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**STUDENTS' ATTITUDE AND KNOWLEDGE TOWARDS HIV:
A FACTOR ANALYSIS**

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STUDENTS' ATTITUDE AND KNOWLEDGE TOWARDS HIV: A FACTOR ANALYSIS.

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Introduction

It is evident that HIV is much more than just a disease unlike any other disease. This is because HIV not only influences the lives of those infected but also those around them. On the contrary it influences the life of each one of us on this universe. Simply put, it is probably the single most important public health issue of our time. HIV is transmitted through direct exchange of infected body fluids from an infected host to a susceptible host. Transmission occurs through unsafe sexual activities, sharing contaminated needles, receiving contaminated blood transfusions, and mother to infant transmission during pregnancy, delivery, or lactation. Occupational exposure is possible for those exposed to HIV contaminated body fluids (Aron, 2001; Chin, 2000; Fisher & Fisher, 1995; Graham, 2001; Pattern, Vollman, & Thurston, 2000). There is no known cure for AIDS.

Asia is the world's largest continent and home to more than half of the global population, including several million people living with HIV. Various factors make Asia vulnerable to the spread of HIV, including poverty, inequality, and unequal status of women, stigma, cultural myths about sex and high levels of migration. Most people living with HIV in Asia became infected through unprotected sex or injecting drug use. Malaysia is home to the fifth fastest growing AIDS epidemic in the East Asia and Pacific region with its current rate of HIV infections doubling every three years. While India leads the South East Asian Region in absolute numbers of HIV infection, Thailand has the second highest cases of AIDS in South East Asia (WHO, 2006).

Malaysia's epidemic is largely dominated by injecting drug users. Between the first detected case in 1986 and 2006, 76,389 people have been infected with HIV while 9,155 have died of AIDS. These statistics suggest that an average of 17 people test positive for the virus each day. (UNICEF Malaysia, 2007).

HIV screening detected 15.6% of the HIV carriers in the drug rehabilitation centre's, 5.3% in the prisons, 8.9% in tuberculosis centre, 0.13 % were detected through pre nuptial tests and 0.03 % involved pregnant mothers. (The Borneo Post, 2007).

There is concern however that heterosexual transmission is on the rise. 32% contracted the disease through sex. The proportion of women reported with HIV has increased dramatically in the last decade from 4% of new cases in 1995 to 15% of new cases in 2006. Surveys show that in 2006, more housewives tested HIV-positive than sex workers. At the same time, the percentage of babies born with HIV has also increased from 0.2% in 1991 to 1.4% in 2006. (UNICEF Malaysia, 2007).

As in most parts of the world, young people in Malaysia account for an increasing number of HIV infections every year. December 2006 statistics from the Ministry of Health reveal that 36% of infections are amongst people aged between 13 to 29 years old. It is likely that people infected with HIV before the age of 30 were infected in their twenties and sometimes even during their teens. (UNICEF Malaysia, 2007).

Individuals infected by HIV have to confront the physical, economic, social, and psychological impact on their health. In addition to these factors, their inability to work full time reduces household income and increases expenditures on medical care, food, and washing materials (Barnett & Whiteside, 2006).

With the high cost of antiretroviral drugs and little or no opportunity to work, individuals infected with HIV/AIDS have little opportunity to access resources to improve their quality of life.

HIV has been labeled as stigmatizing disease (Sandelowski, 2006). With the stigma that a medical diagnosis or labeling of HIV or AIDS carries, people living with AIDS often are in denial of having been infected with HIV. These individuals often face prejudice and discrimination from society when their HIV status is disclosed (Duffy, 2005).

The attitude of stigmatization is an antecedent to the behavior of discrimination (West, Leasure, Allen, & LaGrow, 1996). An attitude is a disposition to respond favorably or unfavorably to an object, person, institution, or event. (Aizen I, 2005). An attitude is positive or negative or

mixed affective reaction consisting of our emotions, moods, and feelings to a person or object. (Brehm et al, 1999).

In addition, attitudes may be expressed either consistently or inconsistently. Attitudinal inconsistency or ambivalence can occur when individuals have both positive and negative attitudes toward certain attitude objects or some objects, persons, or events (Aiken, 2002; Albarracin et al., 2005; Eagly & Chaiken, 1998).

Attitudes cannot be observed directly, but they can be inferred from verbal and nonverbal responses toward attitude objects in either a favorable or an unfavorable way (Ajzen, 1993). Moreover, these verbal and nonverbal responses can come from cognition (thoughts and perceptions), affect (feelings and emotions), or conation (intentions to act, commitments, and actions) (Ajzen, 1993).

Attitudes influence not only the ways that individuals view events and people, but also the ways that people live their lives, make decisions and act towards other people (MacDonald, 2001). Negative attitude could lead to prejudice towards people living with AIDS. Prejudice is a term used to describe a negative feeling towards person based solely on their membership in a group. (Brehm and Kassin, 1993).

Research methods

A questionnaire was designed to obtain data in two main areas namely HIV/AIDS related issues which mainly included the mode of transmission (13 questions) and attitude issues (8 questions). The total number of questions were 21 in number. The questions were answered using the option "Agree" and "Disagree". In addition, there were four questions about the main characteristics of the students interviewed. The Cronbach's α was calculated to assess the internal consistency of questions ($\alpha = 0.31$). A total score for knowledge was obtained by adding the points given for each answer. For each correct answer two points and any incorrect answer one points were assigned. The sum makes up the total score which ranged between 04 and 09. A higher score indicated a greater level of knowledge. The attitude score was computed similarly; a low score reflects intolerance towards the infected patients. The least score was 03 and maximum score was 08.

Data was collected in one of the Universities in Sarawak. Non probability sampling technique, namely convenience sample was used to collect data.

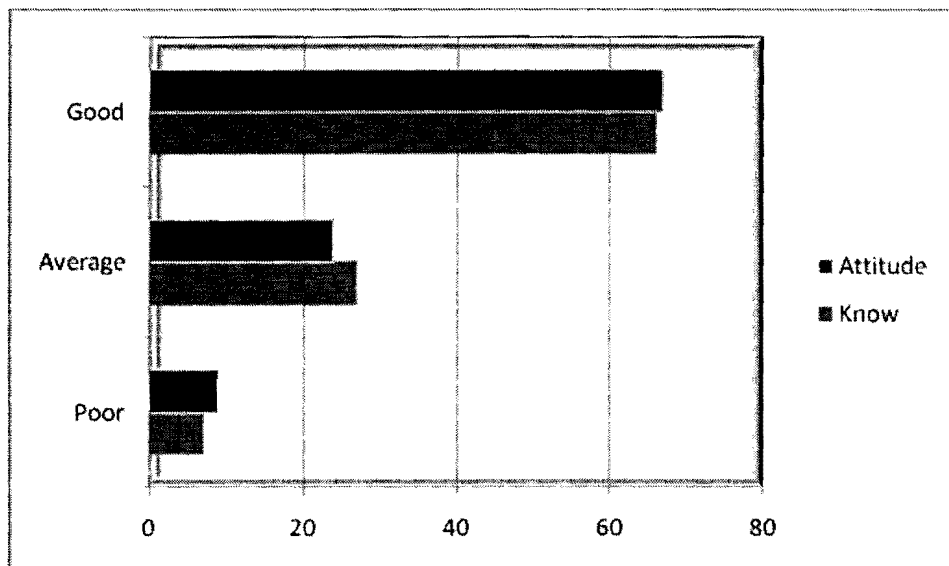
Questionnaire was randomly assigned to students in their class. The sample size of this study was 109 students drawn from students between March to April 2007. Descriptive analysis of the results of the study was carried out using SPSS.

Results

As seen in Graph No.1, majority (66 %), of the students had good knowledge about the mode of transmission of HIV. About 26.6 % of the students had an average knowledge and 7.4% had a very poor knowledge. (ANOVA $p < 0.03$). Thus the levels of knowledge differed among the students. This findings are similar to that of studies done by Brook (1993) and Bhowan (2000).

The attitude of students differed among the students (ANOVA $p < 0.05$), about 67% of the students had good attitude. 24 % had an average attitude towards HIV patients and the remaining 9% had a negative or poor attitude.(Graph 1). In a similar study done by Maswanya et al, (2000) it was found that the students demonstrated high level of knowledge, but had considerable misconceptions and prejudices about people having HIV

Graph No. 1
Attitude and Knowledge Scale.



Many misconceptions were noted in the knowledge related to HIV/AIDS, 25.7% believed that mosquito bite can transmit HIV. 11% agreed that HIV is transmitted through swimming pools. 9.2% agreed that HIV is also transmitted by public toilets, 3.7% agreed shaking hands causes HIV. 5.5% agreed that playing with HIV positive children can cause HIV. 33% agreed that HIV is transmitted by saliva. 9.2% disagreed HIV is transmitted by blood products. 11% disagreed HIV is transmitted by sharing of needles. 3.7% disagreed unprotected sex can cause HIV. 36.7% disagreed condom can prevent HIV. 9.2% agreed HIV is seen only in homosexuals. The proportion of young people who hold misperceptions is high. (Dias et al, 2006).

Looking at the attitude variables, 11 % agreed that people living with HIV should live separately in a hospital and not in the community. 15.6 % agreed that children with HIV should not attend school with other children. 11% agreed that HIV positive patients are bad. 24.8% agreed that people with HIV are dangerous to the community as they can spread HIV to others. (Tavoosi et al, 2004), reported that although the knowledge level seem to be moderately high there was a substantial intolerance towards HIV patients.

Since a non standardized questionnaire was used it would be worthwhile to see if the questions asked are related to the construct that was intended to measure. Factor analysis was done separately for the knowledge and attitude scale. Principle component analysis was used as extraction method. The rotation method used was Varimax with Kaiser Normalization. All absolute values less than 0.30 were suppressed. The dimensions of the factors were reduced by considering factors with Eigen value greater than 1.

The Kaiser Meyer Olkin (KMO) measure of sampling adequacy is an index for comparing the magnitude of the observed correlation coefficient to the magnitudes of the partial correlation coefficient. The KMO measure of sampling adequacy was 0.514 for the attitude scale suggesting a non mediocre nature. For the knowledge scale the KMO was 0.627, which suggests that it is of mediocre nature.

The Bartlett's test of Sphericity was used to test the hypothesis that the correlation matrix is an identity matrix. In this study the Bartlett test of Sphericity for the attitude scale was 227.2 and significant at 0.000. The Bartlett test of Sphericity for the knowledge scale was 773.86 significant at 0.000.

Table No. 1 Factor Analysis.

Varimax solution with four factors for attitude scale. ^a

Attitude Scale	Factor Loading			
	Factor 1 ^b	Factor 2 ^c	Factor 3 ^d	Factor 4 ^e
1. People living with HIV should live separately in a hospital and not in the community.		.663		.452
2. Children with HIV should not attend school with other children.	.780			
3. I do not mind having a friend with HIV.		-.820		
4. I don't mind buying fruits and vegetables from fruit vendors.	-.889			
5. Do you mind living with a				-.919

HIV positive person.				
6. HIV positive patients are bad.	.575	.635		
7. People with HIV are dangerous to the community as they can spread HIV to others.			.765	
8. People with HIV should not marry another HIV patient.			.745	

- a. Total percent of variance = 76.59%.
- b. Eigenvalue=2.56 ;percent of variance =32.07
- c. Eigenvalue= 1.51;percent of variance =18.97
- d. Eigenvalue=1.03 ;percent of variance =12.92
- e. Eigenvalue=1.01 ;percent of variance =12.63.

In Table No.1, the factor analysis on the 8 item attitude scale indicated that the most appropriate solution involved four factors. A varimax (orthogonal) rotation specifying a four factor solution accounted for 76.59 % of the variance. The first factor consists of questions 2 and 4 which accounts for 32.07% of the variance. The second factor consists of questions 3 and 6 which accounts for 18.97% of the variance. The third factor consists of questions 7 and 8 that accounts for 12.92% of the variance and the last factor consists of questions 1 and 5 which accounts for 12.63 % of the variance.

Table No. 2 Factor Analysis.

Varimax solution with four factors for knowledge scale. ^a

Knowledge Scale	Factor Loading			
	Factor 1 ^b	Factor 2 ^c	Factor 3 _d	Factor 4 _e
1. Mosquitoes bite can cause HIV.				.882
2. HIV is transmitted through swimming pools.	.891			
3. HIV is also transmitted by public toilets	.915			
4. Kissing causes HIV.			.833	
5. Shaking hands causes HIV.	.603	.656		
6. Playing with HIV positive	.696	.442		

children can cause HIV.				
7. HIV is transmitted by saliva.			.858	
8. HIV is transmitted by blood products.	-.826			
9. HIV is transmitted by sharing of needles.	-.379	-.362		.321
10. If the mother is HIV positive she can have a HIV positive child.		-.617	-.389	
11. Unprotected sex can cause HIV.	-.603	-.656		
12. Condom can prevent HIV.	-.565		-.492	.339
13. HIV is seen only in homosexuals.		.927		

- a. Total percent of variance = 77.58%.
- b. Eigenvalue=5.53 ;percent of variance =31.84
- c. Eigenvalue= 1.95;percent of variance =19.96
- d. Eigenvalue=1.42 ;percent of variance =14.98
- e. Eigenvalue=1.18 ;percent of variance =10.80

The factor analysis on the 13 item knowledge scale, (table no.2) indicated that the most appropriate solution involved four factors. A varimax (orthogonal) rotation specifying a four factor solution accounted for 77.58 % of the variance. The first factor consist of questions 2,3,7,8 and 9 which accounts for 34.84% of the variance. The second factor consists of questions 6, 9, 10 and 11 which accounts for 19.96% of the variance. The third factor consists of questions 1, 4 and 5 that accounts for 14.98% of the variance and the last factor consists of questions 12 only, which accounts for 10.80% of the variance.

Discussion and Conclusion

AIDS is a major failure of the body's immune system. This decreases the body's ability to fight infection. HIV infection is not only an extremely complicated disease process, but it also transcends the boundaries of medicine.

The present study makes an attempt to study the knowledge and attitude of university students of Malaysia towards HIV/AIDS patients. Attitude is the evaluation of an individual to a particular entity or an attitude object with

some degree of favor or disfavor based on values, beliefs, and direct experience (Albarracin, Johnson, Zanna, & Kumkale, 2005; Eagly & Chaiken, 1993, 1998).

Out of the 109 students studied. 63 % were female students and the remaining 46% were male students. Majority (65%) were between the age 19 to 21 years and 44% were aged between 22 to 24 years. The students belonged to different religions 52% were Muslims, 44% were either Christians or Protestants and the remaining 13 % were either Buddhists or Hindus.

Comparing the knowledge of male and female students, it was found that there was not much difference in the level of knowledge of female students (mean = 7.69) compared to male students (mean = 7.58) ($t = 0.70$ not significant at 0.005).

Overall, there were many misconceptions about the transmission of HIV. Mosquito transmitting HIV, playing with children with HIV, transmission through public toilets and swimming pools. Surprising a very large no almost 36.7 % believed that condom cannot prevent HIV. Probably they believed in the risk of condom tearing or inappropriate wearing.

Female students had a better attitude towards people living with AIDS (mean = 6.27) compared to male students (mean = 5.65). ($t = 2.87$, significant at 0.005). This may be because they are more well read than male students. In a similar study done in India, Agarwal et al, (1999) found that boys had better knowledge compared to girls due to the fact that male students feel free to talk about sex and HIV to others compared to female students. In this study a reverse trend is seen.

In this study, 24.8% agreed that people with HIV are dangerous to the community as they can spread HIV to others. In a similar study done by Brook (1993) nineteen per cent of the pupils were of the opinion that students diagnosed as HIV positive should not be allowed to continue their regular studies as they can endanger their fellow students.

It appears that fear and negative attitude towards HIV infected patients are a universal behavior.

Pearson's r was done to see if there is a relationship between the two variables – knowledge and attitude. A low but significant relationship was seen between

the two variables $r = 0.35$ ($p < 0.005$). In other words, knowledge had a positive influence on the attitude. Poorer the knowledge poorer the attitude.

Factor analysis on the attitude scale reduced the 8 variables to 4 factors. These factors account for 76.61 percent of the covariance among the variables. Factor I appears to measure contact with people living with AIDS. Factor II appears to measure negative attitude. Factor III appears to measure attitude towards marriage. and Factor IV appears to measure attitude towards maintaining relationship with HIV patients.

Factor analysis on the knowledge scale reduced the 13 variables 4 factors. These factors account for 77.60 percent of the covariance among the variables. Factor I appears to measure mode of transmission. Factor II appears to measure myths related to HIV. Factor III appears to measure probable causes and Factor IV appears to measure prevention. In Factor I, II and II one variable did not load too high. In Factor IV two variables did not load too high.

In conclusion, HIV/AIDS is a major social problem. The nature of the illness and the tendency of the illness to be chronic involve various sphere which include medicine, political, economic, social, legal and religion. The problem of HIV/AIDS need to dealt with a multi disciplinary approach.

This study shows that although majority of the students had adequate knowledge on the transmission of HIV/AIDS, few students did not have adequate knowledge or rather were unsure on the mode of transmission. It is essential that students have a full knowledge on the mode of transmission which is the key in the prevention of HIV. Good knowledge will also help to develop a positive attitude towards people living with HIV/AIDS.

Although the students showed a good level of knowledge concerning AIDS and HIV, they had considerable misconceptions and prejudices about people having HIV/AIDS. Results from this study suggest that a more suitable education programme in colleges in Malaysia may be necessary to reduce the inconsistency between knowledge and desirable attitude regarding HIV/AIDS.

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