



# University Students' Knowledge, Attitude, and Perception of Risk Related to Hiv/Aids

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## Abstract

The number of young people aged between 13 to 29 infected with Human Immunodeficiency Virus (HIV) was rapidly increasing in Malaysia. The objective of this study is to determine the level of knowledge, attitude, and perception among students in the University. This study employed the cross-sectional design. The questionnaire was distributed to 372 respondents. Therefore, 52.4 percent of students had good knowledge. There was a weak positive correlation between KA ( $r = 0.23$ ) and KP ( $r = 0.19$ ) with significance ( $p < 0.05$ ). Conclusion, an increase in the level of knowledge contributed to the positive attitude and perception also reduce the stigma and discrimination toward people living with HIV/AIDS.

**Keywords:** Human Immunodeficiency Virus (HIV), Knowledge, Attitude, Perception

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## 1.0 Introduction

Human Immunodeficiency Virus (HIV) debuted in 1981 in the United States, nearly 35 million people were infected worldwide, and 39 million people died due to this virus (WHO, 2015). HIV does not have a cure but can be controlled by antiretroviral therapy (ART). Despite this, Acquired Immunodeficiency Syndrome (AIDS) can occur when HIV attacks and destroys a specific cell of the immune system called CD4 cell or T cell. Once infected, the immune system becomes weaker. Thus the body cannot fight against any infection and disease (Centre of Diseases Control (CDC), 2015).

Malaysia has been developing countries, reported HIV/AIDS cases since 1986 by the Ministry of Health that 101, 672 were confirmed HIV infected cases and 16,360 deaths in the year of 2013. Joint United Nations Program (UNAIDS), (2014) state that AIDS-related mortality increases about 20% in Malaysia between 2005 and 2013. This number was increased because between January to June 2014, 1,676 cases of HIV and 598 cases of AIDS with 402 deaths were recorded. Hence, 79.7% is a new infection were involved with a man. Moreover, this case also increased rapidly among young people (Wong, Chin Low, & Jaafar. 2008). According to the statistic provided by the Malaysian AIDS Council (MAC), in 2013 there were 3393 new cases of HIV infection reported in Malaysia. Out of this number, young people aged 13 to 29 contributed the total of 34% of the cumulative (Wong et al., 2008). In 2010, 312 cases involved students were recorded with 69 cases of AIDS (MAC,2010).

The number of new cases of HIV infection was steadily decreasing over the past decade. However, the number of young people infected with HIV was rapidly increasing (Wong et al., 2008). Therefore, in the year 2010, 312 cases involved students were recorded with 69 cases of AIDS (MAC, 2010). At this point, the estimation of the aged between 15 to 49 years old that has been infected with HIV were 73,005 (UNAIDS, 2014). These facts will be a nightmare for our country if the prevention not taken yet. This because the young people are the future generation of our country. From now, the preventive measures should be taken to reduce the spreading of these harmful diseases and to save young people from getting infection HIV.

The assessment of knowledge about HIV infection plays a major role in the prevention of the virus (Ungan & Yaman,2003). This is important because knowledge can prevent a person from getting the infection of HIV. Most of the people with adequate knowledge will protect themselves better from getting a virus ( Petros, 2014). Lack of knowledge can form a negative attitude towards people living with HIV (Khan, 2015).

Negative attitudes towards people living with HIV (PLH) affected the prevention efforts (Rahnama, Rampal, Lye, & Abdul Rahman, 2011). HIV case may elevate if the people have a negative perception and attitude towards people with HIV. The reason is that the people who are at high risk of HIV will be unwilling to go for an HIV test and spread the virus unconsciously.

In brief, the assessment of knowledge, attitude, and perception are important to plan the strategies preventive measure for HIV. For this reason, that study was carried out to identify the level of knowledge, attitude, and perception among UiTM students.

## 2.0 Literature Review

Annual Report 2013 by Malaysian AIDS Council (MAC) reported that sexual transmission slowly has the main driven factor of the epidemic of HIV transmission. Thus, support that the

changes transmission related to the high-risk sexual behaviour and following by injecting drug user (IDU). Report by Malaysian AIDS Council & Malaysia AIDS Foundation, until 2013, HIV epidemic in Malaysia concentrates on sex workers, transgender people, injecting drug users and men who have sex with men (Jamian & Arzmi, 2014).

CDC (2015), were informed that HIV infected mainly through by having anal or vaginal sex with someone who has HIV without using a condom and sharing needles or syringe, or other equipment used to prepare drugs for injection because HIV live up to 42 days in the used needle with person has been infected by HIV. Besides, the HIV also can transmit from positive pregnant mother to fetus during conceived in the womb, during birth, and during lactation; and needle prick injury which familiar in health care provider

Early diagnosis and treatment can reduce HIV progression and prevent transmission, but the young adult is less likely to be tested access care, remain in care and achieve treatments. The persons aged 13-64 years were recommended by the CDC to do routine HIV testing as part of regular medical care (CDC, 2012). Mermin (2014) stated that HIV testing is the entry point for both care and prevention, and progress continues at a rapid pace.

Mainly, to reduce the number of persons who become infected with HIV and reduce disparities, public health agencies, educators, and health-care providers, must educate youths about HIV before they start engaging in risky behaviours such as gay and bisexual (CDC, 2012). Thus, seeking information about HIV is needed especially for who is sexually active and with this knowledge will effect on the shift in behaviour or action (Hanizar & Swastika, 2015).

Stigma is an attribute of social relation that exists when labeling, stereotyping, separation, status loss, and discrimination occur. HIV related stigma poses many consequences on the physical and psychological well-being of people living with HIV/AIDS (PLWHA) including affecting their quality of life (Chew & Cheong, 2013).

Negative perceptions and misconceptions shown by many people are due to lack of knowledge of HIV. The problem of stigmatization attitude of public towards people living with HIV is because of lack of knowledge and has been said to be a factor that quickens the death of people living with HIV (Muoghalu, & Jegede, 2013).

As a conclusion, people formed their perception towards HIV based on their knowledge level either it can be positive or negative. Perception plays an important in helping HIV patients to fight their disease. Negative perception towards HIV patients prevents the efforts in helping HIV patients to comply with their treatments. People linked HIV with irresponsible and disrespect behaviours which lead them to the disease. Some of the people who are thinking about the positive way about HIV patients come with good knowledge. People should be given more information of HIV so that public can give their positive perception towards HIV patients so that it may help HIV patients to cope with the disease and not to give up with the treatments.

### **3.0 Methodology**

### **3.1 Research Design**

This cross-sectional study was employed in this study due to it involves only one contact with the study population (Kumar,2014) and the output from this study were shows the problem in a population at a certain point in time and to develop the effective preventive measure related to HIV/AIDS.

### **3.2 Study setting**

This study was conducted at Universiti Teknologi Mara (UiTM) Selangor, Campus Puncak Alam which they are from seven faculties: Faculty of Architecture, Planning, and Surveying, Faculty Art and Design, Faculty of Business Management, Faculty Health Sciences, Faculty Hotel and Tourism Management, Faculty of Pharmacy and Faculty of Accountancy.

### **3.3 Sample design and sample size**

The study population is 11,371 consisted of a student's university from all respective faculties in the Universiti Teknologi Mara. The sampling design was convenience sampling. It is a non-probability sampling and convenient accessibility and proximity to determine the sample size. The sample size was calculated by using Raosoft Sample Size Calculation software from 11,371 population equal to is 372 with 95% confidence level and 5% margin error.

### **3.4 Instrument and Scoring**

The instrument was used in this study is a validated questionnaire adopted from "Knowledge and Risk Perception towards HIV/AIDS among Students of the University by Prishtina "Hasan Prishtina" (Zefi,2015). The permission was obtained from the author. The questionnaire was in English. There are four sections of this questionnaire which in Section A consists of demographic data while Section B, Section C, and Section D are about investigating the level of knowledge of HIV, attitude towards HIV and perception towards HIV respectively.

Scoring for knowledge, attitude and perceptions were adapted from a study among male high school in Lao People's Democratic Republic (Thanavanh, Harun-Or-Rashid, Rashid, Kasuya & Sakamoto,2013). Based on that study, determining the level of knowledge, a score of 1 was given for a correct answer and 0 for a wrong answer. The total score was then calculated in categorised the level of knowledge. Accordingly, level of knowledge was categorized into "low" for respondents scored  $\leq 50\%$ , "average" for those scored between 51% and 74%, the "high" was for those who scored  $\geq 75\%$ .

In determining the level of attitude and perception, score one was given for every positive answer in the attitude and perception section and 0 for negative answers. The scores were then summed up to generate an overall score for each participant. The scores of attitudes and perception were categorized into two segments based on their mean and total score. Those scoring less than mean scores for attitude and perception were classified as "negative" and those scoring equal and more than mean scores were classified as "positive" attitudes and perception.

### **3.5 Pilot study of the Instrument.**

A pilot study was conducted to ensure the adapted questionnaire has good internal consistency. 37 students were involved, and the Cronbach alpha was analyzed, and they were excluded from

the study. The score was 0.702, indicating the questionnaire is good.

### 3.6 Ethical consideration

The study was ethically approved by the Research Ethics Committee, Faculty of Health Sciences, Universiti Teknologi MARA (UiTM). Written consent, after an explanation on the study, were obtained from the study participants. Participants were advised that they could withdraw from the study at any point of time without penalty. The participants were informed that the data would be handled confidentially. The results obtained at the end of the study would be reported in an aggregated group rather than on an individual.

### 3.7 Data collection and analysis

The data collection was conducted by distributing the questionnaire equally between seven faculties. Self-introduction and a brief explanation of the research were given to the respondents before the research was conducted. The data is analysed using SPSS version 21.0. For each variable (demographic data, knowledge, attitude, and perception), descriptive statistics were used to analyse the general description about the data including mean, median, frequency, standard deviation, and percentage. Significance value was set at  $p < 0.05$ , and only significant results were discussed. Chi-square test was used to determine the relationship between demographic data and level of knowledge of HIV. The Pearson's Correlation Coefficient is used to correlate demographic data towards knowledge, attitude, and perception towards HIV infection and to determine the relationship between knowledge, attitude, and perception of HIV infection.

## 4.0 Results

### 4.1 Socio-demographic characteristics

Most of the respondents are female, 92.7% ( $n=345$ ) and the rest is male, 7.3% ( $n=27$ ). The age mean of participants was 21.94 ( $SD 1.252$ ) with age range between 19-27 years old. The highest respondents are from the Faculty of Health Science, 37.6% ( $n=140$ ). Majority of the subjects are in year 2, 41.9% ( $n=156$ ). (Table 1)

Table 1 Demographic Data of Students

Variable	n (%)
Response rate	372(100)
Gender:	
Male	27(7.3)
Female	345(92.7)
Age	
19 - 22	251(67.5)
23 - 27	121(32.5)
Faculty	
Health Sciences	140(37.6)

Business Management	112(30.1)
Accountancy	42(11.3)
Art and Design	30(8.1)
Pharmacy	30(8.1)
Hotel Management	18(4.8)
Year of student	
1	69(18.5)
2	156(41.9)
3	124(33.3)
4	20(5.4)
5	3(0.8)

#### 4.1 Student's knowledge regarding HIV

Table 2 shows the items that use in assessing the knowledge of students regarding HIV. Data shows that most of the students know about the transmission of HIV. Hence, most of the students can answer the question correctly. However, there is a high number of students who uncertain whether HIV can be transmitted through mosquito bite 43.8% of the students answered this wrongly. Although, 154(41.4%) of numbers students also answered wrongly related to an item that HIV transmission through being fed from the same plate with a person living with HIV/AIDS. However, for the item, people can get infected with HIV by using the same toilet seat with someone who has HIV/AIDS, 135 (35%) of student's responses wrongly. Overall, respondents had a mean ( $\pm SD$ ) score of knowledge of 2.26( $\pm 0.85$ ) from 6 knowledge-related questions. Accordingly, 52.4% were classified as having a high level of knowledge. The other 21.2% shown average knowledge and 26.4% have low knowledge regarding HIV.

Table 2 Knowledge of Students Regarding HI

Items	Correct response n(%)	Wrong response (n%)
People can get infected with HIV by using the same toilet seat with someone who has HIV/AIDS	237(63.)	135 (35)
People can get infected with HIV by injecting drugs with HIV by injecting drugs with used needles	337(90.6)	35 (9.4)
HIV can be transmitted from infected mother to child	310(83.3)	62(16.7)
People can get infected with HIV through social contacts	306(82.3)	66 (17.7)
People can get infected with from mosquito spite	209(56.2)	163 (43.8)
People can get infected with HIV being fed from the same plate with a person living with HIV/AIDS	218(58.6)	154 (41.4)

The respondent had a mean ( $\pm SD$ ) score of knowledge 2.26 ( $\pm 0.85$ ) from 6 knowledge items. Accordingly, 52.4% were classified as having good knowledge. 21.2% shown average and 26.3% is low knowledge regarding HIV. The result has shown that most of the students had a good knowledge of HIV. Refer to Table 3

Table 3. Student's level of knowledge.

Level of knowledge	n	%
Good knowledge	195	52.4
Low knowledge	98	26.3
Average	79	21.3
Total	372	100

#### 4.2 Students Attitude towards HIV

Table 4 shows the levels of attitude students on the HIV. Most of the student has classified having positive attitudes towards HIV about 61% as compared to the negative attitude of 38.4%. The mean scores ranged from 0 to 8 mean score =3.29,  $SD\pm 1.89$  from 8 items.

Most of the students showed positive attitudes towards willingness to take care of their family if they were infected with HIV/AIDS. Students also preferred to keep it secret if they were infected with HIV. Some of them uncertain whether to keep it a secret or not. Students showed a negative attitude towards eating from the same plate with a person with HIV 316(84.9%). Most of the students were positive to share the same class with someone with HIV, 226(60.8%). They also agreed if a professor who is infected with HIV to be allowed to continue teaching. However, students showed a negative attitude reaction towards healthcare worker and food seller with HIV to continue working. They were also reluctant to buy from an HIV infected food seller 331(89.0%) (Table 5). Eight of the questions that addressed attitudes toward HIV, the scores ranged from 0 to 8 (mean score = 3.29,  $SD\pm 1.89$ ). Accordingly, 61.6% of students scored equal or more than the mean and were classified as having a positive attitude towards HIV. A total of 38.4% were classified as having a negative attitude toward HIV because they scored less than the mean.

Table 4. Levels of Attitude of Student

Level of attitude	n	%
Positive	229	61.6
Negative	143	38.4
Total	372	100

Table 5 Attitude towards HIV

Items	Positive (n%)	Negative (n%)
<i>If one of your family members infected with HIV would you be willing to care for him/her</i>	283(76.1)	89(23.9)
<i>If you are infected with HIV would you prefer that this information to remain a secret?</i>	168(45.2)	204(54.8)
<i>Would you be ready to eat from the same plate with a person you know has HIV/AIDS?</i>	56(15.1)	316(84.9)
<i>If a student lives with HIV/AIDS should he/her be allowed to continue to attend school/studies?</i>	209(56.2)	163(43.8)
<i>Would you accept to share the same class at school/college with someone who you know is infected with HIV?</i>	226(60.8)	146(39.2)
<i>If a professor is infected with HIV/AIDS should she/he be allowed to continue to teach in the school/college?</i>	188(50.5)	184(49.5)

<i>If a health worker (doctor, nurse) is infected with HIV should she/ he be allowed to continue to work with patients?</i>	53(14.2)	319(85.8)
<i>If you know a food seller living with HIV, would you buy from him/her?</i>	41(11)	331(89.0)

### 4.3 Students Perception towards HIV

Table 6 shows, most of the students are a belief that HIV can be infected with people who are seemingly healthy 188(50.5%). A lot of the students disagree that HIV is a punishment for one's behavior, 204(54.8%). They were certain to the variable that HIV patient tends to hide their infection from others, 306(82.3%). A great number of students think that the HIV/AIDS patient is normally sex workers, 265(71.2%). Most of the students are uncertain whether HIV patients are dying very quickly. The 5-item addressed perception toward HIV; the scores ranged from 0 to 5 (mean score=1.77,  $SD\pm 1.28$ ). Table 7 illustrates that accordingly, 82.3% of students scored equal or more than the mean and were classified as having a positive attitude towards HIV. A total of 17.7% were classified as having a negative attitude toward HIV because they scored less than the mean.

Table 6 Perception of Students towards HIV

<b>Items</b>	<b>Negative (n%)</b>	<b>Positive (n%)</b>
<i>Can people be infected with HIV from person who is seemingly healthy?</i>	184(49.5)	188(50.5)
<i>living with HIV is a punishment for his/her behaviours?</i>	168(45.2)	204(54.8)
<i>HIV/AIDS patients tend to hide their infection from others?</i>	306(82.3)	66(17.7)
<i>HIV/AIDS patient are normally sex workers?</i>	265(71.2)	107(28.8)
<i>HIV/AIDS patients are dying very quickly?</i>	275(73.9)	97(26.1)

Table 7. Level of Students perception on HIV

Level of Perception	n	%
Positive	306	82.3%
Negative	66	17.7%
Total	372	100%

### 4.4 The association of demographic data with the level of knowledge of HIV

In order to analyses the association between different faculty with the level of knowledge, the faculty were divided into two groups such as Healthcare field (Faculty of Health Science and Faculty of Pharmacy) and Non-Health care field (Faculty of Business Management, Faculty of Art and Design, Faculty of Accountancy and Faculty of Hotel Management). The faculties were divided into two which are healthcare field and non-health care field as a research state that health care field was including nursing, pharmacy and medicine other courses of health sciences faculty (Brody, Edelman, Siegel, Foster, Bailey, Bryant & Bond, 2016). Chi-square test for independence indicates there is significant association between faculty and level of knowledge,  $X^2(1, n= 372) = 8.86, p= .03 (p<0.05)$ . Table 8, show that

there was a higher proportion of science-based faculty who have high HIV knowledge compared to non-science. Since the  $p$ -value is significant, the null hypothesis has been rejected. The other demographic data has no association with the level of knowledge. Results in this study showed that only variable faculty have a significant association with the level of knowledge.

Table 8. Association between Demographic Data and Level of Knowledge

Faculty	Low Knowledge	High Knowledge	X <sup>2</sup> (df)	p-value
Healthcare	61(38.)	97(61.4)	8.8661(1)	0.03
Non-health care field	116(54.2)	98(45.8)		

#### 4.5 Correlation between knowledge towards attitude and perception

Pearson correlations were conducted to determine if the correlation between the level of knowledge with towards their attitude and perception towards people living with HIV (PLH). Table 9, shown that there is a positive correlation between the two variables,  $r(372) = 0.23$ ,  $p = .01$ . There is a weak positive correlation between the level of knowledge and attitude. There is also the positive correlation between the level of knowledge and perception,  $r(372) = 0.19$ ,  $p = .01$ . There is a weak positive correlation between the level of knowledge and perception. Thus, this result justifies that the increased level of knowledge is correlated to the positive attitude and perception towards HIV.

Table 9. Correlations between knowledge towards attitude and perception

	Knowledge n=372	
	Pearson Correlation	Sig (2-tailed)
Attitude	0.230	0.01
Perception	0.198	0.01

## 5.0 Discussion

### 5.1 Level of Knowledge, attitude, and perception of HIV

#### 5.1.1 Level of Knowledge

More than half of the students have good knowledge regarding transmission of HIV. Most of them were able to answer the variables regarding knowledge on HIV. This shows that UiTM Puncak Alam students have adequate knowledge in preventing HIV/AIDS. Contrary, with the other studies, reveal that university students only had average knowledge about HIV transmission (Al-Rabeei, Dallak, & Al-Awadi, 2012; Ahmed, Hassali, & Aziz, 2009). However, there were still misunderstandings about the transmission of HIV, with some students answered that HIV can be transmitted through mosquito bites and eating from the same plate with PLH. The result is similar to a study conducted in China (Thanavanh et al., 2013) and Iran (Tavoosi, Zaferani, Enzevaei, Tajik, & Ahmadi-zhad, 2004).

However, the opposite concept was reported in the study in India. Most of the students in that study were aware that HIV could not be transmitted through mosquito bites and sharing a toilet seat (Banerjee & Keller, 2015). It was significant that students need more information regarding the mode of HIV transmission to prevent misconception. Most of the students know that HIV can be transmitted through intravenous drug using needles and mother to child transmission from pregnancy, childbirth or breastfeeding. Same results were reported by a study in Korea (Sohn & Park, 2012) and Xinjiang (Maimaiti, Shamsuddin, & Nurungul Tohti, & Maimaiti, 2010). Most of the respondents aware that HIV cannot be transmitted through social contact. Again, the same concept was found in the study in Korea (Sohn & Park, 2012) and Xinjiang (Maimaiti et al., 2010).

### **5.1.2 Attitude towards HIV/AIDS**

More than half of the students indicated that positive attitude towards PLH. This finding is higher as compared to the finding by Maimaiti et al., (2010). Only a small number of students in that study have a positive attitude towards HIV. Despite, the higher positive attitude among students, they were still reluctant to allow health care providers with HIV to treat patients. The same reaction is also seen towards food sellers who have HIV. Many students are unwilling to buy food from an HIV infected seller. This finding was similar to the finding among male high school students in Lao People's Democratic Republic (Thanavanh et al., 2013) and China, where the statistics show that more than half of the students disagree on allowing an HIV positive professor continues to teach. They also disagreed to enable students with HIV to continue with their studies in school. The previous study also shows that most of the students were unwilling to eat from the same plate with an HIV infected person. This is similar to the study among Korean adolescents where the respondents showed the discriminating attitude towards PLH by being reluctant to share a meal with PLH (Sohn & Park, 2012). This is contradicting to the study at Namibia on the prevalence of knowledge and attitude towards HIV showed a higher percentage of students willing to allow an HIV infected professor to continue teaching (Kiderlen, Conteh, Roll, Seeling, and Weinmann, 2015). The study also found that females were less discriminating towards PLH as compared to males in term of sharing meals (Sohn & Park, 2012).

One of the studies in Malaysia revealed that a small percentage of students would inform their partner or family about their disease which is analogous to the finding that a large percentage of students would prefer that their disease remain secret if they were infected. However, the study shows contradict results about the willingness of the students to care for infected family members where most of the students are willing to care for their infected family members (Rahnama et al., 2011).

Most of the students also show the positive attitude toward PLH as they are willing to share classes at school or college with an infected person. On the other hand, the finding of a study in Sanaa City revealed a low percentage of students were willing to accept the infected person in the same community and thought that the infected children should be isolated even from attending a school (Al-Rabeei, Dallak, & AlAwadi, 2012).

### **5.1.3 Perception toward HIV/AIDS**

The overall result displays the positive perception toward HIV among undergraduate students in UiTM Puncak Alam. The analysis reveals the only a small percentage of students who thought HIV is a curable disease. The results are consistent with the current study among Malaysian young adults. However, misinformation about HIV is a curable should be corrected as can lead to another risk factor for contracting the disease. The literature also states the infected person can be recognised by their appearance (Wong, Chin, Low, & Jaafar, 2008). Contradictory with the result that student was positive perception that people may be infected with HIV from a person who is seemingly healthy as students know HIV infected person may be asymptomatic.

The study also shows majority students disagree that HIV is a punishment to the people living with HIV/AIDS (PLWHA) because of their behaviour. On the other hand, research in Nigeria also illustrate the similar result, but some students still agree HIV/AIDS is a punishment from God (Muoghalu & Jegede, 2013). The studies also convey that they are some students who want to keep their diseases as secret if they infected by HIV positive. The review in UiTM Puncak Alam disclosure that majority students' belief PLWHA tend to hide their infection from others because of stigma and discrimination from the community (Saki, Mohammad Khan Kermanshahi, Mohammadi, & Mohraz, 2015).

The result while they display positive perception towards PLH, great number of students thought that people infected with HIV are normally sex worker. Petersen (1993) stated that the stigmatization toward sex worker was expected from their behaviour like having sex with multiple partners. Thus, lead to sexually transmitted disease especially HIV (as cited by Wong, Holroyd, & Bingham, 2011). This reveals the student's risk perceptions which lead to HIV infection. Most of the students also believed HIV/AIDS patients are dying very quickly.

Life expectancy of an infected person depends on the time of PLWHA start to antiretroviral therapy. Furthermore, late diagnose, and treatment can reduce the life expectancy of the infected person (May, Gompels, Delpech, Porter, Post, Johnson, Sabin, 2011).

## **5.2 The correlation of demographic data with a level of knowledge of HIV**

Demographic data shows significant correlation with knowledge of HIV among undergraduate students in UiTM Puncak Alam. Thus, the field of study which were divided into the healthcare field; Faculty of Pharmacy and Faculty of Health Science and non-health care field; Faculty of Agriculture, Planning and Surveying, Faculty of Art and Design, Faculty of Business Management, Faculty of Accountancy, and Faculty of Hotel and Tourism Management does affect the level of knowledge about HIV.

The finding is consistent with other studies. For example, a study in Guyana found that the health sciences students have a high level of knowledge about HIV infection and the training curriculum does improve HIV knowledge among health sciences students. Furthermore, knowledge is important to reduce stigma because it can be an obstacle in delivering care to HIV patients. Health sciences students are most probably the front-line health care worker who will typically have direct contact with HIV patients as they will deliver health care services in the future (Balfour, Corace, Tasca, Best-Plummer, MacPherson & Cameron, 2010).

A study by Violeta Zefi (2015) in University of Prishtina discovered that the field of studies also influence the level of knowledge as the research illustrated students from the Faculty of Medicine have a higher level of knowledge regarding HIV infections as compared to the Faculty of Chemistry and the Faculty of Electrical Engineering and Computer. This may be due to education programmes and clinical practice which provided exposure to students in the healthcare field. (Sung, Huang, & Lin, 2015). Also, professionals' knowledge and attitudes towards HIV and AIDS may affect their ability to care for patients in the future with this status (Bell & Bray, 2014).

### **5.3 The correlation between knowledge, attitude, and perception of HIV**

There is a positive correlation between knowledge and attitude which indicates that the level of knowledge can influence the attitude of the respondents. However, the strength of the correlation was weak, but the results revealed that the relationship was statistically significant. The results revealed the increased level of knowledge led to the positive attitude toward PLWHA. Thus, knowledge via education is vital to change the perception and attitudes of undergraduate students on HIV infection.

This finding supports the previous research conducted by Majelantle, Keetile, Bainame, and Nkawana (2014) that suggested that young people who have insufficient knowledge about HIV/AIDS transmission and prevention are less likely to sustain positive attitudes towards PLWHA compared to those who have sufficient knowledge about HIV transmission and prevention. This explains the finding which shows a weak correlation between knowledge and attitude toward PLWHA among undergraduate students in UiTM Puncak Alam. The strength of association also appeared weak with positive correlation which indicated that the level of knowledge does affect students' perception toward PLWHA. The result is the same as other studies which also demonstrated a strong correlation between perception and knowledge about HIV (Magcai, du Plessis, & Pienaar, 2013).

In general, the analysis shows that knowledge has a large impact towards attitude and perception toward HIV infection among undergraduate students. Previous studies also demonstrate that high knowledge can influence positive attitude and perception towards HIV infection.

## **6.0 Conclusion**

University students who consist of young people should be inspired to help people with HIV. Since positive attitude and perception in combination with good knowledge on HIV, there should be exposed to the programme that could provide more information on HIV. This finding of this study showed that there are have good knowledge, attitude and perception towards HIV/AIDS, however, some misunderstanding of the information that needs to be concerned. A health education program should be held to help these students to understand better about HIV and help them to take a safer way in order to avoid themselves from being drag into HIV disease which this will contributes to the already increasing statistic of young adult involvement with HIV.

As a conclusion, it is crucial for young people to seek knowledge about HIV infection to

correct the misconceptions regarding HIV transmission. Many students did not know about the impossibility of contracting HIV from the sharing of a toilet seat and from getting a mosquito bite. This study also has proven that the attitude and perception have a relationship with the level of knowledge as positive attitude and perception reflect a high level of knowledge. Knowledge can increase awareness about HIV infection, thus reducing stigma towards PLWHA.

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