Knowledge of HIV/AIDS and attitudes towards people living with HIV among the general staff of a public university in Malaysia

Yvonne Tee, Mary Huang

Abstract

Stigma and discrimination towards people living with HIV have been widely documented, and have extended their impact into the workplace. Stigmatising attitudes towards people living with HIV (PLHIV) in the workplace significantly hinder HIV prevention efforts and indirectly affect national development. This cross-sectional study was designed to determine the level of knowledge about HIV and AIDS and assess attitudes towards PLHIV among the general staff of Universiti Putra Malaysia (UPM), as well as to identify factors that are associated with it. Self-administered questionnaires were posted to a total of 344 general staff from six randomly selected faculties, and they were a given a week to return the questionnaires. The response rate was 38%. Data were analysed using Pearson's correlation, independent *t*-test and multiple linear regression. The respondents showed a considerably high level of knowledge about HIV/AIDS (mean knowledge score of 15.57±1.93 out of 18 points) although there were some misconceptions (*N*=129). Likert scale responses to 20 attitude statements revealed that respondents generally had moderately positive attitudes toward PLHIV (average score of 69.65±10.08 out of 100 points). Attitudes were inconsistent when it involved direct contact and interaction with PLHIV. Factors significantly associated with level of knowledge and attitudes included age, education and income. There was no difference in mean score for knowledge and attitudes by gender. Further efforts are necessary to improve attitudes of the general staff towards PLHIV, particularly in areas of direct contact with PLHIV.

Keywords: *Knowledge, attitudes, stigma, HIV/AIDS, Malaysia.*

Résumé

La stigmatisation et la discrimination envers les personnes vivant avec le VIH ont été largement documentées et se sont propagées sur le lieu de travail. Des attitudes de stigmatisation envers les personnes vivant avec le VIH (PVVIH) sur le lieu de travail entravent de façon significative les mesures de prévention et affectent indirectement le développement national. Cette étude transversale a été conçue pour déterminer le niveau de connaissances sur le VIH et le SIDA, évaluer les attitudes envers les PVVIH du personnel général de l'Université Putra Malaysia (UPM) et identifier les facteurs qui y sont associés. Des questionnaires auto-administrés ont été envoyés à un total de 344 membres du personnel général de six facultés sélectionnées de façon aléatoire, qui avaient une semaine pour renvoyer les questionnaires. Le taux de réponse était de 38%. Les données ont été analysées en utilisant la corrélation de Pearson, des tests *t* indépendants et une régression linéaire multiple. Les personnes interrogées ont montré un niveau considérablement élevé de connaissances sur le VIH/SIDA (note de connaissances moyenne de 15.57±1.93 sur 18 points) en dépit de certaines opinions erronées (*N*=129). Les réponses sur une échelle de Likert à 20 déclarations d'attitude ont révélé que les personnes interrogées avaient des attitudes modérément positives à l'égard des PVVIH (note moyenne de 69.65±10.08 sur 100 points). Les attitudes étaient inconstantes lorsqu'elles impliquaient un contact et une interaction directs avec une PVVIH. Des facteurs associés de façon significative au niveau de connaissances et aux attitudes incluaient l'age, l'instruction et le revenu. Il n'existait aucune différence dans la note moyenne des connaissances et attitudes en fonction du sexe. Des efforts supplémentaires sont nécessaires pour améliorer l'attitude du personnel général envers les PVVIH, en particulier dans les domaines du contact direct avec une PVVIH.

Mots clés: *Connaissances, attitude, stigmatisation, VIH/SIDA, Malaisie.*

Yvonne Tee holds a degree in Nutrition and Community Health from Universiti Putra Malaysia (Malaysia). She is currently pursuing her PhD in Community Nutrition at Universiti Putra Malaysia.

Mary Huang (PhD) is an Associate Professor at the Department of Nutrition and Dietetics, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, in Serdang, Malaysia. She has been actively involved in research as well as community work in the area of reproductive health including HIV for more than 20 years. She is also the Honorary Secretary General of the Federation of Reproductive Health Associations, Malaysia, an affiliate of the International Planned Parenthood Federation (IPPF).

Correspondence to: yvonne_tee@yahoo.com

Introduction

Halting and reversing the spread of HIV and AIDS by 2015, as one of the eight Millennium Development Goals (MDGs), shows the determination of world leaders in addressing HIV and AIDS issues (United Nations Malaysia, 2005). Today HIV/AIDS has become a global crisis and has proven to be one of the most destructive epidemics over the last 30 years. According to the report on the global AIDS epidemic, there were an estimated 33 million people living with HIV/AIDS (PLHIV) globally in 2007 (UNAIDS/WHO, 2008).

Since HIV was first diagnosed, feelings of fear and avoidance of PLHIV have prevailed. HIV and AIDS-related stigma poses perhaps the most important obstacle to prevention efforts, and subsequently leads to the creation of an ideal climate for promoting its further spread (UNAIDS/WHO, 2006). Fear of stigma, on the other hand, causes HIV-positive people to avoid disclosure (Brimlow, Cook & Seaton, 2003). Because stigma has been known to delay treatment to PLHIV, it can explain why it is sometimes regarded as life-threatening (Weiss & Ramakrisha, 2001). Prevention measures and related treatment will not be effective in tackling the epidemic if HIV stigma is present.

Very often, a negative attitude towards PLHIV indicates a certain degree of stigma. Attitudes are generally associated with the level of knowledge, and those who hold negative attitudes are often those with lower levels of knowledge regarding HIV (Berezhnova, Grechukhina & Kamaletdinova, 2004). However, people may have knowledge, but the knowledge itself does not necessarily translate into their attitudes or practices. It is not unusual to find that even highly educated people have genuine fears of HIV and AIDS, and act negatively towards people living with the virus, due to the fact that they know there is currently no cure for HIV and AIDS.

In Malaysia, there were 80 938 people living with HIV by the end of 2007 (MOH, 2008). It is noteworthy that up to 90% of the new infections (Roberts, Rau & Emery, 1999) were in the prime of their productive and reproductive lives, and were economically active (Lau & Wong, 2001). This is the time when they are most likely to be employed, where their labour and productivity contribute significantly to the development of the country. High unemployment rates have been reported among PLHIV, ranging from 45% to 65% (Dray-Spira *et al.*, 2005). Stigma and discrimination in the workplace often lead to the termination of employment, even though the employee can still contribute effectively. Other contexts of discrimination in employment include mandatory testing at recruitment and during employment, lack of confidentiality, restriction in job duties, and denial of employment and benefits (Reidpath, Brijnath & Chan, 2005). PLHIV without employment may have difficulties in meeting their basic needs (Rao *et al.*, 2008), which is made worse when they have family members to feed. The AIDS epidemic also results in the loss of experienced personnel, waste of resources in having to hire and train replacements, increased absenteeism, rising health care costs, emotional disruption and decreased productivity (ILO, 2001). HIV-positive employees not only face isolation and discrimination by their colleagues, they may also be hindered from seeking appropriate treatment and services, as they are afraid of revealing their serostatus (Horizons, 2002).

Information about knowledge on HIV/AIDS and attitudes towards PLHIV in the workplace is lacking, possibly because generally the workplace is not regarded as a high-risk site of HIV transmission (Goss & Adam-Smith, 1995). However, it is inevitable that PLHIV will be encountered in the work environment with the advancement of medicine that helps to prolong their lives, and makes it possible for PLHIV to continue being employed (Lim & Loo, 2000). Therefore, organisations should recognise the economic and social implications that HIV/AIDS has, apart from being regarded simply as a health matter. Employers should be prepared to deal with in-house cases of HIV/AIDS as and when they occur. The need to address the attitudes of employees towards PLHIV should be acknowledged to facilitate the continued employment of PLHIV (Dray-Spira *et al.*, 2003). Indeed, training, workshops and education sessions can be conducted effectively at the workplace, where employers have a 'captive audience' (Yee, 1999), allowing transformation of educational messages into daily realities (Busza, 2001).

As the epidemic grows in Malaysia, there are still a very limited number of studies that examine working adults' attitudes towards PLHIV in the workplace. Most of the research has focused on high-risk groups and young people as well as health care providers. Free medication has been provided for all PLHIV in Malaysia since 2005. In the light of free medication, as well as concerted efforts by the country to increase access to voluntary counselling and testing (VCT), it is anticipated that the number of PLHIV in the workplace will increase. In an organisational setting, the general staff in a university can be faced with a situation where they can be in contact with PLHIV in their workplace. Therefore, the need to determine the level of knowledge on HIV/AIDS and attitudes towards PLHIV among staff is necessary, in order that barriers that prevent PLHIV from working after diagnosis are removed. In addition, differences in HIV knowledge and attitudes by sex, age, education level and monthly income provide useful information for planning of education programmes.

Methods

This cross-sectional study was conducted at a public university in Malaysia, which employed 2 224 general staff (non-academic staff) at the time of the study. The list of general staff from different faculties was obtained from the Registrar of Universiti Putra Malaysia. Based on the estimation of the sample size, simple random sampling was carried out and six faculties (Environmental Studies, Biotechnology and Biomolecular Sciences, Human Ecology, Forestry, Veterinary Medicine, and the Faculty of Medicine and Health Sciences) out of 15 faculties were randomly selected. The minimum sample size, calculated using the GPOWER Software (Erdfelder, Faul & Buchner, 1996), by applying the effect size of 0.3, alpha value of 0.05 and power of 0.95, was 111 subjects. A total of 344 general staff (representing all general staff of the selected faculties) were included in the study. The questionnaires, accompanied by a respondent information sheet, were posted to all the staff. They were notified about the general objectives of the study and were given a week to complete the questionnaire. Respondents were asked to place their completed questionnaires in boxes conveniently placed near their mail boxes in the general offices of the various departments in the faculties. These boxes were collected on the predetermined date. Informed consent was obtained from each participant and all information given by participants was kept confidential. The study was approved by the Ethics Committee of the Faculty of Medicine and Health Sciences, Universiti Putra Malaysia (UPM).

Materials

A pre-tested self-administered close-ended questionnaire was used to collect the data. The instrument was adapted from an earlier study (Khor, 2005). The questionnaire consisted of three sections: (*i*) socio-demographic characteristics, which included age, sex, race, marital status, years of formal schooling and monthly income; (*ii*) knowledge of HIV and AIDS; and (*iii*) attitudes towards people living with HIV. There were 18 items to assess respondents' knowledge on HIV and AIDS with regards to mode of HIV transmission as well as general knowledge of HIV and AIDS (Cronbach's alpha = 0.61). Respondents with higher scores were assumed to have better knowledge of HIV and AIDS. Another 20 items were used to assess respondents' attitudes towards PLHIV in four areas, namely: their support for AIDS-related policies and work of voluntary organisations, feeling and perceptions towards PLHIV, as well as symbolic contact, and interaction with PLHIV (Cronbach's alpha = 0.87). Scoring was based on a 5-point Likert scale. A value of 1 - 5 was assigned to each respondent for response options ranging from strongly agree to strongly disagree. The total score ranged from 20 to 100, with higher scores indicating more favourable attitudes towards PLHIV.

Statistical analysis

Descriptive statistics were computed for each variable. Both univariate (Pearson's correlation coefficient) and multivariate analysis (stepwise multiple linear regression) was performed to analyse the associations between the knowledge score and socio-economic factors (age, education level, and monthly income), as well as the associations between the attitudes score and socio-economic factors. Independent *t*-test was used to compare the difference between the mean of knowledge and attitudes towards PLHIV between male and female respondents. Both knowledge and attitude scores are continuous variables. Significance level of statistical tests was set at p-value <0.05. SPSS for Windows Version 12.0 was used for these analyses.

Results

Out of a total of 344 staff who were invited to participate in the study, 129 responded to the invitation. The response rate of 38% compares favourably with other HIV-related postal surveys in the workplace: 38% (Muto, Fukuwatari & Onoda, 1996), 40% (Barr, Waring & Warshaw, 1992). There were more females (65.1%) than males (34.9%) who completed the questionnaire. The distribution of socio-demographic characteristics of the respondents is shown in Table 1. The sample was well distributed across age groups, with a mean of 32.8±10.8 years. The mean education level of the respondents was 12.7±2.5 years (11 years to complete high school in Malaysia). The respondents were earning an average monthly income of USD 356.66±175.30, with older respondents obviously earning more than their younger counterparts.

General knowledge on HIV and AIDS

Generally, the respondents had a high level of knowledge about HIV and AIDS, with a mean score of 15.57±1.93 out of a total score of 18. The distribution of respondents who answered each of the general knowledge statements correctly is presented in Table 2. On average, the respondents scored 90% for questions on the modes of HIV transmission. Most were aware that HIV can be transmitted from mothers to babies (95.3%) and not through food (97.7%), the air (95.3%), nor the swimming pool (95.3%), sharing toilets with infected persons (94.6%), sharing water with a person with HIV (93%), nor through mosquito bites (90.7%).

Although they were able to answer most of the statements correctly, some misconceptions still existed among the

Table 1. Socio-demographic characteristics of respondents (*N*=129)

	N	%
Age		
Mean ± SD	32.8±10.8	
<25	35	27.1
25 - 34	44	34.1
35 - 44	18	14.0
45 - 54	28	21.7
No response	4	3.1
Sex		
Male	45	34.9
Female	84	65.1
Years of formal education		
Mean ± SD	12.7±2.5	
0 - 9	6	4.7
10 - 12	57	44.1
13 - 15	35	27.1
>15	21	16.3
No response	10	7.8
Average monthly income (USD)		
Mean ± SD	356.66±175.30	
150 - 300	67	51.2
301 - 600	49	40.0
>600	5	4.7
No response	8	6.2

respondents. Some of them (17.8%) did not know that there is currently no cure for HIV and AIDS, and 35.7% did not realise that anybody can be infected with HIV. One in five (18.5%) also believed that all drug users have AIDS, and 20.9% thought that only gay men can be infected with HIV. Slightly more than one in five (22%) did not agree that someone can be infected with HIV unknowingly, and 30% did not know that people living with HIV can look as normal and healthy as a non-infected person.

Attitudes towards people living with HIV

For descriptive purposes, answers to the 20 attitudinal statements were collapsed into 3-point scales (Agree/Not sure/Disagree) as shown in Table 3. On the whole, respondents had a moderately positive attitude towards PLHIV. They scored a mean of 69.65±10.08 out of 100 points for the statements from four relevant areas. Three-quarters (75%) of them felt that PLHIV should be given the same rights as others in their daily lives and should not be isolated in order to stop the spread of the disease (64.3%). They were also supportive of the establishment of voluntary organisations (86.1%), and 66% were of the opinion that given the opportunity they would join these organisations to help PLHIV.

Although over 90% felt that PLHIV should be given love and care, and 73% felt sympathetic towards them, 53.5% of respondents were not convinced that they would feel comfortable living with an HIV-infected person. More than a third (37.2%) reported that they were not sure if it was wrong for HIV-positive people not to disclose their status, and the same proportion were also unsure whether HIV and AIDS was a punishment from God. However, more than half of them did not think that those infected with HIV/AIDS deserved it and were immoral.

Table 2. Percentage of respondents who responded correctly to statements on knowledge about HIV and AIDS (*N*=129)

Statements to determine the level of knowledge	%
Modes of transmission	
Not by food	97.7
Not by air	95.3
Mother-to-infant transmission	95.3
Not by swimming in a public pool	95.3
Not by sharing toilet with a person with HIV	94.6
Not by sharing the same glass of water with a person with HIV	93.0
Not by mosquito bites	90.7
General knowledge on HIV and AIDS	
AIDS is a medical problem in which your body cannot fight off the disease	95.3
Using a condom reduces the risk of getting HIV and AIDS	95.3
HIV antibody tests are available in any government clinic or hospital	92.2
A confirmed positive blood test for the HIV antibody means that the person has been infected with HIV	86.8
There is a vaccine for HIV and AIDS	82.2
All drug users have AIDS	81.4
Only gay men can be infected with HIV	79.1
Someone can be infected with HIV without knowing it	78.3
We can differentiate between people living with HIV from other people through their appearance.	71.3
An HIV-infected person can look normal and feel as healthy as a non-infected person	69.8
Anybody can get AIDS	64.3

Table 3. Percentage distribution of respondents by degree of agreement with statements (*N*=129)

Statements	Agree	Not sure	Disagree
1. The government need not concentrate on issues of HIV/AIDS compared with other chronic diseases	16.3	19.4	64.3
2. People living with HIV should be isolated from the public to avoid the spread of the disease	17.1	18.6	64.3
3. People living with HIV should be given the same rights as normal people	75.2	15.5	9.3
4. People living with HIV do not deserve to be loved and cared for	3.1	4.7	92.3
5. I feel sympathetic towards people living with HIV	72.9	15.5	11.6
6. I feel comfortable living with someone who has HIV/AIDS	10.9	53.5	35.7
7. It is not wrong for someone with HIV to keep their serostatus confidential	35.7	37.2	27.1
8. HIV/AIDS is a punishment from God	27.9	37.2	34.9
9. Those who get HIV/AIDS deserve it	21.0	24.8	54.3
10. People living with HIV are immoral	16.3	22.5	61.2
11. I will discourage my child from having any contact with children with AIDS	10.1	31.0	58.9
12. I will break off my relationship with my best friend if he has HIV/AIDS	7.8	14.7	77.6
13. I will hire people living with HIV as long as they perform well in their job	62.8	21.7	15.5
14. I will help my colleague who is HIV-positive instead of teasing and discriminating against him/her	77.6	9.3	13.2
15. I will buy food from someone who has HIV/AIDS	20.2	51.2	28.7
16. I feel comfortable to share drinks with someone who has HIV/AIDS	13.2	44.2	42.6
17. I feel comfortable to work with someone who has HIV/AIDS	54.3	29.5	16.3
18. I am not afraid to hug a person with AIDS	51.2	34.1	14.7
19. I agree with the establishment of voluntary organisations which help people living with HIV	86.1	5.4	8.6
20. I will join the voluntary organisations to help those living with HIV if given an opportunity	69.0	24.0	7.0

Meanwhile, attitudes were not as favourable concerning direct contact and interaction with PLHIV. More than half (51.2%) were unsure of buying food from a HIV-positive person, and 44.2% were unsure of sharing drinks with someone who has HIV, although half (51.2%) were not afraid to hug a person with HIV or AIDS. Attitudes towards PLHIV in the workplace were moderately positive, where 62.8% thought that they would hire HIV-positive people and 54.3% thought that they could feel comfortable working in the same environment with HIV-infected people. Most of them (77.6%) would also lend a helping hand to their HIV-positive colleagues instead of discriminating against them.

Gender differences

Our findings revealed that gender was not associated with the level of knowledge of HIV/AIDS, nor with attitudes towards PLHIV. There was no significant difference between the mean level of knowledge on HIV/AIDS (t=0.21, p=0.84), as well as the mean scores used to measure attitudes (t=-1.98, p=0.05) of male and female staff towards PLHIV.

Association with socio-economic factors

Table 4 shows the association between knowledge and attitude scores with related socio-economic factors. In this study, age was negatively correlated with attitudes towards PLHIV (r=-0.35, p=0.00), but not with level of HIV/AIDS knowledge (r=-0.09, p=0.33). Younger respondents had significantly more favourable attitudes towards PLHIV. Monthly income was also negatively associated with attitudes towards PLHIV (r=-0.31, p=0.00). These findings revealed that respondents who earn lower monthly incomes, and incidentally who were younger, had more favourable attitudes towards PLHIV. Despite the fact that better educated respondents (with more years of formal education) had significantly higher knowledge of HIV/AIDS (r=0.21, p=0.02), education level was not significantly associated with attitudes towards PLHIV (r=0.04, p=0.64).

Table 4. Association between knowledge, attitude scores and other related socio-economic factors

Variables	Knowledge score (r)	Attitude score (r)
Age	-0.088	-0.354**
Educational level	0.209*	0.043
Monthly income	0.013	-0.307**
Attitude score	0.257**	1

* Correlation is significant at the 0.05 level (2-tailed)

** Correlation is significant at the 0.01 level (2-tailed)

Multivariate analysis

In the multivariate analysis, only educational level significantly predicted the knowledge score. (R^2_{adj}=3.7%; $F_{1,111}$=5.26, p<0.05). On the other hand, both age and knowledge scores were significant predictors of attitude scores (R^2_{adj}=16.6%; $F_{2,110}$=12.17, p<0.05).

Discussion

The results of this study regarding HIV/AIDS knowledge were reasonably satisfactory, although there were still some misconceptions. More than a third (37%) of the respondents were not able to differentiate 'HIV' from 'AIDS'. This may be due to the fact that the media frequently use the terms HIV and AIDS interchangeably. The respondents in the present study scored well for the modes of HIV transmission, and their level of knowledge is comparable with that of other Malaysian young adults (Wong, Kwong, Low & Jaafar, 2008).

About 36% of the respondents had low perceived risk of being infected with HIV. They thought that not everyone could be infected with HIV. Perhaps this is due to their conviction that they did not indulge in risky behaviours that could expose them to the virus. However, they may also have not been aware that they could also be infected through the risk behaviour of partners. This is indeed a common misconception among Malaysians, even among high-risk groups. Half of the heroin users in Malaysia did not perceive themselves to be at risk of contracting HIV (Centre for Drug Research, 1996). Many of the infected women (and the number has escalated from 5% in 1995 to 19% of total infections in 2008), numbering almost 1 000 women (compared with only 2 in 1988) (MOH, 2008) did not realise that they could be infected because of their husbands' or partners' risk behaviour.

Three-quarters of the respondents felt that PLHIV should be given the same rights as others, and therefore should not be isolated. According to Herek and colleagues (2002) from 1991 to 1999 there was a decrease in the proportion of people in the USA who supported the quarantine and public disclosure of PLHIV policies. PLHIV are encouraged to disclose their HIV-positive status as this is a positive step to reduce the speculation around who is or is not infected (Ndinda, Chimbwete, Mcgrath & Pool, 2007). Slightly more than half of the respondents (54.2%) did not think that those infected with HIV/AIDS deserved it. Attitudinal factors such as value-laden judgments can affect how people behave towards PLHIV (Lau & Tsui, 2007). Those whose own behaviour is believed to be responsible for contracting the disease will be less likely than others to be supported. Nutbeam, Catford, Smail and Griffiths (1989) in their study in Wales found that more than 50% of men and 40% of women believed that homosexuals and drug addicts who contracted AIDS only had themselves to blame, and so they did not feel sorry for them.

We were interested to know about possible responses of respondents to the presence of an HIV-infected person in the workplace. In the present study, 62.8% of the respondents indicated that they would still hire someone with HIV, as long as they were able to perform well in their jobs, while 21.7% were unsure. In contrast, studies in Singapore reported that 75.7% of managers were of the opinion that an applicant's HIV status would affect the hiring decision (Wansaicheong & Wong, 1998). Likewise, reluctance to hire people with HIV was observed in places like Chicago, Beijing and Hong Kong (Rao *et al.*, 2008). The staff of an international organisation in Bangladesh also felt that HIV-infected staff should not be allowed to work (Islam, Mostafa, Bhuiya, Hawkes & de Francisco, 2002). The concerns about having an HIV-infected employee in the workplace included increases in medical insurance costs and other extra expenditure for the company, as well as workplace harmony and company image (Fraser, Grant, Mwanza & Naidoo, 2002; Lim & Loo, 2000; Rao *et al.*, 2008).

At the same time, while 54.3% of the respondents in this study were comfortable to work with a person living with HIV, almost one-third (29.5%) were not sure, and another 16.2% were outright uncomfortable about working with them. Although 77.6% were willing to help colleagues living with the infection, another one in five were either not sure (9.3%) or unwilling (13.2%) to help. This is unfortunate, considering that the HIV epidemic has lasted more than two decades, and yet more than 20% of our workforce (in this case at a local university) felt so negatively about people living with the virus. Social stigma and social censure are likely to explain why these respondents were still unsure if they would work with HIV-infected individuals, despite the fact that they possessed relatively high levels of knowledge on HIV/AIDS.

Corroborating well with other studies (International Center for Research on Women, 2002; WansaiCheong & Wong, 1998), is the fact that as knowledge of HIV/AIDS increased, attitudes towards PLHIV tended to be more favourable. However, even when their level of knowledge was high, it was not necessarily being reflected in their attitudes. It appears that many contradictions occur. Just as in other studies by Rao and colleagues (2008) and Lim and Loo (2000), many of the respondents had good understanding about transmission of HIV, yet they had doubts about having casual contact with PLHIV. They knew that it is important not to discriminate against PLHIV, but at the same time they may subconsciously have some reservations. The respondents were ambivalent in their response towards buying food and sharing drinks with an HIV-infected person, and this is indeed the feeling of many people throughout the world. For example, more than 50% of respondents in Nigeria indicated that they would not eat, sleep, shake hands, hug and play together with PLHIV (Ogunjuyigbe, Adeyemi & Obiya, 2009), and Lau and Tsui (2004) reported that generally, the Chinese population (94.7%) in Hong Kong demonstrated some degree of discriminatory attitudes towards PLHIV in their daily living,

with 42% wanting to keep away from having physical contact with PLHIV. In fact they found that the levels of discriminatory attitudes and negative perceptions towards PLHIV were much stronger than those towards people with mental illnesses (Lau & Tsui, 2004; 2007). It is generally agreed that fear may be an important predictor of discriminatory attitudes. People are afraid of being infected as they know that there is currently no cure for the disease.

Socio-economic factors also contributed significantly in this context. Age and monthly income were significantly associated with attitudes towards PLHIV. Older respondents as well as those with higher income displayed significantly more unfavourable attitudes towards those infected with HIV. Unfortunately, it is also the older members of the workforce who are generally in higher administrative positions, and whose attitudes can facilitate the continued employment of staff who may be diagnosed with the infection while in service. On the other hand, it is heartening to note that younger respondents had more favourable attitudes, reflecting the fact that perhaps education messages are reaching the younger generation, who may have benefited from educational programmes like the Healthy Programme Without AIDS for Youth (PROSTAR – Malaysian acronym) that has been introduced to schools, not forgetting the participation of mass media in its education efforts.

The study has a few important implications for organisations and public health. Efforts need to be made to change the generally negative attitudes. The results suggest that respondents were conscious about the route of HIV transmission, but they were not convinced that HIV could not be spread through casual contact. Educational programmes and interventions should not only focus on increasing knowledge of HIV/AIDS, but also on reducing negative attitudes towards PLHIV. Accurate and practical information on how HIV cannot be transmitted through casual contact should be disseminated to dispel erroneous beliefs about HIV/AIDS. Staff members of the university are responsible for regularly updating their knowledge on HIV/AIDS, not only to protect themselves but also to learn to respect the rights of other people.

HIV/AIDS is still very much seen as a health problem rather than a development issue (Monkel, 2006). HIV/AIDS is also a workplace issue, not only because it affects the workforce, but also because the workplace can play a vital role in preventing the spread of the epidemic (ILO, 2009). The social and economic impact of HIV/AIDS is intensified by the fact that it affects primarily young and middle-aged adults who are in their peak productive and reproductive years. Considering the fact that each day in 2006, 16 new cases of HIV infection were diagnosed, eight out of ten who were between the ages of 20 - 39, and could be employed at the time of diagnosis (MOH, 2007), it is important that they be allowed to continue working in order to support their families and indirectly contribute to the development of the country. However, unfortunately, only 20% of employers in Malaysia perceived HIV/AIDS as a serious threat to industries and the economy of the country (Department of Occupational Safety and Health, 2000).

The workplace offers immense human resources for HIV prevention in a cost-effective manner. Educational programmes can be effectively delivered to a 'captive audience' in order to reduce stigma in the workplace. It is often easier to involve the staff through their staff clubs/associations to undertake activities in the community that could help to expose them to PLHIV in order to better understand the issue. Very often, giving a face to the epidemic makes people realise that we are indeed dealing with a fellow member of our society and not a number. Corrigan and colleagues (2007) reported that negative attitudes towards a person with a stigmatising condition can be reduced with face-to-face contact. By learning from real stories, it is hoped that people will allay their fears of contracting the virus and show more empathy towards PLHIV.

Organisations like a university should consider implementing a formal workplace policy that defines the staff's position with respect to HIV/AIDS. The policy should address workplace issues including discrimination against HIV-infected workers, voluntary testing, confidentiality and privacy. In 2001, the launching of the 'Code of Practice on the Prevention and Management of HIV/AIDS in the Workplace' was a significant milestone for HIV/AIDS prevention effort in Malaysia. The code clearly states that employees should not discriminate against or stigmatise co-workers who are HIV-positive or perceived to be HIV-positive (Malaysian AIDS Council, 2009).

While many sources of information come from the mass media, the mass media should be cautious about stereotyping PLHIV as being sick and in need of sympathy. Instead, with the availability of free medication, PLHIV in Malaysia should be portrayed as useful members of society who can continue to work to support their families and the country. Besides, they should de-emphasise the perception that only particular groups of people (homosexuals, drug addicts) are at risk; instead, clear message about risk of heterosexual HIV transmission should be highlighted. In this way fear and stigma could be reduced.

This study has some shortcomings, as the respondents may not comprise those who have actual experiences with someone who has HIV, for instance, having HIV-positive family members or

friends. Secondly, the study was based on self-report and thus the results may be affected by common methods variance. In addition, the questionnaire had some limitations as it only included some proxy indicators of knowledge and attitudes. Although the possibility of non-response bias cannot be ruled out, respondents and the total work force did not differ significantly in proportions of women and men. As information was kept anonymous, gender was the only characteristic available for comparison.

Conclusion

In conclusion, generally the respondents showed a high level of knowledge regarding HIV and AIDS. However, there are still areas of knowledge that need to be clarified. The ability of people living with HIV to make a contribution to the development of the country will depend on the degree of stigma they experience from their colleagues as well as employers. The results of the study suggested that respondents demonstrated moderately positive attitudes towards people living with HIV. Thus, more efforts are needed to convince them that HIV will not be transmitted through casual contact, so that their general attitudes towards people living with HIV can be more favourable.

The findings suggest some degree of overt expressions of stigma among the general staff, as reflected by their attitudes towards people living with HIV, even if they were not consciously aware of this. Negative attitudes and stigma will hinder HIV prevention, testing and disclosure as well as care and support for people living with HIV, which underscores the need for further interventions to reduce stigma.

References

Barr, J.K., Waring, J.M., & Warshaw, L.J. (1992). Knowledge and attitudes about AIDS among corporate and public service employees. *American Journal of Public Health,* 82(2), 225-228.

Berezhnova, I., Grechukhina, T., & Kamaletdinova, N. (2004). *Knowledge and attitudes toward HIV and people living with HIV/AIDS in Moscow, Russian Federation.* International Conference on AIDS, Bangkok; (Abstract ThPeD7681).

Brimlow, D.L., Cook, J.S., & Seaton, R. (2003). *Stigma and HIV/AIDS. A Review of the Literature.* U.S Department of Health and Human Services, Health Resources and Services Administration, HIV/AIDS Bureau. http://hab.hrsa.gov/publications/stigma/introduction.htm

Busza, J.R. (2001). Promoting the positive: responses to stigma and discrimination in Southeast Asia. *AIDS Care,* 13(4), 441-456.

Corrigan, P., Larson, J., Sells, M., Niessen, N., & Watson, A. (2007). Will filmed presentations of education and contact diminish mental illness stigma? *Community Mental Health Journal,* 43, 171-181.

Centre for Drug Research (1996). *A study on intravenous drug use and AIDS knowledge among heroin addicts.* Research Report No. 30. Universiti Sains Malaysia, Malaysia.

Department of Occupational Safety and Health (DOSH) (2000). URL http://dosh.mohr.gv.my

Dray-Spira, R., Persoz, A., Boufassa, F., Gueguen, A., Lert, F., Allegre, T., Goujard, C., Meyer, L., & the Primo Cohort Study Group (2005). Employment loss following HIV infection in the era of highly active antiretroviral therapies. *European Journal of Public Health,* 16(1), 89-95.

Dray-Spira, R., Lert, F., Marimoutou, C., Bouhnik, A.D., & Obadia, Y. (2003). Socio-economic conditions, health status and employment among persons living with HIV/AIDS in France in 2001. *AIDS Care,* 15(6), 739-748.

Erdfelder, E., Faul, F., & Buchner, A. (1996). *GPOWER: A general power analysis program.* Behavior Research Methods, Instruments, & Computers, 28, 1-11.

Fraser, F.K., Grant, W.J., Mwanza, P., & Naidoo, V. (2002). The impact of HIV/AIDS on small and medium enterprises in South Africa. *South African Journal of Economics,* 70(7), 1217-1234.

Goss, D., & Adam-Smith, D. (1995). *Organizing AIDS: Workplace and organisational responses to the HIV/AIDS epidemic.* London: Taylor & Francis Ltd.

Herek, G.M., Capitanio, J.P., & Widaman, K.F. (2002). HIV-related stigma and knowledge in the United States: prevalence and trends, 1991-1999. *American Journal of Public Health,* 92(3), 371-377.

Horizons (2002). Addressing HIV/AIDS stigma and discrimination in a workplace program. *Emerging findings.* Research Update.

International Center for Research on Women (2002). Understanding HIV-related stigma and resulting discrimination in Sub-Saharan Africa. Research Update.

International Labour Organisation (2009). The ILO Code of Practice on HIV/AIDS and the world of work. Geneva: IOL. URL http://www.ilo.org

International Labor Organisation (2001). An ILO Code of Practice on HIV/AIDS and the World of Work. Geneva: ILO.

Islam, M.T., Mostafa, G., Bhuiya, A.U., Hawkes, S., & de Francisco, A. (2002). Knowledge on, and attitude toward, HIV/AIDS among staff of an international organisation in Bangladesh. *Journal of Health, Population and Nutrition,* 20(3), 271-278.

Khor, M.J. (2005). *Knowledge and attitude among students from UPM towards people living with HIV/AIDS.* Bachelor degree dissertation. University Putra Malaysia.

Lau, J.T.F., & Tsui, H.Y. (2007). Comparing the magnitude of discriminatory attitudes toward people living with HIV/AIDS and toward people with mental illness in the Hong Kong general population. *Health Education Research,* 22(1), 139-152.

Lau, J.T.F, & Tsui, H.Y. (2004). Discriminatory attitudes towards people living with HIV/AIDS and associated factors: A population based study in the Chinese general population. *Sexually Transmitted Infections,* 81, 113-119.

Lau, J.T.F., & Wong, W.S. (2001). AIDS-related discrimination in the workplace -- the results of two evaluative surveys carried out during a three-year period in Hong Kong. *AIDS Care,* 13(4), 433-440.

Lim, V.K.G., & Loo, G.L. (2000). HIV and the workplace: Organisational consequences of hiring persons with HIV and attitudes towards disclosure of HIV-related information. *International Journal of Manpower,* 21(2), 129-140.

Malaysian AIDS Council (2009). URL http://www.mac.org.my

Ministry of Health (MOH) (2008). *Annual Report 2008.* Ministry of Health, Malaysia.

Ministry of Health (MOH) (2007). *Annual Report 2007.* Ministry of Health, Malaysia.

Monkel, M. (2006). Education on HIV/AIDS: Morality versus efficiency? A study on the organisational process of HIV education in Malaysia. MA Thesis International Relations, Department of Political Science, Universiteit van Amsterdam.

Muto, T., Fukuwatari, Y., & Onoda, K. (1996). Beliefs and attitudes towards AIDS policies and educational programmes among Japanese businesses. *Occupational Medicine (Oxford),* 46(5), 356-360.

Ndinda, C., Chimbwete, C., Mcgrath, N., & Pool, R. (2007). Community attitudes towards individuals living with HIV in rural KwaZulu-Natal, South Africa. *AIDS Care,* 19(1), 92-101.

Nutbeam, D., Catford, J.C., Smail, S.A, & Griffiths, C. (1989). Public knowledge and attitudes to AIDS. *Public Health,* 103(3), 205-211.

Ogunjuyigbe, P.O., Adeyemi, E.O., & Obiya, M.O. (2009). Attitudes towards people living with HIV/AIDS: Implication for infection and spread of HIV/AIDS in Lagos State, Nigeria. *Journal of Chinese Clinical Medicine,* 4(3), 167-177.

Rao, D., Angell, B., Lam, C., & Corrigan, P. (2008). Stigma in the workplace: Employer attitudes about people with HIV in Beijing, Hong Kong, and Chicago. *Social Science & Medicine,* 67, 1541-1549.

Reidpath, D., Brijnath, B., & Chan, K. (2005). An Asia Pacific six-country study on HIV-related discrimination: introduction. AIDS Care, 17(Suppl. 2), S117-S127.

Roberts, M., Rau, B., & Emery, A. (1999). Private sector AIDS policy: Business managing AIDS; A guide for managers. Family Health International/IMPACT. Arlington, VA: 1999. Available at http://www.fhi.org/en/aids/aidscap/aidspubs/policy/psapp.html

United Nations Malaysia (2005). *Malaysia Achieving Millennium Development Goals.* Malaysia's MDG Report. UNDP Publication.

UNAIDS/WHO (2008). *Report on the Global AIDS Epidemic.* Geneva: UNAIDS/WHO.

UNAIDS/WHO. (2006). *Report on the Global AIDS Epidemic.* Geneva: UNAIDS/WHO.

Wansaicheong, A.S., & Wong, M.L. (1998). A needs assessment and proposal for HIV education among human resource managers in Singapore. *Singapore Medical Journal,* 39, 53-58.

Weiss, M.G., & Ramakrishna, J. (2001). Interventions: Research on Reducing Stigma. International Conference. http://www.stigmaconference.nih.gov/WeissPaper.html

Wong, L.P., Kwong, C.L.C., Low, W.Y., & Jaafar, N. (2008). HIV/AIDS-related knowledge among Malaysian young adults: Findings from a nationwide survey. *Medscape Journal of Medicine,* 10(6), 148.

Yee, K.C. (1999). Telephone interview, 25 August.