HIV transmission when having tattoo or body piercing?	+0.108	0.051
A2-Receiving blood transfusion puts me at risk of HIV.		
Item 3-O1 VS O5		
O1-A law should be enacted on pre-marriage HIV testing.	–0.281	0.0001
O5-HIV-positive patient should be allowed to marry HIV-negative patient.		
Item 4-A1 VS O4		
A1-I will keep an HIV patient in close vicinity to me and my family.	+0.065	0.238
O4-Patients with HIV should be quarantine.		
Item 5-A6 VS O4		
A6- People with HIV should be kept out of school/university/family.	+0.437	0.0001
O4-Patients with HIV should be quarantine.		
Item 6-A6 VS O5		
A6- People with HIV should be kept out of school/university/family.	–0.001	0.986
O5-HIV-positive patient should be allowed to marry HIV-negative patient.		
Item 7-A3 VS O4		
A3-I will provide proper care/counseling to HIV patient.	–0.204	0.0001
O4-Patients with HIV should be quarantine.		
Item 8-A4 VS O2		
A4- If I become an HIV patent, I will take the initiative to educate others and also admit that I too belong to this category of patients.	+0.204	0.0001
O2-Cartooning is a way of message delivery about risk factors of HIV to children.		
Item 9-A4 VS O3		
A4- If I become an HIV patent, I will take the initiative to educate others and also admit that I too belong to this category of patients.	+0.2	0.0001
O3-Parents should be the first initiators to provide education and awareness to their children.		
Item 10-A5 VS O4		
A5-I would like to continue my friendship/respect if my friend had HIV/AIDS.	–0.204	0.0001
O4-Patients with HIV should be quarantine.		
Item 11-A5 VS A1		
A5-I would like to continue my friendship/respect if my friend had HIV/AIDS.	+0.067	0.23
A1-I will keep an HIV patient in close vicinity to me and my family.		

[Table/Fig-7]: Association between attitudes and opinions regarding HIV

precautions such as wearing gloves or goggles, washing hands and other skin surfaces, and proper handling and disposing of sharp instruments [17].

On the other hand, it is noted in our findings that only a small percentage of the students knew that HIV cannot be prevented by abstaining from sex only (21.4%) and by staying faithful to one partner (20.2%). These findings highlight a lack of awareness regarding HIV transmission through other minor routes besides sexual transmission.

Findings also showed the overall level of attitudes and opinions towards HIV were positive except a few areas should be highlighted. A high proportion of students felt that receiving blood transfusion put them at risk of getting HIV. According to a study done by Chamberland et al., in the year 2001, the risk associated with blood transfusion are extremely small due to current high level of safety of blood supply compared to last time [18].

A dilemma response was shown when students were undecided to keep HIV patients in close vicinity to them or their family. It is possible that the undecided response is related to concerns about their own safety. Besides, the undecided response of allowing HIV negative people to marry HIV positive, that the students were worried about HIV negative people getting infected with HIV through sexual routes.

Based on the results, awareness in term of transmission was not significantly correlated with attitudes of the students ($p>0.05$). Similar findings were seen in a study done by omeonu et al., among university students in Nigeria where the students have adequate knowledge of HIV/AIDS transmission but there is no correlation with their attitude [19].

On the other hand, findings have proved that attitude of students will influence their opinions towards HIV as there were significant correlations showed in the results ($p<0.05$). One of the examples is the weak positive correlation between question A6 and O4. The finding showed students were opposed for both of the statements whereby they think that HIV patient should not be kept out of school/university/family and should not be quarantined. These findings demonstrated that there was no discrimination attitude among the students.

Furthermore, the weak positive correlation between question A4 and O2 and question A4 and O3 showed that the students who were willing to become educator initiators also agreed that cartooning is a way of delivery about HIV risk factors to children and agreed that parents should be the first initiators to provide education. These findings indicated that the students were aware that early education related to HIV/AIDS is important to prevent HIV. It was consistent with the finding of another study as 71% of the students believed that youth education is the best method of fighting AIDS [9].

LIMITATIONS

The findings may only be generalizable to similar populations of students but may not applicable to all university students in Malaysia. Secondly, the use of English language only in the questionnaire.

CONCLUSION

Students have lack of awareness that HIV can be transmitted through visiting the barber and having blood splashes on outer body surface. Knowledge regarding other minor routes besides sexual transmission was still insufficient. Also, negative attitudes such as misconception about occupational risk of getting HIV through having contact with patients and phobia of receiving blood transfusion and staying close with HIV patients were still held. Therefore, an optimal plan of education with more awareness campaigns and preclinical experiences should be made in the future curriculum to increase the knowledge, confidence and minimize phobia among the students.

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