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# KNOWLEDGE OF SEXUALLY TRANSMITTED DISEASES AND SEXUAL BEHAVIOURS AMONG MALAYSIAN MALE YOUTHS

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**Summary.** This study examines the knowledge of sexually transmitted diseases (STDs) among male youths in Malaysia. A self-administered survey was carried out on a sample of 952 never-married males aged 15–24 years. The respondents were asked about their knowledge of STDs, how these diseases get transmitted and their sexual behaviours. The data showed that 92% of the respondents knew of at least one STD (syphilis, gonorrhoea, chlamydia, herpes, genital warts, yeast infection, trichomoniasis or HIV/AIDS). About 95% of them knew of at least one method of STD transmission. Urban and tertiary-educated male youths showed a substantially higher proportion of awareness of STDs and transmission methods compared with their rural and less-educated counterparts. The data also indicated that 10% of the study sample admitted to having had sexual experiences. There were still a large proportion of the respondents who were not aware of STDs other than syphilis and HIV/AIDS and the means of transmission, such as multiple sex partners, including those who claimed to be sexually active. Thus there is a need for more concerted efforts to disseminate information on STDs and transmission methods to a wider audience in Malaysia, especially youths in rural areas.

## Introduction

Rising trends in sexually transmitted diseases (STDs), in particular HIV/AIDS, have become one of the world's main concerns. Some 39.7 million people were living with HIV in 2006, half of them under the age of 25 years (Lusti-Narasimhan *et al.*, 2007), while rates of STDs in the United States are high, particularly among young, poor and minority men (Sonfield, 2002). One in six American men aged 15–49 years have genital herpes, which is an incurable infection, while reported rates of chlamydia and gonorrhoea, which are treatable bacterial infections, are highest among younger men in their early 20s (Sonfield, 2002). The emergence of HIV and other STDs among

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youths is a major public health problem as a large proportion, particularly among adolescent males, are not aware of the threat of these diseases and have very little knowledge about them. Age 15–24 years is the transition to early adulthood, a crucial phase in a man's life in terms of physical growth and development, social and psychological maturity, sexual maturity and the onset of sexual activity experimentation (Audinarayana, 2010). These behaviours potentially put them at risk for STDs and HIV/AIDS. Thus it is important that young people know the risks associated with certain lifestyles and sexual behaviours that could have an adverse effect on their health, and ways to avoid these risks.

The concern about the high prevalence of HIV/AIDS and other STDs among youth is shared by many across the globe, as evident by the numerous studies in the literature in recent years: for example, Amazigo *et al.* (1997), Olaitan (2007) and Ebeniro (2010) in Nigeria, and Ndubani & Hojer (2001) in rural Zambia. Knowledge about STDs/AIDS and sexual behaviours have also been investigated in other countries including Brazil (Trajman *et al.*, 2003), Scotland (Thomson *et al.*, 1999), Tanzania (Mbago & Sichona, 2003; Lema *et al.*, 2008), Ukraine (Pylypchuck & Marston, 2008), Finland (Korhonen *et al.*, 2012), United States (Harwell *et al.*, 1999), Afghanistan (Mansoor *et al.*, 2008), Pakistan (Farid-ul-Hasnain *et al.*, 2009; Abrar & Ghouri, 2010), Goa in India (Vaz *et al.*, 2006), Iran (Movahed & Shooa, 2010), Indonesia (Ford *et al.*, 1993) and Thailand (Thianthai, 2004). The study by Olaitan (2007) found that tertiary institution students in Nigeria were knowledgeable about HIV infection and AIDS and that there was no significant difference in knowledge of HIV/AIDS between male and female students, while Ebeniro (2010) reported that knowledge of HIV/AIDS was significantly higher among female students compared with their male counterparts in Nigerian universities. High awareness and knowledge of HIV/AIDS causation and prevention were similarly recorded among youths in Tanzania (Lema *et al.*, 2008) and among rural males in Goa (Vaz *et al.*, 2006). In contrast, the result of a qualitative study involving young people in Thailand indicated that HIV/AIDS awareness varied according to social class, and that they failed to demonstrate an in-depth understanding of how they can contract AIDS (Thianthai, 2004). A similar qualitative study of male sex workers and male tourist clients carried out in Indonesia found that while clients were mainly well informed, the workers had limited knowledge of HIV/AIDS and STDs, which put both workers and clients at risk (Ford *et al.*, 1993). Movahed & Shooa (2010) also reported that only 19% of high school students in Iran had a high level of HIV/AIDS knowledge and that there was no significant difference between male and female students. However, female students had a significantly higher mean level than male students with regard to attitude and their tendency to action and emotion. Although these studies have shown that while awareness and knowledge of HIV/AIDS among youths are generally high, various studies across the world have also revealed that youths' knowledge of STDs (apart from HIV) is low (Garside *et al.*, 2001; Fageeh, 2008; Witte *et al.*, 2010). Therefore, it cannot be ruled out that in general some misconceptions concerning HIV and AIDS transmission do exist, and that young people's awareness and knowledge of other STDs are still very low.

A similar rising trend in the incidence of HIV/AIDS cases and related deaths has been observed in Malaysia since the first three cases of HIV were diagnosed in 1986 (Ministry of Health, Malaysia, 2008). From 1986 to the end of 2007, the total number of HIV-infected people reached 80,938, of which 10,334 were deaths due to AIDS.

More than 90% of HIV/AIDS cases were males, the majority of them aged 20–49 years. Sexual transmission rose from about 5% in 1990 to 22% in 2005, suggesting that the situation could expand into a general epidemic (Ministry of Health, Malaysia, 2008). The incidence rate of syphilis decreased from 7.68 per 100,000 population in the year 2000 to 2.76 in 2006. Gonorrhoea also recorded a decreasing trend, from 5.74 per 100,000 population in the year 2000 to 1.64 in 2006. The exact size of the problem is unknown due to under-reporting, under-diagnosis or asymptomatic manifestation of these diseases. However, recent data show that there has been an increasing trend of syphilis, herpes genitalis and genital warts (Ministry of Health, Malaysia, 2008).

Major risk factors for STDs include high-risk sexual behaviours and lack of knowledge about STDs among young people, in particular their mode of transmission. Pre-marital sex in Asia, including Malaysia, is clearly on the rise, although it may seem less common compared with many other developed countries. Studies on STDs and HIV/AIDS issues in Malaysia were only seriously conducted in the last decade or so (Zulkifli & Low, 2000; Zulkifli & Wong, 2002; Narimah *et al.*, 2003; Wong *et al.*, 2008; Al-Naggar & Al-Jashamy, 2011). The study by Zulkifli & Wong (2002) showed that knowledge of HIV/AIDS among students aged 15–20 years was high. Similar findings were reported by Narimah *et al.* (2003), with more than 75% of their study sample having heard of HIV/AIDS and able to name at least three routes of transmission. They also reported that among adolescents, 98% and 65% have heard of HIV/AIDS and STDs, respectively. On the other hand Wong *et al.* (2008) found that while the majority of young adults aged 15–24 years had adequate knowledge of HIV transmission routes, 65% of those who had heard of HIV/AIDS could not differentiate HIV from AIDS and 18% believed that AIDS could be cured. Al-Naggar & Al-Jashamy (2011) conducted a qualitative study using in-depth interviews of 26 undergraduate students and found that while most of them had heard of STDs, very few were aware of the different means of STD transmission. The low level of awareness of means of STD transmission was confirmed by Ab Rahman *et al.* (2011), who found that only 12.4% of in-school adolescents in Kelantan, Malaysia, knew that sexual intercourse can cause STDs. The present study examined the knowledge of STDs and HIV/AIDS issues among Malaysian male youths, in view of the fact that young men nowadays are more inclined to be involved in risk-taking behaviours such as alcohol use, substance abuse and sexual behaviours that not only make them vulnerable to their own health risks, but more importantly may expose their partners and family to these risks.

### Methods

The sample comprised never-married males aged 15–24 years from five randomly selected states in Malaysia. Random selection was again employed to identify one urban and one rural district from each selected state. Within each district, the biggest shopping mall was identified to obtain the required sample for data collection. A survey was carried out in late 2007 at the main entrance of the identified premises to collect data using a self-administered questionnaire in the presence of an enumerator. The structured questionnaire was designed to obtain information on various aspects of sexual and reproductive health issues including awareness of STDs and HIV/AIDS, knowledge of transmission modes of these infections and their sexual behaviours, in addition to the respondents'

background characteristics. A section assessing knowledge about HIV/AIDS and STDs comprised a list of diseases with the answer options of 'aware' and 'not aware'. Knowledge about transmission consisted of a series of statements about the mode of transmission of STDs, and the participants were given answer options 'true' or 'false'. Lastly, sexual behaviour questions assessed participants' personal sexual experiences. The data were analysed using SPSS (Statistical Package for Social Scientist) to generate descriptive statistics as well as chi-squared tests to examine the associations between knowledge of STDs and sexual behaviours across selected variables. The analysis was based on 952 completed questionnaires. The study was approved by the Medical Ethics Committee of the University of Malaya Medical Centre, Kuala Lumpur, Malaysia. Due care was taken to ensure that all those who agreed to participate in the study did so voluntarily. Verbal consent was obtained at the point of agreement by the respondents to willingly participate in the study after the consent request letter, which was printed on the first page of the survey booklet, was read by the enumerator.

### Results

The distribution of respondents by background characteristics shown in Table 1 indicates that the majority of them were aged 15–19 years. About equal proportions were in the urban and rural areas, while almost 70% had secondary education and below. The small proportion of respondents with tertiary education was largely due to the fact that many of them were still pursuing their studies at either the high school or tertiary level at the time of the study. The overall response rate was approximately 65%, with higher responses among the rural participants (90%) compared with their urban (40%) counterparts.

#### *Knowledge of STDs*

Of the total respondents, 92% admitted they had ever heard of at least one of the listed STDs, which included syphilis, gonorrhoea, chlamydia, yeast infection, herpes,

**Table 1.** Profile of respondents: never-married males aged 15–24 years, Malaysia, 2007

	<i>n</i>	%
Age		
15–19 years	589	61.9
20–24 years	363	38.1
Place of residence		
Urban	482	50.6
Rural	470	49.4
Education		
None	9	0.9
Secondary and below	658	69.2
Tertiary	285	29.9
Total	952	100.0

**Table 2.** Knowledge of STDs by place of residence, never-married males aged 15–24 years, Malaysia, 2007

Disease	Percentage heard of STD			$\chi^2$ p-value
	Urban	Rural	Total	
Syphilis	60.0	57.7	58.8	ns
Gonorrhoea	19.5	17.2	18.4	ns
Chlamydia	13.9	12.8	13.3	ns
Yeast infection	30.1	23.4	26.8	0.020
Herpes	25.1	23.6	24.4	ns
Genital warts	39.2	32.6	35.9	0.032
Trichomoniasis	13.3	12.8	13.0	ns
HIV/AIDS	94.0	84.9	89.5	<0.001

**Table 3.** Knowledge of STDs by education level, never-married males aged 15–24 years, Malaysia, 2007

Disease	Percentage heard of STD			$\chi^2$ p-value
	Secondary & below	Tertiary	Total	
Syphilis	53.6	70.9	58.9	<0.001
Gonorrhoea	11.7	34.0	18.5	<0.001
Chlamydia	10.0	20.4	13.1	<0.001
Yeast infection	21.1	39.3	26.6	<0.001
Herpes	20.4	33.0	24.2	<0.001
Genital warts	31.2	47.0	35.9	<0.001
Trichomoniasis	10.9	17.5	12.9	0.006
HIV/AIDS	88.0	93.3	89.6	0.014

genital warts, trichomoniasis and HIV/AIDS. Among those diseases, the highest proportion of awareness was for HIV/AIDS, which was heard of by almost 90% of the boys, followed by syphilis at 59% and genital warts at 36% (Table 2). The two least known STDs were chlamydia and trichomoniasis, with only 13% of the respondents claiming they were aware of the diseases. Generally, many of the male youths did not know the existence of any STDs except for HIV/AIDS and syphilis.

Examining the level of awareness of the STDs across regions, the results in Table 2 suggest that the proportion of respondents who had ever heard of STDs was higher among the urban respondents compared with their rural counterparts for each of the diseases listed. However, the chi-squared test shows that the urban–rural difference was statistically significant for only three of the STDs, namely yeast infection ( $p = 0.02$ ), genital warts ( $p = 0.03$ ) and HIV/AIDS ( $p < 0.001$ ). The proportion of urban boys who had not heard of HIV/AIDS was only 6%, compared with 15% of the rural boys.

Awareness of STDs was also examined across the educational level of respondents and the results are shown in Table 3. For each of the diseases, a significant difference was observed in the proportion of respondents who had heard of the disease between

**Table 4.** Knowledge of STD transmission methods (percentage), never-married males aged 15–24 years, Malaysia, 2007

Method	Yes		No		Not sure	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
No sharing of needles/razor	842	88.4	56	5.9	54	5.7
Abstaining from sex	808	84.9	83	8.7	61	6.4
Avoid transfusion of infected blood	824	86.6	39	4.1	89	9.3
Having only one sexual partner	621	65.2	174	18.3	157	16.5
Use condom	749	78.7	88	9.2	115	12.1
No drug taking	789	82.9	78	8.2	85	8.9

the two levels of educational attainment ( $p < 0.001$  for all diseases except HIV/AIDS;  $p = 0.014$  for HIV/AIDS). The proportion of respondents with tertiary education who were aware of the listed diseases was substantially higher compared with those without tertiary education.

#### *Knowledge of STD transmission*

The data were further examined in terms of the respondents' knowledge of the methods of STD transmission. About 95% of them knew of at least one method. About 88% of them agreed that sharing razors, blades, needles or syringes is to be avoided to prevent transmission of viruses such as HIV, followed by avoidance of transfusion of infected blood and abstaining from sex (Table 4). However, there were still some respondents who did not know, or were not sure of, the transmission method, with the proportion ranging from 12% with respect to sharing of razors, needles or syringes to 35% with respect to having more than one sexual partner.

Examination of the knowledge of STD transmission methods by region (Table 5) reveals that although urban boys registered a higher proportion of awareness compared with rural boys for each transmission method, a significant difference was observed in four of the methods, namely: avoid infected blood transfusion ( $p = 0.05$ ), faithful to one partner ( $p = 0.01$ ), condom usage ( $p = 0.031$ ) and no drug taking ( $p < 0.001$ ).

As expected, knowledge of STD transmission methods was found to be substantially higher among the respondents with tertiary education compared with those without tertiary education. Table 6 shows that significant differences were found between the two educational levels on the knowledge of STD transmission modes with respect to sharing needles, infected blood transfusion, number of sexual partners and drugs (all  $p < 0.005$ ). Transmission methods of STDs equally known by both groups were abstaining from sex and use of condoms.

#### *Sexual behaviours*

Slightly more than 10% of the respondents (99 respondents) admitted that they had experienced sexual relationships prior to the study. A significant association was observed in the proportion of boys who ever had sex across educational attainment,

**Table 5.** Knowledge of STD transmission by region (percentage), never-married males aged 15–24 years, Malaysia, 2007

Method	Yes			No			Not sure			<i>p</i> -value <sup>a</sup>
	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	
No sharing of needles/razor	89.4	87.4	88.4	6.0	5.7	5.9	4.6	6.8	5.7	ns
Abstaining from sex	85.9	83.8	84.9	8.9	8.5	8.7	5.2	7.7	6.4	ns
Avoid transfusion of infected blood	89.2	83.8	86.6	3.5	4.7	4.1	7.3	11.5	9.3	0.047
Having only one sexual partner	68.0	62.3	65.2	19.1	17.4	18.3	12.9	20.2	16.5	0.009
Use condom	81.3	76.0	78.7	9.3	9.1	9.2	9.3	14.9	12.1	0.031
No drug taking	87.3	78.3	82.9	4.8	11.7	8.2	7.9	10.0	8.9	<0.001

<sup>a</sup>*p*-value of  $\chi^2$  test with 2 degrees of freedom.

**Table 6.** Knowledge of STD transmission by education (percentage), never-married males aged 15–24 years, Malaysia, 2007

Method	Yes			No			Not sure			<i>p</i> -value
	Secondary & below	Tertiary	Total	Secondary & below	Tertiary	Total	Secondary & below	Tertiary	Total	
No sharing of needles/razor	86.8	93.3	88.8	6.1	4.6	5.6	7.1	2.1	5.6	0.005
Abstaining from sex	84.3	87.4	85.3	8.1	9.1	8.4	7.6	3.5	6.4	ns
Avoid transfusion of infected blood	83.6	94.0	86.7	4.1	3.5	3.9	12.3	2.5	9.3	<0.001
Having only one sexual partner	62.0	72.6	65.2	17.0	21.1	18.2	21.0	6.3	16.5	<0.001
Use condom	77.8	80.7	78.7	9.0	9.8	9.2	13.2	9.5	12.1	ns
No drug taking	80.1	89.8	83.0	8.8	6.3	8.1	11.1	3.9	8.9	<0.001



with the proportion among those with tertiary education being double that of boys without tertiary education (16% and 8%, respectively). However, the data showed no significant difference across regions, with 11% of the urban boys admitting that they had ever had sex compared with 9% of their rural counterparts. Although knowledge of STDs and transmission of STDs among this group was very high (94% and 97%, respectively), the study data indicated significant differences across regions and education levels, particularly for HIV/AIDS. About 96% of the urban boys were aware of HIV/AIDS compared with 84% of the rural boys ( $p = 0.035$ ), while awareness among those with tertiary education was 98% compared with 86% among boys without tertiary education ( $p = 0.039$ ).

### Discussion

This study revealed that a high proportion of male youths in Malaysia have heard of at least one sexually transmitted disease, with HIV/AIDS being the most well known and trichomoniasis the least well known. This result is consistent with the findings of Olaitan (2007), Lema *et al.* (2008), Vaz *et al.* (2008) and Thianthai (2004). The fact that a markedly higher proportion of youth in this study were aware of HIV/AIDS (nearly 90%) than other conventional STDs such as trichomoniasis, gonorrhoea, syphilis or chlamydia, was mainly due to attention having been focused on controlling and promoting HIV awareness. This is because HIV is the most serious and deadly of the STDs. Our finding that other conventional STDs such as trichomoniasis, gonorrhoea, syphilis and chlamydia were rarely known by youths suggests that STD awareness interventions should extend their focus to these, rather than just HIV/AIDS. These conventional STDs impact substantially on the physical and emotional well-being of youth and warrant serious concern.

However, knowledge of HIV/AIDS among Malaysian male youths in this study is slightly higher than the findings of Wong *et al.* (2008). The difference could be due to the fact that the research by Wong *et al.* (2008) was a nationwide study conducted much earlier while the present paper only covered five states in Malaysia. Similarly, the proportion of respondents who knew of at least one transmission method was also very high. The most widely known method of transmission is sharing of blades and needles, and the least known is the number of sexual partners. The high level of knowledge of STD transmission is consistent with the results of Narimah *et al.* (2003), where more than 75% of young adults could name at least three routes of HIV/AIDS transmission. The level of awareness of STD transmission found in this study is much higher than that found by Ab Rahman *et al.* (2011), who surveyed in-school adolescents; the present study sample comprised both in-school adolescents and those with tertiary education.

Because of the sensitivity and controversy around the subject of sex education in this Muslim majority country, formal sex education has only recently (in January 2011) been introduced in schools in Malaysia. Before then students only had lessons on the human reproductive system in science classes at secondary school level, with little education on sex and safe sex practices. Thus there was no formal sex education in schools in Malaysia during the period of the survey, and this may explain the lack of knowledge found in this study.

The fact that slightly more than 10% of the youth in this study reported having had sexual intercourse is of serious concern. The high proportion of youth in tertiary education reporting having had sexual experience is probably because they were older.

There are several limitations of the present study. Firstly, it was conducted only in five states in Peninsular Malaysia, and thus did not represent the male youth of the whole country. Secondly, the sample consisted of only males and hence did not allow for gender comparisons to be made on knowledge, attitudes and sexual behaviours. Thirdly, the location for sample selection was chosen based on the largest shopping mall in each of the selected districts, which might have excluded those male youths who never visit shopping malls. Fourthly, some over- and/or under-reporting may have occurred because the data were collected through self-administered questionnaires. However, the fact that the questionnaire was anonymous and confidential, and participation was voluntary, should have encouraged honest responses from the respondents. Despite these limitations the findings of this study are indeed consistent with those found in the literature.

In general, knowledge of HIV/AIDS among male youths was higher than their knowledge of other STDs, and their awareness of STDs and STD transmission methods was higher among the urban and those better educated compared with the rural and less-educated respondents. Urban and better-educated males have more access to information on STDs due to better connectivity and exposure to mass media and reading materials. A large proportion of rural and less-educated male youths were not aware of different types of STDs and how these are transmitted. While a high proportion of the respondents knew about the risk of sharing needles and syringes, a substantial number were not aware of the risk of having multiple sexual partners. Thus more concerted efforts should be directed towards disseminating information on STDs and ways to avoid them, especially those diseases less known to the general public, in particular to in-school adolescents and youths, and to extend these efforts to a wider audience. Shopping malls are where these youths spend a great deal of their leisure hours because of the many recreational and entertainment facilities including cinemas, bowling and snooker, food outlets and pubs. They are also the places where youths hang out with friends and intimate friends. In view of the fact that about 10% of these boys have had sexual relationships, it is extremely important for them to understand the risks they are taking. Young people need to be educated on the dangers of risky lifestyles and unsafe premarital sexual behaviours. Healthier lifestyles and sexual behaviours should be promoted to reduce major health risks, and establish habits that will protect them from disease transmission.

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