

## Urban Men's Knowledge and Perceptions Regarding Sexually Transmitted Infections in Pakistan

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### *Abstract*

*In a pioneering study undertaken in Pakistan, urban men's sexual behaviors, perceptions and knowledge regarding sexually transmitted infections including HIV/AIDS were determined by employing both qualitative and quantitative research methods. Focus group discussions were carried out initially and followed by a structured cross sectional survey that interviewed 2400 men in six cities. While most men (90%) had heard of the term HIV/AIDS however nearly a quarter of the respondents had misconceptions regarding its mode of transmission. HIV/AIDS was generally perceived as a disease acquired by indulging in "immoral" activities. Knowledge regarding other sexually transmitted infections was negligible. The results from this study point to the need for developing awareness campaigns in Pakistan that mitigate stigma and reduce vulnerability.*

*Key Words: STI/HIV, Pakistan, Urban men, Perceptions, Misconceptions.*

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## Introduction

Pakistan is currently the sixth most populous country in the world, with an estimated population of 160 million and a growth rate of 1.9 percent.<sup>1</sup> Pakistan enjoys a unique geographical location being at the cross roads of Central and South East Asia and the Middle East. Pakistan is an Islamic Republic where religion and socio-cultural norms have a strong hold on society. Sexual relationships outside marriage are castigated and considered immoral.

According to UNAIDS estimates, there are approximately 70,000 to 80,000 HIV positive cases in Pakistan, which is about 0.1 percent of the total adult population.<sup>2</sup> The number of reported HIV cases is 2622, with 321 individuals suffering from AIDS.<sup>3</sup>

Although Pakistan has been identified as a low prevalence country, recent evidence showed that the country is already experiencing a concentrated epidemic in the high-risk groups such as the intravenous drug users, commercial sex workers, transvestites, and long distance truck drivers.<sup>4</sup> The infection has therefore, the potential to spread from these high risk groups to general population.

UNAIDS has recently cautioned that the epidemic is growing rapidly in several South Asian countries including Pakistan, Vietnam, and Indonesia.<sup>5</sup> The Ministry of Health and the National AIDS Control Program (NACP) of Pakistan recognize the potential threat of a generalized HIV epidemic that might occur through men who engage in risky sexual practices. It was within this backdrop that the NACP commissioned a pioneering behavioral and biological study of urban men in 2007. The main objectives of the study were: (1) to estimate the prevalence of five commonly occurring STIs, including HIV, in six major cities of the country; (2) to measure urban men's sexual behaviours and assess current levels of knowledge regarding sexually transmitted infections (including HIV); and (3) to examine common misconceptions and perceptions about sexually transmitted infections. This paper presents only the study results that pertain to men's knowledge and perceptions.

In many parts of the world, the spread of HIV epidemic is still fueled by ignorance. Globally, it is known that there is a lack of HIV knowledge among youth between the ages of 15-24. The WHO estimates that youth age 15 to 24 years comprise 50% of all new HIV infections and consequently must be targeted for education in decreasing transmission and reducing the stigmatization of an HIV diagnosis.<sup>6</sup>

In the past targeting men to reduce HIV/STI transmission has not received enough attention particularly married men. Presently, there is adequate evidence to show that a large proportion of women are infected by their male partners.<sup>7</sup> A study in Uganda has shown that men are twice as likely as women to bring an HIV infection into a marriage emphasizing that the risk of HIV and other STIs among married women, is more likely to come from their husbands' behavior than from their own.<sup>8</sup> Therefore, it is only logical that focusing men, especially urban men should be an important strategy for controlling the spread of HIV infection to the general population.

In Pakistan thirty three (33) percent of the population resides in urban areas. While many factors influence men's sexual behaviours, urban living is an important determinant. Cities attract a large number of men who come and live as migrants. These migrant men living independently find themselves to be free from social and cultural norms that restrict their behaviours when they reside with their families.

## Methods

The study had three distinct components: qualitative; quantitative; and biological. The initial formative qualitative research was followed by a quantitative cross-sectional behavioral survey with concurrent biological testing. The formative research comprised of 64 focus group discussions (FGDs) which were conducted with men between February and April 2007. In each city sixteen FGDs were conducted in

the following cities - Faisalabad, Karachi, Peshawar, and Quetta. FGD participants were identified by key informants in specific locations in order to represent socio-economic stratification. Participant selection was purposive to ensure homogeneity in terms of age, education, and marital status. Wherever possible, care was taken to ensure that FGD participants did not know each other.

Each FGD lasted for approximately 60 to 90 minutes and included six to eight participants. Moderators and note takers were given extensive training to ensure they remained neutral and non-judgmental regarding the sensitive subject matter. Moderators were of the same age groups as the respondents e.g., 16-45 years. A flexible guideline was used to facilitate the discussions. Informed consent was obtained verbally<sup>9</sup> and the discussion was recorded only after verbal permission was received from the participants. These audiotapes were translated from the local languages into Urdu and subsequently into English. The main purpose of the qualitative component was to provide more comprehensive in-depth explanation and understanding for the quantitative survey findings. The triangulation of the research methodology allowed the verification and accurate interpretation of the qualitative and quantitative findings.

The second and third study components comprised a cross-sectional behavioral and biological survey of 2,400 men carried out in six major cities of Pakistan from June to August 2007. The city selection was based on inclusion of the four provincial capitals of the country namely Lahore, Peshawar, Quetta and Karachi as well as two other larger cities i.e Rawalpindi and Faisalabad. A multistage sampling design was employed to select a total of 400 men aged 16-45 years in each city. In the first stage 10 blocks demarcated by the Population Census Organization were selected in each city based on probability proportionate to socio-economic status using female literacy as a proxy indicator for economic status. Within each block 40 individuals were selected from each household through systematic sampling with a random start. Informed consent was obtained for both the interview and the sampling of biological specimens (blood and urine).

In order to meet the sample size, 5,995 households were visited. The overall refusal rate was 37%, well within the range of surveys of men.<sup>10-11</sup> A structured survey questionnaire was developed taking into consideration existing standardized scientifically developed instruments, especially drawing upon the instrument developed for Behavioural Surveillance Surveys by FHI (Family Health International) and the IMPACT Project (Implementing AIDS Prevention and CARE).<sup>12</sup>

The purpose of using standard questions was to maximize the comparability of data between subsequent survey rounds and across populations and geographic regions. The standard questions have been tested in numerous international settings and included in behavioral Surveillance Surveys.<sup>12</sup> Six of the knowledge questions were included and modified from the HIV Knowledge Questionnaire HIV-KQ 45 developed by Michael P. Carey, Dianne Morrison-Beedy, and Blair T. Johnson (1997).<sup>13</sup> The questions were first discussed in the preliminary focus groups discussions to assess cultural sensitivity and identify appropriate terminology. The questionnaire was initially developed in English and was later translated into the local language and then retranslated into English and contextual discrepancies that occurred during the translation process were removed. The final questionnaire was pretested and subsequently modified based on the feedback. The entire study, including the qualitative component, was approved by two international and one national Ethical Review Boards.

### Data Analysis

The proceedings of the focus group discussions were transcribed and translated into English. Data analysis was carried out based on the grounded theory.<sup>14</sup>

The FGD transcripts were analyzed manually by an independent anthropologist who was not involved in the data collection process. The anthropologist communicated directly with both the moderators and note-takers to clarify questions during analysis. The anthropologist was provided access to audio tapes and the field observational notes. The long table

approach advocated by Krueger and Casey<sup>15</sup> was adopted for data analysis.

After finalizing the transcripts, broad thematic headings were identified and codes were developed within these headings. Codes were assigned to responses related to each theme and findings were tabulated accordingly. The broad themes identified included, knowledge of STIs, mode of transmission, perceptions related to sexual behaviors, health seeking behaviors, condom use and concept of masculinity.

The quantitative data entry was carried out using CSPPro version 3.2<sup>16</sup> and data analysis was carried out by SPSS version 14.<sup>17</sup> Statistical analysis included descriptive statistics, bivariate analysis using chi-square test and multivariate analysis using logistic regression models, with 95 percent confidence intervals.

## Results

We present results from both the qualitative and quantitative components. Descriptive statistics related to basic socio-demographic information, sexual behaviors, knowledge, perceptions and misconceptions related to STIs including HIV/AIDS, their mode of transmission, methods of protection and concepts of vulnerability are also included.

### Socio-demographics

The mean age of the respondents in the quantitative survey (n=2,400) in all six cities was 29.1 years. Overall, 15 percent of the respondents were illiterate, 53 percent had received 10 years of schooling while 32 percent had more than 10 years of education. Forty-eight percent were unmarried. Within the total sample, 43 percent of the respondents were residing with their parents; the overall population of migrant men (defined as living away from marital or natal home for more than four months) in the six cities was 9 percent. (see table 1) Thirty-nine percent of all respondents were within the lowest monthly earning income group of US\$ 80 or less, while 50 percent

reported earning US\$ 80-200 per month. Eleven percent of respondents reported monthly earnings of US\$ 200 and above (the monthly income amount has been converted from Pakistan rupees into US dollars).

### Sexual Behavior

Among the total sample of 2,400 men, 31 percent reported never experiencing marital or non-marital sexual intercourse (e.g., were virgins), while 42 percent reported having had their first sexual encounter with their wives. Twenty-nine percent of the respondents reported having non-marital sex in their life times with fifteen percent reporting non-marital sex in the last 15 months.

### Awareness of HIV/AIDS

Out of the total number of respondents, almost all (90%) had heard of the term "HIV/AIDS". The highest number of respondents who had heard the term HIV/AIDS was in Rawalpindi (98%), followed by Quetta (97%), Peshawar (95%), Faisalabad (93%), and Lahore (93%). In Karachi, less than three-quarters of the men had heard of the term HIV/AIDS (70%). Of the 231 respondents who had not heard the term, almost two-thirds (61%) had not received any education. Having heard the term HIV/AIDS was influenced by educational attainment as seen in figure 1.

### Awareness and Knowledge of Other STIs (Including HIV/AIDS)

Respondents were asked without prompting to name any diseases they had heard of that are transmitted through sexual activity. Without prompting, only two diseases, HIV and hepatitis, were mentioned by the majority of the respondents (72% and 44 %, respectively). In total, nearly one-quarter of the respondents (24%) could not name a single sexually transmitted disease. In Karachi 50 percent of the respondents could not name a single sexually transmitted disease while in Rawalpindi 95 percent of respondents could name at least one disease (table 2).

Results from the FGDs supported the quantitative results. HIV/AIDS and hepatitis were the most frequently reported STIs in the FGDs. Other diseases mentioned with varying frequency included *Sozak* (Gonorrhea) and *Atshak* (Syphilis). A condition called *Jaryan* described as discharge of seminal fluid during sexual arousal was mentioned quite frequently. Other conditions perceived to be sexually transmitted, although mentioned less frequently, included blood cancer, tuberculosis and typhoid. Participants in Quetta and Peshawar reported piles (hemorrhoids), scabies or genital itching while some young participants in Faisalabad mentioned nocturnal emissions as being a sexually related disease.

### Source of Knowledge of HIV/AIDS

As table 3 shows, the major source of information about HIV/AIDS was television followed by friends or family members. Radio was reported by the least number of respondents as a source of information about HIV/AIDS.

The focus group discussions also corroborated these findings. The majority of FGD participants mentioned television and newspaper advertisements as their main sources of information about STIs and HIV/AIDS. In the FGDs, some respondents also mentioned government banners and posters and NGO information campaigns launched through their outreach workers. In the case of information obtained through magazines, participants specifically mentioned the letters to the reader's medical forum and the responses provided by doctors.

### Modes of Transmission of HIV/AIDS

Those respondents who reported having heard of the term HIV/AIDS (n=2,169) were asked about the modes of HIV transmission and methods of protection against HIV infection. Overall, there was some knowledge regarding three common modes of transmission (sexual route, infected blood, and unclean injection needles). Eighty-five percent of respondents mentioned the sexual transmission route without prompting; 49 percent mentioned unclean syringes. However, fewer men 34 percent knew

without prompting that needles or sharp objects could transmit HIV/AIDS. Less than 5 percent of respondents in each city knew that HIV/AIDS could be transmitted from a mother to her infant through breastfeeding.

Similarly, mother to child transmission was mentioned in only one FGD. Despite the high rate of recognition of the term HIV/AIDS, the data showed that levels of knowledge about specific modes of transmission are low.

In response to the question whether a healthy looking man can be infected with HIV, the highest number of respondents who answered correctly ('yes') were in Rawalpindi (77%), followed by Faisalabad (73%), Peshawar (72%), and Lahore (69%). Amongst all cities in Pakistan, Rawalpindi has the highest literacy rate which may explain the high level of knowledge in this city. The lowest proportion of respondents (40%) who provided the correct answer was in Karachi. The low knowledge rates in Karachi could be linked to the large migrant population residing there. Owing to the temporary nature of their stay, migrants do not have access to basic amenities or television, which was reported to be a major source of information.

An underlying gender association with mode of transmission also emerged from the FGDs. A quote from a 36-year respondent with intermediate education in Peshawar eloquently demonstrates perceptions about gender and the mode of transmission of HIV/AIDS.

*"One can get AIDS from ones wife. If she has been infected by a contaminated needle and gets AIDS she can pass it to her husband".*

### Myths and Misconceptions Regarding Transmission

As shown in Table 4, nearly one-half of all respondents had misconceptions regarding the spread of HIV infection (combining the incorrect and don't know responses); almost one-quarter of respondents mentioned that HIV infection can be spread through sharing food (26%), clothing (24%), bedding (26%), and toilets (24%) with an infected

person. Sixteen percent mentioned that shaking hands with an infected person can lead to transmission.

Within the focus group discussions, one of the most common misconceptions regarding the spread of STIs, especially among young participants, was that an STI is contracted because of sex during menstruation.

*“We have heard that if someone has intercourse with a woman while she is menstruating he will get SOZAK (Gonorrhoea)”* A quote from a 23-year graduate unmarried Faisalabad.

Other beliefs included the spread of STIs through tears, saliva, or the sweat of infected individuals, or by sharing towels at barber’s shops.

*“It is spread through towels and other items used in the washroom”.* A quote from a 17-year old Unmarried matriculate from Quetta.

### Protective Measures against HIV/AIDS and other STIs

Respondents were asked to mention, both with and without prompting, ways to prevent HIV/AIDS transmission. Overall, only 18 percent of the respondents knew, without being prompted, that a person can protect himself from getting HIV/AIDS by using a condom. When prompted, a further 47 percent said that using a condom offers protection, leaving 35 percent (more than one-third of the men) who responded either that condoms offer no protection against HIV/AIDS or that they did not know the answer.

The majority of respondents (84%) mentioned, without prompting, that a person can protect himself against acquiring an STI through sexual abstinence. The next highest unprompted response was using new needles (42%), followed by avoiding sex with sex workers (37%) and being monogamous (27%).

### Perceptions of AIDS Patients and those living with HIV/AIDS

The qualitative data suggested that most of the participants in all four cities view AIDS patients as people who have committed a sin and who would therefore be looked down upon. FGD participants

were judgmental when discussing the reasons for HIV infection. They specifically mentioned that it is only those men who indulge in immoral and “unnatural” sexual activities such as sex with commercial sex workers, sex with other men, or repeated group sex who are likely to acquire STIs including HIV/AIDS.

According to a 39 year old married man with ten years of education from Peshawar, *“those suffering from AIDS have no respect in society. If people come to know that someone has AIDS then that person loses his status and standing in society.”* Another participant from Peshawar said *“As far as Hepatitis is concerned, it is not considered a social stigma but AIDS is.”*

Most respondents felt that an AIDS patient would be ostracized, and no one would want to share food or utensils with him, or even shake his hand.

*“People remain away from such infected persons”.* A quote from a 30-year old intermediate educated married from Faisalabad.

### Perception Regarding Condom Use

Out of the total number of respondents who reported non-marital sexual intercourse during the last 12 months (n=370) more than two thirds (68%) had never used a condom irrespective of their sexual partner. The Focus Group Discussion results provided insight into the reasons for low condom use. Most participants, irrespective of educational background, were unaware that condoms protect against STI transmission. Participants did acknowledge the fact that condom use was very limited and explained that its use was restricted to sexual interactions with a friend or non-commercial sexual partner, and for the sole purpose of preventing pregnancy. In case of intercourse with female commercial sex workers, a condom is not considered necessary, as the onus of preventing pregnancy is thought to be on the worker. Furthermore, as it is a paid transaction, men often forego using a condom

with sex workers, even if the worker insists upon its use.

*“Those men who are obliged to use a condom with their wives (for family planning) indulge in extra marital sex without using condoms”.* A quote from a 21-year old unmarried postgraduate from Peshawar.

The most commonly cited reason for not using a condom was that it reduces sexual pleasure. The other more common reasons provided for not using condoms were:

Sex is an unplanned and spontaneous activity, and it is not appropriate or feasible to carry a condom at all times.

*“Our climate is hot and so are the people, we cannot plan ahead”* A quote from a 26-year old married Postgraduate from Peshawar.

## Discussion and Recommendations

The qualitative and quantitative results from this study showed that while most men have heard of HIV/AIDS and some of the modes of its transmission, this knowledge is at best incomplete and sketchy. Our results showed that apart from sexual transmission, other modes of transmission for HIV/AIDS are not well known. In a country such as Pakistan where medical injections are overused<sup>18</sup> and reuse of injection equipment meant for single use is also common<sup>19</sup>, the knowledge of blood borne route of transmission of HIV is particularly important. Furthermore, specific information about STIs other than HIV/AIDS and how these are spread is also low. These results reflect the fact that Information Education Communication (IEC) materials in Pakistan have traditionally been developed to create awareness of HIV/AIDS and do not include information about other sexually transmitted infections. Results of this study also showed that knowledge levels are linked to educational attainment. Sixty percent of our population is illiterate and therefore suggests that all future Information Education Communication (IEC)

campaigns must target this particular segment of the population.

Pakistan is a multicultural and multiethnic society. Provinces and cities differ in terms of demographics, literacy levels, employment patterns, migrant population and linguistics. Accordingly, levels of awareness regarding sexually transmitted infections as shown by our study vary across cities. This warrants the need to develop health education programs that are culturally and ethnically sensitive within Pakistan. These interventions must focus on not only influencing individual behaviors but also changing the overall milieu that enhances vulnerability to acquiring sexually transmitted infections.

Results from this study clearly demonstrated that misconceptions persist in Pakistani society regarding the mode of STI transmission such as assumptions that immoral activities lead to acquiring an STI. These lead to stigmatization and hesitancy on the part of men to access appropriate and timely care. Similar results were obtained from a study in Calcutta (India) which showed fifty percent of 153 English-speaking (high level of literacy) adults believed that all AIDS patients should be quarantined.<sup>20-22</sup> Misconceptions regarding HIV transmission also exists regionally. A study conducted in neighboring Iran showed that 33% of the respondents believed that mosquito bite could transmit HIV/AIDS.<sup>23</sup> Our data showed that 37% of the respondents believed the same.

In Pakistan, as in many other Asian countries,<sup>24,25</sup> mass media channels are a major source of HIV/AIDS information. Available evidence has already shown the effectiveness of mass media in increasing awareness about HIV/AIDS in developing countries.<sup>26</sup> The mass media can, therefore, be used for removing existing misconceptions and closing in gaps in knowledge. In the same way, awareness regarding measures for personal protection need to be adequately highlighted in media campaigns especially focusing on the safe use of syringes.

Due to socio-cultural inhibitions related to sexuality, current educational messages do not emphasize

condom use as one of the ways to protect against infections, and therefore, condoms continue to be perceived primarily as a form of contraception. In some settings there have been major concerns with the idea of promoting condoms as a protective measure on account of perceived social and religious opposition.

The strategy to create awareness and sensitivity about STIs must be diversified beyond conventional approaches in order to reach wider audiences and involve additional messengers. The STI prevention strategy in Pakistan must target the “potentially” at risk groups, not just the already identified high risk groups. Innovative approaches such as the use of community-based interactive theatre performances can be used in reaching out to the youth especially in poorer neighborhoods. This approach has been effectively tried in Iran.<sup>27</sup>

Currently nearly 60 percent of Pakistan’s population is under the age of 25 years. With sexual activity beginning at lower ages and with progressively increasing age at marriage, the window of sexual opportunity has concomitantly widened. This can also be a period for sexual experimentation. In case of low levels of knowledge about risky behaviors coupled with inexperience, individual vulnerability is considerably increased. It is, therefore, exigent that school based life skills programs be started in Pakistan along with the establishment of youth friendly reproductive health centers within tertiary care facilities to offer counseling and guidance on all adolescent health issues including sexually transmitted infections and their prevention and treatment. Global approaches to reach out to younger men have included making condoms freely available and easily accessible at clinics for occasions when men do visit, and encouraging men to accompany their partners for antenatal or family planning visits during which they can be exposed to educational messages on family planning and STIs, given condoms and offered STI tests and treatment. Encouraging men to attend for antenatal care and for family planning services has been under testing for feasibility and effectiveness through operations research in South Africa, India, Zimbabwe and

Nigeria.<sup>28</sup> In many parts of the world provision of integrated reproductive health services is being advocated to reach out to men.<sup>29</sup> However, most of these strategies have not been fully evaluated.<sup>28</sup>

The recent communication revolution in Pakistan has increased opportunities for youth to access sexually explicit materials through internet cafes widely available in the major cities of the country. This exposure needs to be countered with information that is equally accessible, direct, credible, and informative. Engaging teachers, religious leaders and faith based organizations in the promotion of key messages related to safe sexual behavior, including abstinence and monogamy need to be advocated more strongly and effectively in the context of Pakistan.

## Conclusion

This study reinforces the need to expand and strengthen existing preventive interventions already introduced by the Government of Pakistan, as well as to introduce new and cost-effective measures to decrease the spread of STIs and to minimize the chance of an epidemic in the general population. Some of the measures that can be adopted to achieve this include:

- Introduction of life skills education in schools to equip youth with the ability to deal with adolescent health issues and maintain a healthy lifestyle;
- Enhancing the outreach of advocacy and awareness creation efforts by utilizing a variety of mediums and messengers, and adopting a targeted approach in order to have an impact upon risk perception; and
- Using the electronic media to convey messages that communicate the reduction of vulnerability by abstaining from risky practices and using protection, mitigating stigma by removing misconceptions and advocating the need for timely and appropriate management of sexually



transmitted infection from trained providers.

Health transition review. 1993 Suppl to vol 3. (Ed) Caldwell. The Australian National University press.

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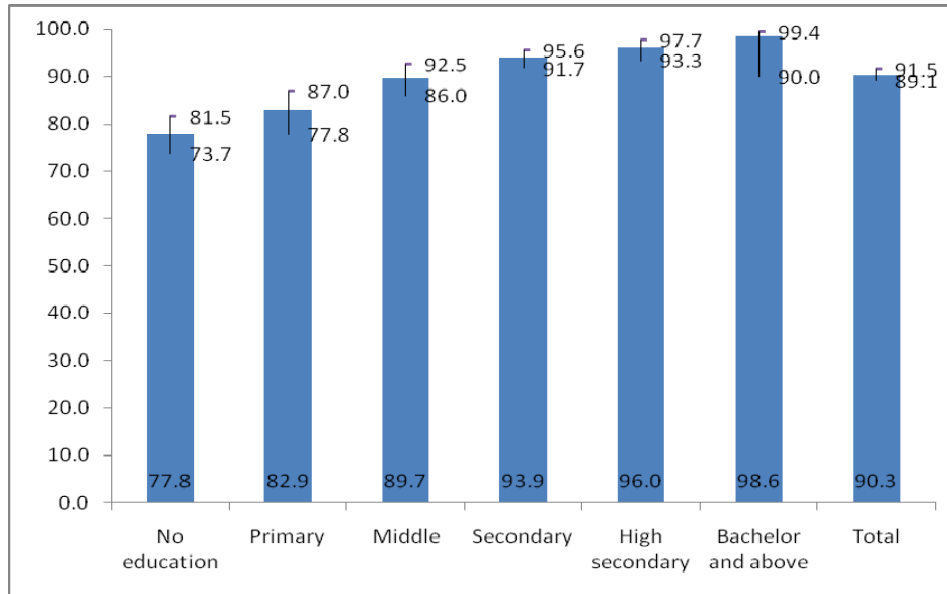
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## References

1. Government of Pakistan. Economic Censes. Islamabad: Ministry of Finance; 2008.
2. World Bank. Report on Preventing HIV/AIDS in Pakistan: Islamabad, 2005  
Available at:  
<http://go.worldbank.org/ZPV0G29CD0>.  
Accessed November 15, 2008.
3. Family Health International. National Study of RTI and STI: Survey of high-risk groups in Lahore and Karachi: Islamabad, 2005. Available at:  
[http://www.fhi.org/en/CountryProfiles/Pakistan/res\\_stistudy.htm](http://www.fhi.org/en/CountryProfiles/Pakistan/res_stistudy.htm)  
Accessed November 15, 2008
4. Family Health International. Implementing Aids Prevention and Care Project: 2007. Available at:  
[http://www.fhi.org/en/HIVAIDS/pub/res\\_IMPACT\\_Final\\_Report.htm](http://www.fhi.org/en/HIVAIDS/pub/res_IMPACT_Final_Report.htm). Accessed November 15, 2008.
5. UNAIDS Global Aids Report: 2008. Available at:  
[www.unaids.org/en/countryresponses/regions/asia.asp](http://www.unaids.org/en/countryresponses/regions/asia.asp). Accessed November 15, 2008.
6. World Health Organization. Young people – A window of hope in the HIV/AIDS pandemic ;2004. Available at: [www.who.int/child-adolescent-health/HIV/HIV\\_adolescents.htm](http://www.who.int/child-adolescent-health/HIV/HIV_adolescents.htm) (Last Accessed May 13, 2009)
7. Caldwell JC, Caldwell P, Maxine Ankrah E, Anarfi JK, Agyeman DK, Awusab-Asare K, Orubuloye IO. African families and AIDs: Context reactions and potential interventions: In Health transition review. 1993 Suppl to vol 3. (Ed) Caldwell. The Australian National University press.
8. Carpenter LM et al. Rates of HIV-1 transmission within marriage in rural Uganda in relation to the HIV sero-status of the partners. AIDS 1999, 13(15):2133-2141.
9. Ulin PR, Robinson ET, Tolley E, McNeill E. 2002. Qualitative Methods: A Field Guide for Applied Research in Sexual and Reproductive Health. Research Triangle Park, NC: Family Health International. Chapter 4, data collection, pp. 69-112.
10. Mishra V, Vaessen M, Boerma JT, et al. HIV testing in national population-based surveys: Experience from the Demographic and Health Surveys. Bulletin of the World Health Organization. 2006; 84 (7): 537-545.
11. National Institute of Population Studies. Pakistan Demographic and Health Survey. Islamabad: National Institute of Population Studies Pakistan, and IRD/Macro International; 1990/1991.
12. Amon, et al.. “Behavioral Surveillance Surveys BSS – Guidelines for repeated behavioral surveys in population at risk of HIV” by FHI, Impact 2000, DFID.
13. Carey MP, Morrison BD & Johnson BT. The HIV-Knowledge Questionnaire: Development and evaluation of a reliable, valid, and practical self administered questionnaire. AIDS and Behavior 1997, 1:61-74.
14. Glaser B & Strauss A. The Discovery of Grounded Theory: Strategies for Qualitative Research. Chicago: Aldine; 1967.
15. Krueger RA & Casey MA. Focus Groups. A Practical Guide for Applied Research (3rd Edition) 2000. Thousand Oaks, CA: Sage Publications.
16. CSP Pro (Census and Survey Processing System) software. Available at  
<http://www.cspro.org/cspro/start.cfm>
17. Statistical Package for the Social Sciences. Available at <http://www.spss.com> .

18. Raglow GJ, Luby SP, Nabi N. Therapeutic injections in Pakistan: from the patients, perspective. *Trop Med Int Health*. 2001; 6: 69-75.
19. Luby SP, Qamruddin K, Shah AA et al. The relationship between therapeutic injections and high prevalence of hepatitis C infections in Hafizabad, Pakistan. *Epidemiology infect*. 1997; 119: 349-356.
20. Parker R, Aggleton P, Attawell K, Pulerwitz J & Brown L. HIV/AIDS-related stigma and discrimination: A conceptual framework and an agenda for action. 2003. Available at: <http://www.popcouncil.org/pdfs/horizons/sdcncptlfrmwrk.pdf> (Last Accessed May 13, 2009).
21. AIDS Bhedbhav Virodhi Andolan. Hard times for positive travel. New Delhi, India: Author. Avert. (2004). HIV and AIDS in India 1993. Available at: <http://www.avert.org/aidsindia.htm>. (Last accessed May 26, 2009).
- 22: Porter SB. Public knowledge and attitudes about AIDS among adults in Calcutta, India. *AIDS Care* 1993, 5(2), 169-176.
23. Tavooosi A, et al. Knowledge and attitude towards HIV/AIDS among Iranian Students. *BMC Public Health*. 2004; 4 (17).
24. Li XM, Lin CD, Gao ZX, et al. HIV/AIDS knowledge and the implications for health promotion programs among Chinese college students: geographic, gender and age differences. *Health promotion int*. 2004; 19: 345-356.
25. Wong LP et al. HIV/AIDS – Related Knowledge Among Malaysia Young Adults, Findings from a Nationwide Survey: *Medscape Journal of Medicine*: 2008. Available at: <http://www.medscape.com/viewarticle/573213>. Accessed November 15, 2008.
26. Bertrand JT, O'Reilly K, Denison J et al. Systematic review of the effectiveness of mass communication programs to change HIV/AIDS-related behaviors in developing countries. *Health Education Research*. 2006; 21:567-597.
27. UNICEF Programme Progress Report Iran: 2007. Available at: [www.unicef.org/iran/layout-en-web.pdf](http://www.unicef.org/iran/layout-en-web.pdf). Accessed November 15, 2008.
28. Askew I and Maggwa N. Integration of STI prevention and management with family planning and antenatal care in sub-Saharan Africa – what more do we need to know?. *International Family Planning Perspectives*. 2002; 28 (2).
29. Lush L et al. and Shelton JD. Prevention first: a three-pronged strategy to integrate family planning program efforts against HIV and sexually transmitted infections, viewpoint, *International Family Planning Perspectives*, 1999, 25(3):147-152.

Figure 1. Awareness of HIV and educational attainment with 95 percent confidence levels (n=2400)



**Table 1.** Socio- Demographic Characteristics of Respondents (N = 2400)

<b>Age</b>	<b>Percent</b>
Mean age in years	29.1
Median age in years	27.0
<b>Education</b>	
No Education	14.9
Up to secondary	53.2
Above secondary	31.9
<b>Employment</b>	
Unemployed	3.0
Student	16.8
Employed	80.3
<b>Types of Employment</b>	
Government Service	19.3
Private Service	39.3
Self-employed	32.4
Other	8.9
<b>Marital Status</b>	
Unmarried	47.8
Married	51.8
Formerly married	0.7
<b>Economic Status – Monthly Earnings</b>	
1000-5000 Rupees	39.2
5,001-15,000 Rupees	50.1
15,001 and above	10.7

**Table 2.** Percentage distribution of unprompted knowledge of sexually transmitted infections, by city

STI	Faisalabad	Karachi	Lahore	Peshawar	Quetta	Rawalpindi	Overall
None	28.4	50.0	15.9	28.5	13.3	5.1	23.6
Gonorrhoea	1.3	1.5	0.0	1.3	0.8	1.5	1.0
Sozaak*	8.0	5.0	5.3	8.5	27.3	3.3	9.6
Syphilis	0.8	1.3	1.0	1.8	0.8	1.3	1.1
Aatshak**	3.5	1.0	1.8	2.3	6.5	1.3	2.7
Chlamydia	0.3	0.8	0.3	1.5	0.8	0.5	0.7
HIV/AIDS	68.3	45.2	78.0	67.5	81.3	90.3	71.7
Hepatitis	43.0	30.2	40.0	33.0	50.0	68.2	44.0
Other	3.3	1.5	3.3	6.0	7.3	5.9	4.5
(N)	(400)	(400)	(400)	(400)	(400)	(400)	(2,400)

\*Sozaak: *The vernacular name for gonorrhoea*

\*\*Aatshak: *The vernacular name for syphilis*

**Table 3.** Percentage distribution of respondents according to source of information regarding HIV/AIDS, by city

Source	Faisalabad	Karachi	Lahore	Peshawar	Quetta	Rawalpindi	Overall
TV	86	69	85	85	82	91	84
Friend/family member	39	30	22	39	28	21	30
Book/newspaper	30	19	11	35	25	24	24
Health provider	17	29	9	15	21	24	19
Radio	6	9	14	14	18	28	15
Other	1	3	1	2	2	1	2
Cannot recall	1	1	1	1	0	1	1
(N)	(375)	(243)	(382)	(384)	(389)	(396)	(2,169)*

*Note: Multiple responses were possible; columns do not total 100 percent.*

\*Respondents who had heard of HIV/AIDS

**Table 4.** Percentage distribution of respondents (who had heard of HIV/AIDS), according to myths and misconceptions about HIV/AIDS, by city

Mode of HIV transmission	Faisalabad	Karachi	Lahore	Peshawar	Quetta	Rawalpindi	Overall
Sharing food with an infected person							
Yes	39.5	30.9	24.1	24.2	16.7	20.2	25.5
No	35.7	33.7	47.1	62.2	65.6	67.7	53.4
Don't know	24.8	35.4	28.8	13.5	17.7	12.1	21.1
Sharing clothes with an infected person							
Yes	37.9	29.6	22.0	24.7	15.7	17.7	24.2
No	36.5	35.4	47.6	59.9	63.8	65.7	52.7
Don't know	25.6	35.0	30.4	15.4	20.6	16.7	23.1
Sharing bedding with an infected person							
Yes	37.6	30.5	24.1	25.5	18.0	21.0	25.7
No	36.3	32.5	45.8	60.7	62.5	63.6	51.5
Don't know	26.1	37.0	30.1	13.8	19.5	15.4	22.7
Mosquito/insect bite							
Yes	44.3	27.2	34.0	50.3	21.9	38.6	36.6
No	19.5	32.1	34.6	28.1	47.6	39.1	33.7
Don't know	36.3	40.7	31.4	21.6	30.6	22.2	29.7
Shaking hands with an infected person							
Yes	21.9	18.5	17.8	15.1	8.5	15.9	16.1
No	50.7	46.1	52.1	73.7	76.3	71.5	62.9
Don't know	27.5	35.4	30.1	11.2	15.2	12.6	21.0
Sharing toilet with an infected person							
Yes	30.9	26.3	21.2	24.2	24.4	18.4	24.1
No	39.5	35.0	44.8	52.6	48.3	61.1	47.8
Don't know	29.6	38.7	34.0	23.2	27.2	20.5	28.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(N)	(375)	(243)	(382)	(384)	(389)	(396)	(2,169)*

Note: "Yes" includes both prompted and unprompted responses.

\*Respondents who had heard of HIV/AIDS