

GENDER DIFFERENCES IN KAP RELATED TO HIV/AIDS AMONG FRESHMEN IN AFGHAN UNIVERSITIES

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Abstract. This cross-sectional study aimed to describe the level of knowledge, perception/attitude, and practices related to HIV among 1,054 freshmen students in four Afghan universities differences between genders. A probability, two stage sampling method was used. Data were collected by a self administered structured questionnaire. SPSS software was used for data analysis. Descriptive and inferential statistics were performed. Most of respondents were male (72.1%), their average age was 20.1 ± 2 years, and most were unmarried (93.4%). The majority (90.8%) were aware of HIV but only 28.3% had a good level of knowledge. Around one-third (35.6%) had a positive level of attitude toward HIV. Approximately 30% had at least one risk practice; therefore, they were counted as high-risk behavior group members. Females were statistically more knowledgeable than males, and high-risk behaviors were significantly more prevalent among males; $p = 0.01$ and $p = 0.001$, respectively. However, general awareness, and attitude were not statistically different between genders. A considerable proportion of students (14.6%), as compared to peer-countries, were sexually active. A very high level of sharing injecting needles (4.5%) and shaving sets (20.8%) were also reported among informants.

INTRODUCTION

Acquired immunodeficiency syndrome (AIDS), caused by human immunodeficiency virus (HIV), has been increasing at an alarming rate since the first cases were reported in the early 1980s (Negash *et al*, 2000). HIV, in an infected person, is carried in certain body fluids such as blood, semen, vaginal secretions, and breast milk. The virus can be transmitted only if such HIV-infected fluids enter the bloodstream of another person (CDC, 1999; amFAR, 2006). By the end of 2007, 33.2 million people were living with HIV worldwide; 2.5

million people were newly infected with HIV; and 2.1 million deaths due to AIDS were reported (UNAIDS, 2007).

Afghanistan, with a population of 23.6 million (CSO, 2005), is an Islamic country and considered to be a country with a very low HIV prevalence but at a very high-risk for the spread of HIV infection. Contributing factors include nearly three decades of armed conflicts, very low socio-political and economical status of women, significant numbers of displaced people, extremely poor social and public health infrastructure, poppy production and drug trafficking, use of injecting drugs, lack of blood safety, and injection practices (Bartlett *et al*, 2002; UNICEF, 2003; Afghanistan National AIDS and STD Control Program, 2006). Little evidence is available on the biological and behavioral aspects of HIV in Afghanistan as well as Pakistan and Iran, two neighboring

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countries with relatively similar socio-cultural contexts. Afghanistan has much in common with the customs, language, and religion of the two neighboring countries. Previous studies (Bazger and Young, 2005; Foran *et al*, 2006; Sanders-Buell *et al*, 2006; Saif-Ur-Rehman *et al*, 2007; Todd *et al*, 2007a,b) related to HIV in Afghanistan were conducted among populations of high risk such as injecting drug users (IDUs) and commercial sex workers (CSWs). Another study was conducted among high risk and vulnerable groups, such as commercial sex workers (CSWs), truck drivers, IDUs, health workers, students, and returnees. Most of the studies reported high-risk behaviors related to blood-borne diseases, such as hepatitis as well as HIV among the study populations. Injecting drug use and heterosexual intercourse were reported as main routes of HIV infections in Afghanistan. Homosexuality among men was also commonly reported. A study conducted among injecting drug users (IDUs) in Kabul city reported overall prevalence of HIV, hepatitis C and B as 3.0, 36.6 and 6.5%, respectively; and AD inter-subtype recombinant strain of HIV-1 was documented among IDUs in Afghanistan. Only recently has Afghanistan had to address the HIV problem. The Ministry of Public Health reported a total of 69 cases of HIV infection in Afghanistan in late January 2007; but by August of the same year, the number had increased to 245 cases, although the actual number is likely to be much higher (Saif-ur-Rehman *et al*, 2007).

Young people are especially vulnerable to HIV, and it has been estimated that in many developing countries, one half or more of all HIV infections occur among people younger than 25 years old (Qiaoqin *et al*, 2006). Important groups range from high school seniors to university juniors, who are more likely to be prone to high-risk behaviors because of the transitional status of sexual activities as well as peer pressure, lack of maturity, and

alcohol and drug use (CDC, 1995). A study among high school students in Iran reported salient misconceptions among the respondents and indicated that only 53% of informants were aware of condom protection against sexually transmitted infections (Yazdi *et al*, 2006). A study among students in South Africa reported that 68.3% of students have had sexual intercourse (Grundling *et al*, 2003), and another KAP and sexuality survey among students in Georgia reported that 60.8% had engaged in sexual activity (Del Rio *et al*, 1998).

Different factors interact in a complex manner leading to infection and spread of HIV. This complexity makes the control and prevention of the epidemic difficult. Therefore, it is vital to understand the nature of the epidemic in various locations and consider the effect of social, economical, cultural, and behavioral risks. Behavioral information is of crucial public health interventions (Negash *et al*, 2000). Because Afghanistan is lacking such behavioral information related to HIV among adolescents and students and on the other hands, there is no HIV educational program among students in universities and schools in Afghanistan to enhance students' knowledge and promote preventive and protective behaviors related to blood borne diseases including HIV. Only Kabul Medical University has started an HIV education for second year students since 2004 (Bazger and Young, 2005). Therefore, this cross-sectional study, the first of its kind in Afghanistan, was conducted to assess levels of knowledge, perceptions/attitudes, and practices related to HIV by gender differences among freshmen in Afghan universities. This study would help to indicate gaps in knowledge and perceptions of students related to HIV and identify risky behavior and practices that might need urgent and prompt gender specific public health intervention, for not only freshmen students in universities, but also senior students in high school.

MATERIALS AND METHODS

Using a mixed two-stage random sampling design with probability proportional to size of the students in each faculty, this study was conducted among 1,054 freshmen students, with an expected non-response rate of about 30%, in four Afghan universities located in the capital Kabul as well as northern, eastern, and western provinces: Balkh, Nangarhar, and Herat, respectively. Universities were purposively selected based on their location, the volume of students, especially female students, and security considerations. Students were recruited by a systematic random sampling method from a sampling frame of all freshmen students of the universities. In total, approximately 22,107 students were enrolled in these four universities, out of which approximately 8,000 were freshmen students, and around one-quarter (25.3%) were female.

Using previous studies (Luc, 1995; Shariq, 2000; Sheng, 2000; Naing, 2002; Grundling, 2003; Lwin, 2004) as well as Afghan cultural and Islamic norms, a self-administered structured questionnaire was developed that was comprised of questions on socio-demographic characteristics, knowledge, perceptions/attitudes, and practices related to HIV. The knowledge component comprised 18 items on the causative agent, modes of transmission, methods of prevention, and availability of treatment related to HIV. The perceptions/attitudes component was composed based on the health believe theory (Huff and Kline, 1999; Glanz *et al*, 2002) and comprised 17 items on perceived susceptibility, perceived severity, perceived barriers and perceived benefits of preventive measures against HIV, as well as personal compliance (self-efficacy) with such preventive measures. This part also included statements on the attitudes of respondents towards people living with HIV (PLWH). The practice component comprised 11 items on high risk, and predisposing as well as preventive practices during

the past one year.

The questionnaire was first developed in English, revised based on the comments of experts about its content (text) validity, then translated to the Afghan languages of Dari and Pashto, and finally was back-translated to ensure the quality of translation. The questionnaire was pre-tested among 60 freshmen students, with a completeness rate of 75%, in two Kabul province universities. These universities were not included in the actual study site. The knowledge and perceptions/attitudes parts of the questionnaire were tested for their validity and reliability. The reliability test of the questionnaire gave a Cronbach's alpha coefficient value of 0.8 and 0.69 for knowledge and perception parts, respectively. A range of alpha values from 0.7 to 0.8 is acceptable (Reynaldo and Santos, 1999). The questionnaire was adapted based on the findings of the pretest, which included deleting two items from the knowledge part and three items from the perception/attitude part.

The study was approved by the Institutional Review Board (IRB) of the Ministry of Public Health, Afghanistan as well as the Ethics Committee of the Faculty of Tropical Medicine, Mahidol University, Thailand. Data were collected in September 2007 by self-administered structured questionnaire that was distributed to 1,054 participants, after their individual informed consents were obtained. Twenty-four participants either refused to participate or filled out the questionnaire incompletely, and these were excluded from analysis. The participants were given sufficient time and space to complete the questionnaire in privacy. Two separate rooms were provided for male and female respondents, respectively. Double data entry was performed with MS-Access 2003 and then transferred to SPSS version 11.5 for data processing and analysis. Descriptive statistics was used for frequency and percentage distribution, mean, median, and standard deviation; chi-square

was used to describe the differences among gender groups.

RESULTS

Out of 1,054 enrolled participants, 1,030 questionnaires were completed by 743 male and 287 female respondents and were analyzed. Twenty-four questionnaires (2.9%) were excluded from data processing due to a completeness rate of less than 50% for the questions related to knowledge, perceptions/attitudes, and practices.

Socio-demographic characteristics

As shown in Table 1, students who enrolled in different groups of faculties as well as universities were significantly different in terms of gender, with p -values of 0.001 and 0.0001, respectively. The average ages for both genders combined, males, and females, were 20.1 ± 2.04 , 20.4 ± 2.04 , and 19.4 ± 1.8 years, respectively. Around half of respondents (46.6%) were in the 19-20 year-old range, 32.8% in the >20 year-old range, and 20.5% of respondents in the <19 year-old range. The age groups were significantly different between both genders ($p = 0.0001$). Marital status groups were significantly different between genders ($p = 0.04$), and the ever-married group comprised more males compared with females (7.3% vs 3.8%). Most students (93.4%) were unmarried (both single and engaged). It is worth noting that virginity is considered to have a high social value in the Afghan culture, even during engagement. Engaged couples, in principle, should not have sex until marriage. Most of the respondents (70.1%) were from urban hometowns, with a significant difference between two genders ($p = 0.0001$). The majority of informants were from either Tajik (44.6%) or Pashtoon (38.6%) ethnicity. Ethnicity was significantly different between male and female respondents; the majority of males (45.5%) were Pashtoon, while the majority of females (63.5%) were

Tajik. Most of the respondents (66.9%) had a monthly living allowance (MLA) of <AFA 5,000 (US\$ 100), with an average of AFA 4,025 for both genders. The average MLAs for male and female were AFA 4,152 and 3,700, respectively. The MLA was significantly different between the two genders; the majority of female respondents were in the <AFA 5,000 MLA category when compared with the male respondents (74.8% vs 67.7%; $p = 0.03$).

General information about HIV

As illustrated in Table 2, most respondents (90.8%) were aware of HIV by reading, watching, or hearing about it in the past. No statistically significant difference in HIV general awareness was found between genders ($p = 0.09$). Among those who were aware of HIV, the majority mentioned health workers as a main source (41.7%) and television as a main channel of information (52.3%).

Knowledge about HIV

There were three possible response options of "Yes," "No," and "Don't know" for each item. Each correct answer scored 1, and the wrong and "don't know" answers scored 0. The total score ranged from 0 to 18. The knowledge related to HIV was divided into three levels; those with >80% correct answers were classified as "good," a range of 60-80% correct answers was classified as "fair," and those with < 60% correct answers were rated as having a "poor" level of knowledge. Only those who were aware of HIV were included in analysis of individual items. However, all data were included in analysis for describing levels of knowledge.

As shown in Table 3, most informants between both gender groups had a poor level of knowledge (36.5%), followed by fair level (35.1%), and only 28.3% possessed a good level of knowledge. Female respondents were significantly more knowledgeable about HIV than males ($p = 0.015$); good, fair, and poor levels of knowledge among female and male

Table 1
 Socio-demographic characteristics by gender, Afghanistan, September 2007.

Individual characteristics	Female <i>n</i> (%) ^a	Male <i>n</i> (%) ^a	Total <i>n</i> (%) ^a	p-value
Faculties by group				0.001
Health science	37 (12.9)	45 (6.1)	82 (8)	
Social science	173 (60.3)	475 (63.9)	648 (62.9)	
Applied science	77 (26.8)	223 (30)	300 (29.1)	
Universities				0.0001
Kabul (Capital City)	148 (51.6)	242 (32.6)	390 (37.9)	
Harat (Western Region)	88 (30.7)	154 (20.7)	242 (23.5)	
Balkh (Northern Region)	37 (12.9)	149 (20.1)	186 (18.1)	
Nangarhar (Eastern Region)	14 (4.9)	198 (26.6)	212 (20.6)	
Age (Years)				0.0001
< 19	107 (37.4)	104 (14)	211 (20.5)	
19-20	123 (43)	357 (48)	480 (46.6)	
>20	56 (19.6)	282 (38)	338 (32.8)	
Mean	19.38	20.38	20.1	
Median	19	20	20	
SD	1.8	2.04	2.04	
Min - Max	15 - 32	16 - 40	15 - 40	
Marital status				0.2
Single	260 (90.9)	659 (88.9)	919 (89.2)	
Engaged	15 (5.2)	28 (3.8)	43 (4.2)	
Married	11 (3.8)	52 (7)	63 (6.1)	
Widow/Widower	0 (0)	1 (0.1)	1 (0.1)	
Divorced	0 (0)	1 (0.1)	1 (0.1)	
Marital status groups				0.04
Unmarried (single + engaged)	275 (96.2)	687 (92.7)	962 (93.7)	
Ever married (married + widowed + divorced)	11 (3.8)	54 (7.3)	65 (6.3)	
Living status				0.0001
Alone	9 (3.1)	99 (13.4)	108 (10.5)	
With spouse	9 (3.1)	23 (3.1)	32 (3.1)	
With parents	257 (89.5)	459 (62.1)	716 (69.5)	
With friends	5 (1.7)	134 (18.1)	139 (13.5)	
Others	7 (2.4)	24 (3.2)	31 (3)	
Hometown				0.0001
Urban	267 (93)	455 (61.4)	722 (70.1)	
Rural	20 (7)	286 (38.6)	306 (29.7)	
Ethnicity				0.0001
Pashtoon	62 (21.8)	336 (45.5)	398 (38.6)	
Tajik	181 (63.5)	278 (37.6)	459 (44.6)	
Uzbek	5 (1.8)	18 (2.4)	23 (2.2)	
Hazara	23 (8.1)	81 (11)	104 (10.1)	
Others	14 (4.9)	26 (3.5)	40 (3.9)	
Monthly living allowance (AFA)				0.03
<5,000	208 (74.8)	481 (67.7)	689 (66.9)	
≥5,000	70 (25.2)	229 (32.3)	299 (30.3)	
Mean	3,700.04	4,152.8	4,025.4	
Median	2,000	3,000	3,000	
SD	4,537.1	4,481.3	4,499.4	
Min	100 - 35,000	150 - 80,000	100 - 80,000	

^aThe percentages may not add up to 100% due to missing data.

Table 2
General information about HIV/AIDS by gender, Afghanistan, September 2007.

Awareness	Female <i>n</i> (%) ^a	Male <i>n</i> (%) ^a	Total <i>n</i> (%) ^a	p-value
Have heard, watched and read about HIV/AIDS in the past	268 (93.4)	667 (90)	935 (90.8)	0.09
Main source of information				0.001
Health workers	105 (39.5)	278 (42.6)	383 (41.7)	
Teachers	53 (19.9)	98 (15)	151 (16.4)	
Family members	43 (16.2)	63 (9.6)	106 (11.5)	
Imam/mullah	0 (0)	16 (2.5)	16 (1.7)	
Friends	14 (5.3)	64 (9.8)	78 (8.5)	
Others	51 (19.2)	134 (20.5)	185 (20.1)	
Main channels of information				0.0001
Television	180 (67.2)	307 (46.3)	487 (52.3)	
Radio	13 (4.9)	129 (19.5)	142 (15.3)	
Newspaper / magazine	34 (12.7)	81 (12.2)	115 (12.4)	
Friday prayer	0 (0)	30 (4.5)	30 (3.2)	
Internet	19 (7.1)	75 (11.3)	94 (10.1)	
Others	22 (8.2)	41 (6.2)	63 (6.8)	

^aThe percentages may not add up to 100% due to missing data.

respondents were 30.3% vs 27.6%, 40.1% vs 33.2% and 29.6 vs 39.2%, respectively. Knowledge on the commonly understood means of transmission were blood transfusion (96.3%), sharing injecting needles as well as sexual intercourse (95.9%), and sharing of shaving sets (92.2%). Knowledge on all above-mentioned modes of transmission was not different between male and female respondents, except blood transfusion (95.4 vs 98.5; $p = 0.02$). Females were significantly more knowledgeable about mother-to-child transmission of HIV as compared to males (84.2% vs 78.3%; $p = 0.04$). Only one-fourth of the informants (27.6%) knew that there is no vaccine to prevent HIV. Female informants were significantly more knowledgeable about the risk from tattooing and skin piercing as compared to male informants (80.3% vs 61.5%; $p = 0.0001$). About one-third of informants (28.6%) did not know that proper use of condom during sexual intercourse would help pro-

tect against HIV infection. Knowledge on the above-mentioned fact was significantly higher among male respondents (76.1% vs 59.8%; $p = 0.0001$).

Perceptions/attitudes related to HIV

This part was scaled, using the Likert system (Trochim, 2006), with three choices, namely, "Agree" (3), "No idea" (2), and "Disagree" (1). The total scores ranged from 17 to 51. Respondents were graded into three levels: high (positive), moderate (neutral), and low (negative) perceptions and attitudes. The high (positive) level respondents scored above mean plus half standard deviation (SD); the moderate level respondents scored between mean minus half SD and mean plus half SD; and the low (negative) level respondents scored below mean minus half SD.

As indicated in Table 4, the nearly half of the informants (42.7%) had a moderate (neutral) perceptions/attitudes, 35.6% had a high

Table 3
Knowledge about HIV/AIDS by gender, Afghanistan, September 2007.

Items	Correct answers			p-value
	Female n (%) ^a	Male n (%) ^a	Total n (%) ^a	
Casual agent of HIV/AIDS	218 (82.9)	554 (84.7)	772 (84.2)	0.4
Curable by medicine nowadays	128 (47.9)	348 (53.5)	476 (51.9)	0.1
Transmitted by sharing toilet	169 (67.6)	446 (70.1)	615 (69.4)	0.4
Transmitted by sharing injecting needles	260 (97)	630 (95.5)	890 (95.9)	0.2
Transmitted by insect or mosquito bite	133 (51.2)	338 (54)	471 (53.2)	0.4
Transmitted by social (Dry) kissing	190 (73.6)	415 (65.3)	605 (67.7)	0.015
Transmitted by sexual intercourse	254 (95.5)	629 (96)	883 (95.9)	0.7
Transmitted by swimming in a public pool	143 (54.8)	382 (59.8)	525 (58.3)	0.1
Transmitted from infected mothers to their newborns	224 (84.2)	509 (78.3)	733 (80)	0.04
Transmitted by blood transfusion	264 (98.5)	624 (95.4)	888 (96.3)	0.02
Transmitted by tattoo and piercing	212 (80.3)	398 (61.5)	610 (67)	0.0001
Transmitted by sharing shaving set	249 (93.3)	602 (91.8)	851 (92.2)	0.4
Transmitted by sharing drinking glass and plates	201 (77)	425 (66.9)	626 (69.9)	0.003
Prevented by avoiding sharing cloths	175 (65.5)	353 (55.1)	528 (58.1)	0.004
Prevented by being faithful to spouse	167 (62.8)	462 (70.9)	629 (68.5)	0.017
Prevented by avoiding social (Dry) kissing	179 (67)	354 (54.8)	533 (58.4)	0.001
Prevented by proper condom use during sexual intercourse	158 (59.8)	499 (76.1)	657 (71.4)	0.0001
Prevented by vaccination nowadays	62 (23.5)	192 (29.3)	254 (27.6)	0.07
Levels of knowledge				
Good (>80% correct answers)	87 (30.3)	205 (27.6)	292 (28.3)	0.015
Fair (60-80% correct answers)	115 (40.1)	247 (33.2)	362 (35.1)	
Poor (<60% correct answers)	85 (29.6)	291 (39.2)	376 (36.5)	
Mean ± SD of knowledge score			12.3 ± 3.27	
Median of knowledge score			13	
Min - Max			1-18	

^aThe percentages may not add up to 100% due to missing values.

(positive) level, and remaining 21.3% had a low (negative) perceptions/attitudes level regarding HIV. The level of perceptions/attitudes was not significantly different between male and female ($p = 0.3$). Almost all of respondents agreed to the need for an HIV educational program (94.9%) and dissemination of HIV information through mass media (94.5%). Also, the overall majority of students (93%) believed that HIV is a major problem. Approximately half of the informants (57.9%) perceived that all people are susceptible to HIV, with a statistically significant difference between male and female respondents (59.2% vs 54.7%; $p =$

0.03). Slightly more than half of all students (56.2%) agreed not to isolate people living with HIV (PLWH) from their society, and female informants were more supportive to PLWH than males were (64.4% vs 53%; $p = 0.003$). Less than half of the respondents (48.1%) did not mind studying with an HIV infected person in the same classroom. Slightly more than half of the respondents (57.4%) perceived that the proper use of a condom is protective against HIV, and females had a significantly lower perceived protective benefit of a condom than male respondents had (45.3% vs 61.9%; $p = 0.0001$). Half of the informants (50.6%) agreed

Table 4
Perception/attitude related to HIV/AIDS, by gender, Afghanistan, September 2007.

Perception/Attitude	Female		Male		Total		p-value
	Agreed n (%) ^a	Disagreed n (%) ^a	Agreed n (%) ^a	Disagreed n (%) ^a	Agreed n (%) ^a	Disagreed n (%) ^a	
HIV/AIDS can happen to all people.	156 (54.7)	99 (34.7)	429 (59.2)	253 (34.9)	585 (57.9)	352 (34.9)	0.03
Scared of being infected with HIV/AIDS.	179 (63.3)	83 (29.3)	489 (67.6)	187 (25.9)	668 (66.4)	270 (26.8)	0.4
Get HIV anytime if have unsafe sex.	205 (76.5)	22 (8.2)	541 (74.8)	120 (16.6)	746 (75.3)	142 (14.3)	0.0001
Abstinence prevents HIV infection.	233 (82.6)	24 (8.5)	626 (85.4)	73 (10)	859 (84.6)	97 (9.6)	0.03
Isolation of PLWH from their society.	68 (24.2)	181 (64.4)	521 (34.5)	385 (53)	319 (31.6)	566 (56.2)	0.003
Future of HIV infected person is lost.	241 (84.6)	37 (13)	638 (86.8)	79 (10.7)	879 (86.2)	116 (11.4)	0.6
Study with PLWH in the same classroom.	140 (49)	117 (40.9)	349 (47.7)	317 (43.4)	489 (48.1)	434 (42.7)	0.7
HIV/AIDS ends to death.	244 (85.3)	16 (5.6)	586 (80.4)	60 (8.2)	830 (81.8)	76 (7.5)	0.17
HIV/AIDS is a big problem as media suggest.	266 (93.3)	13 (4.6)	677 (92.9)	31 (4.3)	943 (93)	44 (4.3)	0.7
Using condom properly prevents HIV infection.	126 (45.3)	39 (14)	454 (61.9)	161 (22)	580 (57.4)	200 (19.8)	0.0001
Purchasing condom is embarrassing.	52 (18.7)	131 (47.1)	225 (31.1)	379 (52.3)	277 (27.6)	510 (50.9)	0.0001
Refraining from multiple sex partners prevents HIV infection	194 (68.6)	55 (19.4)	404 (55.6)	228 (31.4)	598 (59.2)	283 (28)	0.0001
Dissemination of HIV/AIDS information by media	270 (94.7)	10 (3.5)	695 (94.4)	21 (2.9)	965 (94.5)	31 (3)	0.5
HIV/AIDS educational program is needed.	274 (95.5)	9 (3.1)	695 (94.7)	24 (3.3)	969 (94.9)	33 (3.2)	0.7
Discuss about using condom with partners.	88 (31.9)	90 (32.6)	421 (57.7)	182 (24.9)	509 (50.6)	272 (27)	0.0001
Get condom easily when it is needed.	92 (34.2)	36 (13.4)	405 (55.9)	159 (22)	497 (50.1)	195 (19.6)	0.0001
Able to say "NO" if one insists to visit brothel.	218 (79.9)	32 (11.7)	560 (77)	133 (18.3)	778 (77.8)	165 (16.5)	0.006
Levels of perception/attitude							0.3
High/Positive (Above mean + 0.5 SD)	90 (31.4)		277 (37.3)		367 (35.6)		
Moderate/Neutral (Range mean ± 0.5 SD)	134 (46.7)		306 (41.2)		440 (42.7)		
Low/Negative (Below mean - 0.5 SD)	62 (21.6)		157 (21.1)		219 (21.3)		
Mean ± SD			41.41 ± 5.02				
Median			42				
Min - Max			13 - 82				

^aThe percentages may not add up to 100% due to missing data.

Table 5
Practices related to HIV/AIDS, by gender, Afghanistan, September 2007.

Practices (past one year)	Female n (%) ^a	Male n (%) ^a	Total n (%) ^a	p-value
Drank alcoholic beverages (eg, whisky, beer, etc)	4 (1.4)	81 (11.2)	85 (8.4)	0.0001
Discussed with friend/partner about safe sex	78 (28)	389 (54)	467 (46.7)	0.0001
Pierced parts of the body at outdoor (Bazaar)	37 (13)	0 (0)	37 (13)	0.0001
Self-injected	80 (28.3)	250 (34.1)	330 (32.4)	0.7
Shared injecting needles	6 (2.1)	39 (5.4)	45 (4.5)	0.025
Exposed to pornographic video or pictures	34 (12.3)	290 (40.1)	324 (32.4)	0.0001
Visited brothels (Only male respondents)	NA	38 (5.2)	38 (5.2)	NA
Had sexual intercourse	18 (6.3)	132 (17.8)	150 (14.6)	0.0001
Condom use (Sexually active respondents)	11 (61.1)	53 (40.2)	64 (42.7)	0.09
Shared shaving set	22 (8)	187 (25.5)	209 (20.8)	0.0001
Tattooed at outdoor (Bazaar)	3 (1.1)	9 (1.2)	12 (1.2)	0.8
Special Information among sexually active respondents (n=150)				
Married female who had sex without constant condom use	9 (90)	NA	9 (90)	
Married male who had sex and had visited brothels	NA	4 (9.8)	4 (9.8)	
Unmarried respondents who had sex without constant condom use	7 (87.5)	71 (79.8)	78 (80.4)	0.5
Constant condom use	2 (11.1)	23 (17.4)	25 (16.7)	0.5
Unsafe sex	7 (38.9)	75 (56.8)	82 (54.7)	0.15
Unsafe sex (including sexually active married female respondents)	16 (88.9)	75 (56.8)	91 (60.7)	0.009
Level of risk behaviors				
Low risk behaviors	226 (78.7)	499 (67.2)	725 (70.4)	0.0001
High risk behaviors	61 (21.3)	244 (32.8)	305 (29.6)	

^aThe percentages may not add up to 100% due to missing data.

to discuss condom use with their partners; males were more likely to discuss condom use with their partners than females (57.7% vs 31.9%; $p = 0.0001$). Around 60% of the respondents believed that refraining from multiple sex partners is protective against HIV infection, and significantly more female respondents perceived such rather than males did (68.6% vs 55.6%; $p = 0.0001$).

Practices related to HIV

This part covered past one-year practices of respondents related to HIV. Five practices: unsafe sex, sharing needles, sharing shaving sets, tattooing, and piercing were considered as risk practices, and the respondents were divided into two groups (high risk and low risk behaviors) based on their practicing at least one or more of the five risk practices mentioned above. Unsafe sex was inclusive of unmarried respondents who had sexual intercourse without constant use of condom and married male respondents who were sexually active and visited brothels. Risk was defined based on an understanding of Afghan society as well as Afghan women. However, many studies include married female respondents who had sexual intercourse without constant condom use, irrespective of their sexual partners, as unsafe sex.

As illustrated in Table 5, a considerable percentage of the students (29.6%) were categorized as having a high level of risk behavior related to HIV. High-risk behavior among male informants was statistically more prevalent than for female respondents (32.8% vs 21.3%; $p = 0.0001$). Eight percent of respondents drank alcoholic beverages, and this practice was more common among male respondents (11.2% vs 1.4%; $p = 0.0001$). Only 13% of female respondents experienced (ear) piercing at the Bazaar. More than one-quarter of the respondents (32.4%) reported self-injecting. A considerable proportion of students (4.5%) shared injecting needles, and it was significantly more prevalent among male

respondents (5.4 vs 2.1; $p = 0.025$). About one-third of the students (32.4%) had been exposed to pornographic movies and pictures, with exposure statistically significantly higher among male compared to female respondents (40.1% vs 12.3%; $p = 0.0001$). About 15% of the respondents experienced sexual intercourse, and it was again significantly higher in male respondents (17.8% vs 6.3%; $p = 0.0001$). Among those who had experienced sexual intercourse ($n = 150$), 54.7% accounted for unsafe sex. Male respondents were more likely to have unsafe sex than female respondents were, but it was not statistically significant (38.9% vs 56.8%; $p = 0.15$). However, the low number of female respondents who had unsafe sex ($n = 7$) reduced the statistical power considerably.

Among sexually active students, 42.7% used a condom at least once during sexual intercourse, but only 16.7% of them always used a condom when having sexual intercourse. About one-fifth (20.8%) of respondents shared shaving sets, and the proportion of male respondents was significantly higher (25.5% vs 8%; $p = 0.0001$).

DISCUSSION

Little has been known about blood-borne diseases, including HIV, among university students in Afghanistan. Therefore, this study is the first of its kind to describe the knowledge, perceptions/attitudes, and risk behaviors and practices related to HIV among freshmen students in Afghan universities.

This study indicated that overall awareness among the informants was high; however, approximately 10% of the informants were not aware of HIV and had no knowledge at all. It should not be surprising that the awareness level regarding HIV among students, who represent a highly knowledgeable young generation, is much better than those of many high-risk and vulnerable groups because about half

of these latter groups are illiterate. The finding that 10% of respondents were totally unaware of HIV in this study was, therefore, much lower than those found in a previous study conducted among IDUs (54.9%) in Afghanistan (Todd *et al*, 2007b) as well as in another study among prisoners (68%) in Pakistan (Akhtar *et al*, 1994). The majority who were aware of HIV mentioned that their main channel and source of information were the mass media and health workers, respectively (Table 2). Considering the low access of the people to the mass media and health workers, especially in the remote areas of Afghanistan, promotional services need to be extended to schools and religious institutions to attain a better level of awareness related to the disease.

The overall level of knowledge about HIV among freshmen was found to be at a 'poor level. The findings of this study were similar to those of two previous studies (Bazger and Young, 2005; Todd *et al*, 2007b) conducted in Kabul city among high risk and vulnerable groups. However, a higher level of knowledge about HIV has been reported among adolescents and university students in Myanmar (Naing, 2002), China (Sheng, 2000), Thailand (Luc, 1995), and Indonesia (Purbasari, 2006). The lack of educational programs about HIV in schools and universities in Afghanistan are the most likely reason for the knowledge deficit as indicated by a previous study (Foran *et al*, 2006).

This study revealed salient misconceptions, ranging from 30-47% of respondents, that insects and mosquito bites, sharing toilets, kissing, swimming in a public pool, and sharing glasses, plates, and clothing with HIV affected person transmits the disease. This finding is similar to the findings of previous studies in Afghanistan (Todd *et al*, 2007a), India (Kuruvila *et al*, 1997), Indonesia (Purbasari, 2006), and Chechnya (Kuruvila *et al*, 1997; WHO, 2008; Foran *et al*, 2005; Todd *et al*, 2007; Purbasari, 2006). Above-mentioned

misconceptions may lead to discrimination against people living with HIV (PLWH) as well as a social stigma attached to HIV (Liu and So, 1995). Discrimination against PLWH is common in Afghanistan, even among health professionals, as documented in previous studies in Afghanistan (Bazger and Young, 2005; Foran *et al*, 2006). HIV-stigma and discrimination is positively associated with unsafe sex among PLWH (Watel *et al*, 2003). Prejudice was also found by this study because only half of the students agreed that they would sit in the same classroom as a person living with HIV and had the opinion that such persons should be isolated from their society. The majority of participants agreed with the dissemination of information through the mass media and the initiation of HIV educational programs in their respective educational institute (Table 4), which could be considered as an advocacy point and opportunity to establish an effective HIV related promotional program at the educational institutions.

Generally, this study described the perceptions/attitudes levels among the respondents to be at the moderate (neutral) level, followed by the high and the low levels of perceptions/attitudes. A similar pattern of attitudes was found among Hijras in Pakistan (Shariq, 2000). Moderate or neutral perceptions/attitudes could be explained by the uncertainty of the respondents due to insufficient knowledge about HIV.

This study found a considerable proportion of respondents (29.6%) with at least one risk practice. High-risk behaviors were significantly more common in male respondents compared with females; (32.8% vs 21.3%; $p=0.0001$). This finding suggests the importance of targeting prevention efforts toward male students. However, the study also suggested the need to educate female students and carefully monitor possible behavior changes among them. A study among students in China indicated that female students

appeared to have rapidly changing sexual awareness and behaviors (Qiaoqin *et al*, 2006).

This study showed that 14.6% of respondents were sexually active, out of which only 35.3% were married respondents. This finding was relatively similar to two other studies in China (Sheng, 2000; Qiaoqin *et al*, 2006) that reported 8.2% and 13.1% sexually active respondents, respectively. The above similarity could be explained by conservative traditional norms related to sexual activities among the countries. The findings of this study were much lower than three other studies among Thai, Japanese, and Georgian students that reported sexually active respondents to be 27.7, 75, and 60.8%, respectively (Luc, 1995; Diamond *et al*, 1994; Del Rio *et al*, 1998). The above differences could be explained by the significant differences of cultural and socio-economical norms among these countries. Such a relatively high proportion of sexually active unmarried persons may not be expected in Afghanistan, which has a highly conservative and traditional society. However, the above-mentioned results are consistent with the findings of a previous study in Afghanistan that reported, through indirect questions, that 41% had sex before marriage and 43% had sex out of marriage in all subgroups; a 36% student subgroup believed that other students had sexual partners (Foran *et al*, 2006). This study also found that significantly more male respondents were sexually active than females (17.8% vs 6.3%; $p=0.0001$). The above gender difference was also reported in a study among students in China (Qiaoqin *et al*, 2006).

Most respondents (71.4%) knew that using condoms protects against HIV. The finding was much higher than the findings of two studies among prisoners in Pakistan (Akhtar *et al*, 1994) and among students in Iran (Yazdi, 2006), which reported 10 and 53%, respectively. Interestingly, this study found a significantly higher proportion of male respondents

perceived the preventive benefits of condom use against HIV infection (Table 4). This finding is surprising, since condom promotion initiatives have primarily targeted women for family planning purposes. Contrary to the finding about high knowledge on the protective role of the condom, only 16.7% of sexually active respondents used a condom consistently when they had sexual intercourse, which is much lower than the findings of many other studies among students in India, Georgia, Africa, and Korea that reported 87.7, 30.6, 88.7, and 40% constant condom use rate, respectively (Kuruvila *et al*, 1997; Del Rio *et al*, 1998; Grundling *et al*, 2003; Yoo *et al*, 2005). Low condom use among sexually active respondents in Afghanistan may be explained by perceived high barriers against condom use, including cultural and availability barriers, which is reflected in the perceptions/attitudes part. A study among students found that lower condom use was due to many reasons, such as unavailability, monogamous relationship, using other contraceptives, and dislike (Grundling *et al*, 2003).

A low proportion of male respondents (5.2%) visited brothels. This confirmed the findings of a previous study in Afghanistan that reported 5.8% of commercial sex worker (CSW) clients were students (Foran *et al*, 2006). The finding was lower than the reported 14.2% respondents who had sex with sex workers in a study among students in Indonesia (Purbasari, 2006).

A low proportion of respondents (4.4%) shared injecting needles. Previous studies among IDUs in Afghanistan reported 8% and 18% sharing of needles (Foran *et al*, 2006; Todd *et al*, 2007). It seems mandatory to study more in depth the reasons for this risky practice among students. Only 1% needle sharing was reported in a study among prisoners in Pakistan (Akhtar *et al*, 1994). It was found that a considerable proportion of students (20.8%) shared shaving sets with others. This could

be due to the lack of resources to buy a personal shaving set. This finding contradicts the high level of knowledge that was reported by respondents on the risk of sharing shaving set (Table 3). However, a mismatch between knowledge and practices in the field of HIV are well documented. Afghan barbers also habitually do not disinfect their shaving equipment or do not use disposable shaving equipment between clients (personal experience and observation).

In terms of predisposing practices, a low percentage of the respondents (8.4%) drank alcohol, which is lower than other studies in Thailand, Chechnya, China, and Pakistan that reported 79, 42, 16.7, and 16.6% alcohol users, respectively (Lwin, 2004; WHO, 2004; Sheng, 2000; Shariq, 2000). Religion, the traditional conservative society of Afghans, and inaccessibility of alcoholic beverages could be important explanations. Almost one-third of informants (32.4%) reported self-injecting. This information was collected through an indirect question to gain knowledge about substance abuse among freshmen students. The estimate of self-injection should not be misinterpreted as representing those who actually use injecting drugs. However, this does indicate a possible negative practice and needs to be investigated in the future. Limited access to public health facilities and health workers, or the high cost of consultations in private practices may be possible reasons for above-mentioned findings.

The present study had some limitations. First, this study was limited to quantitative methods rather than both quantitative and qualitative, which may provide a better understanding and deeper knowledge about the situation. Secondly, because of the self-administered nature of the questionnaire, the honesty of students' responses may be questioned. However, the questionnaire was anonymous, and participation was voluntary and confidential, which should have encour-

aged accurate and honest self-disclosure. Thirdly, the results of this study should be generalized to whole population with caution due to exclusion of students in southern universities because of security reasons. Finally, those students who graduated from high schools and enrolled in Afghan universities are those who successfully passed an entrance exam (Emtehan-I-Kankor). Approximately 20-30% of high school students (the top students) may have a chance to enroll at higher education institutions; therefore, a high level of knowledge among the freshmen students of Afghan universities in this study may not necessarily be used to initiate educational programs for the senior students in high school.

A low proportion of freshmen students knew about transmission modes and preventive measures related to HIV; however, a majority reported seeing the need for educational programs related to HIV. Therefore, using this opportunity, it would be crucially necessary to introduce educational programs for the students in both universities and high schools. Since this study found some significantly different knowledge and practices between male and female respondents, which is indicative of different needs, it would possibly be more effective to separate educational packages developed for men and women. Further investigation is needed to find the factors associated with risk and preventive practices related to HIV among the students, most notably for the highly reported behavior of 'self injecting' and needle sharing, which may help develop an effective and efficient curriculum to be considered for education of Afghan students.

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