

## **APPLICATION OF LOGISTIC REGRESSION TO ASSESS THE FACTORS ASSOCIATED WITH HIV-RELATED KNOWLEDGE AMONG UNIVERSITY STUDENTS**

(Penggunaan Regresi Logistik untuk Menilai Faktor Berkaitan dengan Pengetahuan HIV dalam Kalangan Pelajar Universiti)

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### *ABSTRACT*

Human Immunodeficiency Virus (HIV) has become a serious world's health challenge and burden. The majority of young people lack knowledge on how HIV is transmitted and how to prevent themselves from being infected. Therefore, this study was conducted to determine the knowledge level of HIV/AIDS and identify significant demographic factors that affect the knowledge level using selected statistical analysis. This cross-sectional study involved young adult university students from UiTM Cawangan Kelantan, Kampus Kota Bharu. A questionnaire that consists of demographic characteristics and HIV Knowledge Questionnaire 18 (HIV-KQ-18) was distributed to 280 respondents with a response rate of 79%. The demographic predictors examined in this study are age, gender, mother's and father's education level, monthly household income, residence area, family history of HIV and health insurance status. The dependent variable in this study is the knowledge level of HIV/AIDS that is categorised into 0 and 1; 0 denoting the low level of knowledge (score < 7) and 1 indicating a high level of knowledge (score  $\geq$  7). The results revealed that 68% of the respondents have high knowledge of HIV/AIDS infection. However, misconceptions about HIV transmission and its prevention still exist among the respondents. The findings from logistic regression analysis indicated that younger students (OR = 0.732) and those who lived in urban areas (OR = 1.973) were more likely to have high knowledge of HIV. The results also revealed that students who were covered with health insurance (OR = 2.913) were more likely to have high knowledge of HIV than those who are not. Thus, it is suggested that the concerned parties should aggressively educate the public through awareness-raising campaign and use the mass media to deliver information about HIV/AIDS targeting youngsters from specific age group and socio-economic status, and those who lived in rural areas.

*Keywords:* HIV; AIDS; knowledge

### *ABSTRAK*

Virus Kurang Imun Manusia (HIV) telah menjadi cabaran dan beban kesihatan dunia yang serius. Sebilangan besar orang muda tidak mempunyai pengetahuan tentang bagaimana HIV disebarkan dan bagaimana mencegah diri daripada dijangkiti. Oleh itu, kajian ini dijalankan untuk menentukan tahap pengetahuan mengenai HIV/AIDS dan untuk mengenal pasti faktor demografi yang bererti dalam mempengaruhi tahap pengetahuan menggunakan analisis statistik terpilih. Kajian keratan rentas ini melibatkan pelajar universiti dewasa muda dari UiTM Cawangan Kelantan, Kampus Kota Bharu. Satu soal selidik yang terdiri daripada ciri-ciri demografi dan 18 Soal Selidik Pengetahuan HIV (SSP-HIV-18) diedarkan kepada 280 responden dengan kadar maklum balas sebanyak 79%. Peramalan demografi yang dikaji dalam kajian ini adalah umur, jantina, tahap pendidikan ibu dan ayah, pendapatan bulanan isi rumah, kawasan tempat tinggal, sejarah keluarga HIV dan status insurans kesihatan. Pemboleh ubah bersandar dalam kajian ini adalah tahap pengetahuan HIV/AIDS yang dikategorikan kepada 0 dan 1; 0 menunjukkan tahap pengetahuan yang rendah (skor < 7) dan 1 menunjukkan tahap pengetahuan yang tinggi (skor  $\geq$  7). Hasil kajian menunjukkan bahawa 68% responden mempunyai pengetahuan tinggi tentang jangkitan HIV/AIDS. Walau bagaimanapun, tanggapan

yang salah mengenai penularan HIV dan pencegahannya masih wujud dalam kalangan responden. Dapatan daripada analisis regresi logistik menunjukkan pelajar yang lebih muda (OR= 0.732) dan mereka yang tinggal di kawasan bandar (OR=1.973) lebih cenderung untuk mempunyai pengetahuan lebih tinggi mengenai HIV. Hasil kajian juga menunjukkan bahawa pelajar yang dilindungi insurans kesihatan (OR=2.913) lebih cenderung mempunyai pengetahuan yang lebih tinggi mengenai HIV berbanding dengan mereka yang tiada. Oleh itu, disarankan agar pihak-pihak yang berkenaan harus mendidik masyarakat secara lebih agresif melalui kempen kesedaran dan memanfaatkan media massa untuk menyampaikan maklumat mengenai HIV/AIDS dengan mensasarkan golongan muda daripada kumpulan umur dan sosio-ekonomi tertentu serta mereka yang tinggal di luar bandar.

*Kata kunci:* HIV; AIDS; pengetahuan

## 1. Introduction

Human immunodeficiency virus (HIV) was known as the causative agent of acquired immunodeficiency syndrome (AIDS). HIV continues to be a significant global public health concern with almost 36.3 million people have died because of it. In 2020, 680,000 people died from HIV-related causes (World Health Organization 2021). Moreover, World Health Organization (2021) reported that almost 38 million people lived with HIV/AIDS at the end of 2020, with 1.5 million newly infected cases. The HIV/AIDS epidemic has been a serious health problem in Malaysia since 1986, where the first case of HIV was detected in that year (Reid *et al.* 2004). Since then, according to the Ministry of Health Malaysia (2020), an estimated 87,000 people living with HIV (PLHIV) at the end of the year 2019.

In Malaysia, there was an increase in trend of HIV prevalence among the young population age ranged between 13 to 29 years since 2009. This increasing trend of HIV infection among young population is because they are more vulnerable and riskier to HIV exposure and transmission, such as low rates of condom use, low rates of testing, and sexual activities with more than one partner (Ministry of Health Malaysia 2019). Their tender young age of early twenties and peers influence might lead them to explore new things that will risk them in getting infected with HIV. Untreated HIV also will lead to deadly AIDS. This will destroy the bright future of our youths hence the future of our nation. It is a fact that youth is the important assets for the development of the country.

A recent study by Kene *et al.* (2021) that aimed to assess HIV/AIDS related knowledge and its determinants among undergraduate students in Madda Walabu University, Ethiopia found that 51.4% of the respondents were knowledgeable regarding HIV/AIDS. Moreover, binary logistic regression results indicated that health science students, students with monthly stipends more than 300 ETB (Ethiopian Birr) received from parents and being in the third year and above had higher odds of having good knowledge about HIV/AIDS. Another study by Alhasawi *et al.* (2019) among senior high school students in Kuwait suggested that male students and students in the science stream had higher knowledge about HIV/AIDS. To assess the knowledge level of HIV/AIDS, Talwar and Abd Rahman (2015) carried out a study among students in a Malaysian university. The findings reported that more than half of the respondents (64%) obtained a high score on HIV/AIDS knowledge, and one-third of the respondents (36%) had low knowledge. Logistic regression analysis suggested that male students and being in a relationship were more likely to have better knowledge regarding HIV/AIDS. In agreement with finding from Alshawi *et al.* (2019), Talwar and Abd Rahman (2015) stated that science students were found to be more knowledgeable. An early study by Wong *et al.* (2008) among Malaysian young adults reported a moderate HIV/AIDS knowledge score. In addition, the results indicated that older respondents (aged between 20 to 24 years) had higher scores than

younger respondents (15 to 19 years). Conversely, Taher and Abdelhai (2011) reported that undergraduate nurses had better knowledge regarding HIV/AIDS compared with postgraduate nurses. In contrast to Talwar and Abd Rahman (2015), Wong *et al.* (2008) suggested that female participants had higher scores than males. Also, Wong *et al.* (2008) stated that students who lived in urban areas were more knowledgeable than those who lived in rural areas. Likewise, a Bangladeshi study by Sheikh *et al.* (2017) suggested that Bangladeshi women who lived in urban areas were more likely to have higher knowledge about HIV/AIDS compared to women in rural areas. Othman *et al.* (2014) found that 197 out of 437 high school students in Erbil City, Iraq (45.1%) had good knowledge scores regarding HIV/AIDS, 191 (43.7%) had acceptable knowledge scores, and 49 (11.2%) had poor knowledge scores. Also, Othman *et al.* (2014) found high socio-economic status was significantly associated with a high knowledge score of HIV/AIDS. The result corroborates the research reviewed earlier (Kene *et al.* 2021), which suggested that high monthly expenses were associated with high knowledge of HIV/AIDS. This can be explained due to the fact that students who come from families with high socio-economic status may have more exposure to mass media such as television and the internet (Othman *et al.* 2014). Like Alhasawi *et al.* (2019) and Talwar and Abd Rahman (2015), Othman *et al.* (2014) suggested that male students had higher knowledge scores about HIV/AIDS. The findings from the previous studies have produced mixed yields, with some reporting a high level of knowledge and others reporting low and moderate knowledge levels. These inconsistencies are likely due to some respondents who had good or poor knowledge on specific statements regarding HIV/AIDS.

In conjunction with National Strategic Plan to end the AIDS epidemic in Malaysia by 2030, Malaysian must have adequate knowledge of HIV, especially among young people. An online survey regarding HIV/AIDS conducted by the Ministry of Health (MOH) in 2017 among 640 respondents aged 15 to 49 revealed that stigma and discriminatory attitudes towards PLHIV still exist, especially among young populations aged below 15 to 19 years (Ministry of Health Malaysia 2019). This is might due to a lack of knowledge among the young population regarding HIV. Having sufficient knowledge of HIV/AIDS is required as the first step in preventing the disease. Hence, there is a need to study the knowledge of young people about HIV/AIDS. To date, there is a scarce of studies that investigate the HIV/AIDS related knowledge in Kelantan's population. As such, the present study aims to fill the gap by focusing on university students in Kelantan to evaluate their knowledge of HIV. This study also offers an attempt to identify the association between selected demographic factors and knowledge of HIV/AIDS among university students.

## **2. Method**

### **2.1. Study design and sample**

A cross-sectional design was used in this study due to the data collected at one time. This cross-sectional study was carried out from Mac–May 2020. A sample of 280 students at UiTM Cawangan Kelantan, Kampus Kota Bharu was selected using stratified random sampling. The sample size was calculated using Sample Size Calculator by Raosoft, considering the following: 5% margin of error, 95% confidence level and 50% response distribution. In this study, the population of students in UiTM Cawangan Kelantan Kampus Kota Bharu was divided into two strata according to gender, male and female. After a proportionate stratification was calculated according to suitable sample size, the respondents for this study were identified using simple random sampling based on the sampling frame consisting of students' names and phone

numbers. The sampling frame was obtained from the Academic Affairs Division of UiTM Cawangan Kelantan, Kampus Kota Bharu.

Table 1 presents the calculation of sample size for each stratum with 59 males (i.e.,  $216/1030 \times 280$ ) and 221 females (i.e.,  $814/1030 \times 280$ ).

Table 1: Sample size calculation

Gender	Population size for each group	Sample size for each group
Male	216	59
Female	814	221
Total	1030	280

## 2.2. Questionnaire

Data were collected using an online self-reported questionnaire. Due to the pandemic situation that has forced the university's closure, the questionnaire in Google form was disseminated to the participants via Whatsapp application to facilitate the data collection process. The questionnaire was provided in two languages, i.e., Malay and English. The 26-items questionnaire includes two sections.

The first section is socio-demographic characteristics, includes questions on age, gender, residence area, educational level of father and mother, family history of HIV, health insurance status and monthly household income. The respondents were asked whether they had family members with HIV/AIDS (yes/no) and whether they had health insurance (yes/no). The other demographic characteristics were categorised as follows; gender (male, female); residence area (rural area, urban area); mother' education level (SPM and below, diploma, degree, master, PhD); father's educational level (SPM and below, diploma, degree, master, PhD) and household monthly income (RM2000 and below, RM2001-RM4000, RM4001-RM6000, RM6001 and above). Table 2 summarises the description of socio-demographic variables.

Table 2 : Description of Variables

Variable	Level of Measurement	Description
Age	Ratio	Age in years
Gender	Nominal	<ul style="list-style-type: none"> <li>• Male</li> <li>• Female</li> </ul>
Father's education level	Ordinal	<ul style="list-style-type: none"> <li>• SPM or below</li> <li>• Diploma</li> <li>• Degree</li> <li>• Master</li> <li>• PhD</li> </ul>
Mother's education Level	Ordinal	<ul style="list-style-type: none"> <li>• SPM or below</li> <li>• Diploma</li> <li>• Degree</li> <li>• Master</li> <li>• PhD</li> </ul>

*Continued ...*

Table 2 (... continuation)

Residence Area	Nominal	<ul style="list-style-type: none"> <li>• Rural</li> <li>• Urban</li> </ul>
Family History of HIV/AIDS	Nominal	<ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> </ul>
Health Insurance Status	Nominal	<ul style="list-style-type: none"> <li>• Yes</li> <li>• No</li> </ul>
Household Income	Ordinal	<ul style="list-style-type: none"> <li>• RM2000 and below</li> <li>• RM2001-RM4000</li> <li>• RM4001-RM6000</li> <li>• RM6000 and above</li> </ul>

The second section is HIV Knowledge Questionnaire (HIV-KQ-18). The HIV-KQ-18 validated measure was adapted from Carey and Schroder (2002), where it consists of 18 statements of HIV-related knowledge such as HIV transmission modes and prevention. Respondents were asked to read 18 statements about HIV and indicate whether the statement is "true", "false", or "don't know". Higher scores indicate greater knowledge about HIV (Carey & Schroder 2002). In this study, the questionnaire was piloted to 30 randomly selected students to ensure the clarity of the questions.

### 2.2.1. Knowledge score calculation

Based on a participant's responses, a knowledge score was obtained for each respondent. Each correct answer was scored one point, and no point was given for incorrect or 'don't know' answers. The knowledge score was then calculated by summing all points obtained. The total score for each student therefore ranged from 0-18. The score was categorised into two categories: high (score  $\geq$  median value) and low (score  $<$  median value). This median split was considered as better representation in classifying low and high values (Talwar & Abd Rahman 2015).

### 2.3. Statistical analysis

The data were analysed using IBM SPSS V22.0. Descriptive statistics and frequency distribution were obtained to describe continuous and categorical variables, respectively. The dependent variable is HIV-related knowledge level (low and high). Since the dependent variable is dichotomous, binary logistic regression analysis was performed with 8 independent variables namely age, gender, father's and mother's education level, monthly household income, residence area, family history of HIV, and health insurance as mentioned earlier. The selection of a reference group for each independent variable was done to ensure a logical comparison can be made and to make the interpretation easier. Female was set as the reference category in a previous study by Talwar and Abd Rahman (2015). With regards to the locality, Wong *et al.* (2008) assigned rural areas as the reference category in comparing the knowledge of Malaysian young adults about HIV/AIDS. This analysis, also known as multiple logistic regression analysis was used to identify the demographic variables that significantly affect the HIV-related knowledge level among university students. An alpha level of  $p$ -value less than 0.05 was employed to established statistical significance in the multiple logistic regression analysis. Odds ratio (OR) is defined as a measure of association between exposure and outcome. Odds ratio is found to be broadly used especially in epidemiology, where it is used to approximate

how much more likely (or unlikely) for an outcome to occur among those with exposure ( $x=1$ ) than those with no exposure ( $x=0$ ) (Hosmer & Lemeshow 2000). Odds ratio is also useful in determining whether exposure is a risk factor for an outcome and comparing the magnitude of various risk factors for that particular outcome (Szumilas 2010). It is useful in interpreting the relationship that occurs between exposure and outcome. Odds ratio that is greater than 1 indicates that the exposure resulted in higher odds of outcome, while odds ratio less than 1 indicates that the exposure resulted in lower odds of outcome (Szumilas 2010). Therefore, odds ratio is used to estimate the odds of having high knowledge regarding HIV/AIDS in the present study.

### 3. Results

#### 3.1. Socio-demographic characteristics

Table 3 shows the frequency and percentage for socio-demographic characteristics. The questionnaire was sent out to 280 students. However, the dataset obtained consists of 222 university students. Hence, the response rate is 79%. There are 50 (22.5%) male students and 172 (77.5%) female students. Regarding parents' education, the majority of parents had SPM or below as their highest education level. Details of household income are illustrated in Table 3, where 54 (24.3%) respondents' families earned both RM2000 and below and RM6001 and above, respectively. A total of 68 (30.6%) of respondents reported that their monthly household income is in the range of RM2001-RM4000. Only 5.9% of respondents had family members with HIV. More than half (70.7%) of the respondents had no health insurance.

Table 3: Socio-demographic characteristic

Characteristic	<i>n</i>	%
Gender		
Male	50	22.5
Female	172	77.5
Mother's education level		
SPM and below	113	50.9
Diploma	48	21.6
Degree	47	21.2
Master	12	5.4
PhD	2	0.9
Father's Education Level		
SPM and below	123	55.4
Diploma	43	19.4
Degree	31	14
Master	24	10.8
PhD	1	0.5
Household Monthly Income		
RM2000 and below	54	24.3
RM2001-RM4000	68	30.6
RM4001-RM6000	46	20.7
RM6000 and above	54	24.3
Residence Area		
Urban	129	58.1
Rural	93	41.9
Family History of HIV		
Yes	13	5.9
No	209	94.1
Health Insurance		
Yes	65	29.3
No	157	70.7

### 3.2. HIV-related knowledge

The percentage of respondents who answered each statement correctly is shown in Table 4.

Table 4: HIV-related knowledge statements

Knowledge	Correct Answer	<i>n</i>	%
Coughing and sneezing do not spread HIV.	True	114	51.4
A person can get HIV by sharing a glass of water with someone who has HIV.	False	70	31.5
Pulling out the penis before a man climaxes/cums keeps a woman from getting HIV during sex.	False	119	53.6
A woman can get HIV if she has anal sex with a man.	True	119	53.6
Showering, or washing one's genitals/private parts, after sex keeps a person from getting HIV.	False	64	28.8
All pregnant women infected with HIV will have babies born with AIDS.	False	57	25.7
People who have been infected with HIV quickly show serious signs of being infected.	False	90	40.5
There is a vaccine that can stop adults from getting HIV.	False	115	51.8
People are likely to get HIV by deep kissing, putting their tongue in their partner's mouth, if their partner has HIV.	False	71	32.0
A woman cannot get HIV if she has sex during her period.	False	102	45.9
There is a female condom that can help decrease a woman's chance of getting HIV.	True	70	31.5
A natural skin condom works better against HIV than does a latex condom.	False	75	33.8
A person will NOT get HIV if she or he is taking antibiotics.	False	106	47.7
Having sex with more than one partner can increase a person's chance of being infected with HIV.	True	165	74.3
Taking a test for HIV one week after having sex will tell a person if she or he has HIV.	False	39	17.6
A person can get HIV by sitting in a hot tub or a swimming pool with a person who has HIV.	False	113	50.9
A person can get HIV from oral sex.	True	99	44.6
Using Vaseline or baby oil with condoms lowers the chance of getting HIV.	False	77	34.7

Regarding the statements of transmission mode, 51.4% of the respondents knew that HIV could not be transmitted by cough/sneeze and 52.3% of respondents correctly answered that sharing a glass of water with an infected person does not cause HIV. It is not surprising that most of the respondents knew that having sex with more than one partner can increase a person's chance to be infected with HIV (74.3%). However, only 25.7% of respondents are aware that HIV cannot infect an unborn child through an infected mother, which shows the misconception relating to how HIV/AIDS can be transmitted. More than half of respondents knew that there is no available vaccine to prevent adults from getting infected by HIV (51.8%), and a woman can get HIV if she has anal sex with a man (53.8%). Only 90(40.5%) respondents know that an infected person does not show any serious sign of being infected. Nearly half of the respondents (44.6%) correctly answer that a person can get HIV from oral sex. Only 31.5% of respondents correctly answered the statement, "Pulling out the penis before a man climaxes/cums keeps a woman from getting HIV during sex". Also, only 28.8% of respondents were aware that showering or washing one's genitals/private parts after sex does not prevent a person from getting HIV. A small number of respondents, 39 (17.6%), knew that the statement, "Taking a test for HIV one week after having sex will tell a person if she or he has HIV," is false. The mean ( $\pm$  standard deviation) and median of the total knowledge scores obtained by the

respondents was 7.49, ( $\pm 3.244$ ) and 7, respectively. The knowledge score was categorised into two categories: low (score  $< 7$ ) and high (score  $\geq 7$ ).

### 3.3. Multiple logistic regression analysis

Multiple logistic regression analysis was performed in this study to find the association between socio-demographic characteristics and HIV-related knowledge level. Several demographic variables have a small sample size for each category. Hence, those variables were re-coded into new categories: mother's and father's educational level (school level and university level) and monthly household income ( $\leq$ RM2000 and  $\geq$ RM2001). The results of multiple logistic regression analysis are shown in Table 5.

Table 5: Multiple logistic regression analysis

	Beta Coefficient	Odds Ratio (OR)	p-value
Age	-0.313	0.732	0.021
Gender			
Male	0.513	1.670	0.172
Female*			
Mother's Educational Level			
School Level	-0.283	0.753	0.452
University Level*			
Father's Education Level			
School Level	0.077	1.080	0.842
University Level*			
Household Monthly Income			
$\geq$ RM2001	0.178	1.195	0.661
$\leq$ RM2000*			
Residence Area			
Urban	0.679	1.973	0.042
Rural*			
Family History of HIV			
Yes	1.041	2.833	0.149
No*			
Health Insurance Status			
Yes	1.069	2.913	0.003
No*			

Note: \*reference group

Three demographic factors with a *p-value less than 0.05* were significantly associated with HIV-related knowledge level in this study, including age, residence area, and health insurance status. The results suggested that for every year increase in age of the students, the odds of having high knowledge about HIV/AIDS will decrease by 26.8%. Similarly, older students are less likely to have high knowledge regarding HIV/AIDS compared to younger students. It was also shown that students who live in urban areas are (1.973 $\approx$ 2 times) more likely to have high knowledge compared to those who are from rural areas. Students who have health insurance coverage are (2.913 $\approx$ 3 times) more likely to have high knowledge than those not covered with any insurance.

## 4. Discussion

It was found that the majority of respondents (60.8%) have high knowledge regarding HIV in the present study. This is consistent with Talwar and Abd Rahman (2015) study, which reported that 64% of respondents had a high HIV/AIDS knowledge. In contrast, an early study by Sohn



and Park (2012) reported that young people had a low understanding of HIV/AIDS. Better knowledge has a positive impact on HIV/AIDS prevention (Durongritichai 2012).

Although the knowledge level was reported to be high, this study found a low level of knowledge of specific statements regarding HIV/AIDS. Almost 83% of the respondents misunderstood that HIV/AIDS can be detected through a test after a week they had sex. The majority of participants thought that all pregnant women with HIV would pass the virus to their babies. If both mother and baby get the treatment and medicine, the risk of HIV transmission will drop to just over 1% (Centers for Disease Control and Prevention 2021).

Several socio-demographic variables were found significantly associated with the level of HIV-related knowledge among students in the current study, including age, residence area and health insurance. The present study found that younger students are more likely to have high knowledge. In these days and ages, youngsters are highly exposed to the internet. Their openness towards sex-related topics and may have influenced their level of HIV knowledge. A similar finding has been reported among nurses in Egypt, undergraduate nurses with the age range 16-19 years had better HIV/AIDS knowledge compared to postgraduate nurses that aged between 20 to 50 years old (Taher & Abdelhai, 2011). This findings among the nurses could be explained by the readiness to learn among the undergraduate nurses. Contradicting to the result in this study, low knowledge was reported in a study among young adults in Malaysia, which found that older respondents have a higher knowledge score than younger respondents (Wong *et al.* 2008). This can be justified by the age group used in the study. The younger respondents were 15 to 19 years old. Meanwhile, the older respondents were young adults aged 20 to 24 years. Older respondents in this study were expected to have better HIV knowledge because they were at the legal and appropriate age to talk and learn about sex.

The results in this study indicated that students from urban areas are more likely to have a higher knowledge of HIV than respondents from rural areas, consistent with prior studies in Malaysia (Wong *et al.* 2008), and Pakistan (Sheikh *et al.* 2017). This study also reported that respondents who have health insurance were significantly associated with knowledge of HIV/AIDS. The odds ratio obtained in multiple logistic regression analysis explained that respondents with health insurance are three times more likely to have a greater knowledge of HIV/AIDS relative to those without health insurance.

This study has several limitations that should be highlighted. The low response rate reported in this study was due to some respondents who were not responding to the survey. Although the study was carried out for academic purposes, respondents might feel uncomfortable answering some sensitive questions due to the conservative norm of our society. The results of this study may not be generalisable to other populations of university students in Malaysia since this study was conducted in only one higher education institution. Another limitation of this study is the occurrence of bias that the self-reported questionnaire may cause. The sensitivity of the topic and the cultural norm in Malaysia might cause some of the respondents not to answer the questions honestly. However, this study has some notable strengths where this study is believed to be important in highlighting the issue of HIV/AIDS knowledge among the young population.

## **5. Conclusion**

Overall, this study found a high level of knowledge about HIV/AIDS among the students regarding HIV/AIDS. However, the results show there is still a lack of knowledge regarding the mode of transmission of HIV, HIV prevention methods and misconceptions regarding the use of a condom. The results also indicated that age, residence area and health insurance were significantly related to knowledge level. Health care providers should play an important role in

delivering knowledge of HIV/AIDS among the young population. Thus, public health campaign is required to increase the knowledge of the young population especially those in rural areas.

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