

KNOWLEDGE ABOUT HIV AND DISCRIMINATORY ATTITUDES TOWARD PEOPLE LIVING WITH HIV IN PAKISTAN

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Abstract

Background: Little evidence is available regarding knowledge about HIV and attitudes of the general population toward PLHIV in Pakistan. Secondary analysis of data from PDHS 2012-13 was performed to evaluate the effect of knowledge about HIV on discriminatory attitudes toward PLHIV in Pakistan and to explore their association with socioeconomic and demographic variables.

Methods: Ever-married persons age 15-49 who had ever heard about AIDS were included in the study. Variables measuring composite knowledge and discriminatory attitude were developed and recoded into three groups for analysis.

Results: Around 17% of respondents correctly answered all five questions regarding transmission and prevention of HIV. Overall by the composite three-category knowledge variable, 66% had more knowledge, 29% and 5% had some and no knowledge about HIV respectively. About 22.8% of respondents showed more discriminatory attitude, while 61.1% showed some and only 16% of the respondents showed no discriminatory attitude toward PLHIV. The study found a statistically significant inverse relationship between knowledge about HIV and discriminatory attitude toward PLHIV. Regression analysis showed that respondents with secondary or higher education and in the middle, rich, and richest wealth quintiles exhibit less discriminatory attitude toward PLHIV. Men, despite having more knowledge about HIV, held more discriminatory attitude toward PLHIV.

Conclusion: The results suggest a need for Pakistani society to become better informed about HIV/AIDS in order to reduce the stigma associated with HIV and avoid discriminatory attitudes.

Keywords: HIV, acquired immunodeficiency syndrome, Pakistan

Introduction

There are 37 million people living with HIV (PLHIV) globally, with annual incidence of more than 2 million in 2015. HIV/AIDS remains a major global public health issue, resulting in more than 1 million deaths worldwide (1). In Asia and the Pacific, the number of PLHIV has increased by 10% since 2001 (2). With the fastest growing HIV/AIDS epidemics, the Eastern Mediterranean region is one of the top two regions of the world in the number of PLHIV. Pakistan is among those five countries of EMRO, contributing about 80% of total cases (3).

The HIV epidemic trend in Pakistan is comparable to other Asian countries, having moved from low prevalence, high risk to concentrated epidemic in the early to mid-2000s (1, 4). The most vulnerable high-risk groups in Pakistan are injecting drug users and commercial sex workers (5, 6).

Some of the challenges for effective control and response to the HIV epidemic in Pakistan include lack of reliable data regarding the trend of the epidemic, low national commitment, the stigma attached to HIV (7,8), risk behaviors associated with HIV transmission, and discrimination toward PLHIV (3). Research suggests that individuals who express greater agreement with stigmatizing statements about PLHIV are those who have incorrect knowledge about HIV transmission (9). Stigmatizing is not only restricted to discriminatory statements; it also extends to discriminatory behavior toward PLHIV. Studies have shown that HIV-related stigma and discrimination inhibit HIV prevention, mitigation (7,10), HIV testing (7) and unwillingness of the general community to provide social support to PLHIV (11).

PLHIV experience rejection from others when they disclose their disease status (12,13). Disclosing one's HIV status can have some positive effects, e.g. the risk of disease transmission can be reduced (14), earlier start and regular intake of medication by PLHIV and its optimum beneficial effects (15-17). Nevertheless, to avoid social rejection, PLHIV do not usually disclose their disease status and instead keep it secret (18).

Though studies have been conducted on HIV/AIDS-related knowledge and attitudes concerning high-risk groups (19-21), little evidence is available about the attitude of the general population toward PLHIV in Pakistan, and that cannot be generalized to the entire population. Presently, the data available in the 2012-13 Pakistan Demographic Health Survey (PDHS) (22) are likely to fill the gap by providing information about the attitudes of individuals toward PLHIV in their communities. The PDHS findings can be easily generalized due to their representativeness and adequate sample size.

From the existing data, we intend to measure the relationship between the knowledge men and women of reproductive age have regarding HIV and their attitudes toward PLHIV and the association of demographic and socioeconomic indicators with knowledge of individuals about HIV and their attitudes toward PLHIV. The study's findings will possibly guide policymakers in addressing the causes of discriminatory attitudes toward PLHIV through promoting awareness and health education. This change in attitudes is likely to improve social responses of the communities toward PLHIV resulting in a successful prevention program.

Methodology

This study is based on secondary analysis of data provided by the 2012-13 PDHS (22). The data for this study were taken from interviews with ever-married women and men age 15-49 years who had heard about AIDS.

Sampling Procedure

The PDHS used a two-stage stratified cluster sampling method. The sampling frame consists of all rural and urban areas of five provinces of Pakistan. In the first stage, 500 primary sampling units (PSU) comprising of 248 out of 26,543 urban and 252 out of 46,307 rural areas were selected using a probability proportional to size. In the second stage, a total of 14,000 households, with 28 from each PSU, were selected using a systematic sampling technique with a random start. Sample size after correction for sampling weight was 7,821.

Our sample size was same as that of PDHS, we included responses from all the individuals (7821) for analysis.

Variables

Discriminatory attitude toward PLHIV: In the PDHS, an affirmative response to some survey questions indicated an accepting attitude, while to others indicated a discriminatory attitude toward PLHIV. In our study, each variable was re-coded so that the same value indicated discriminatory attitude for all questions, and a composite variable of

discriminatory attitude was constructed. These modified indicators included: Not willing to buy fresh vegetables from an HIV-infected person, Want to keep the positive HIV status of a family member secret, Not willing to care for family member sick with AIDS, and Not willing to let an HIV-infected female teacher continue teaching in the school.

The Cronbach alpha for these four variables was 0.7. On the basis of responses to these four variables, discriminatory attitude is categorized into "no, some and more discriminatory attitude" if the respondent gave no, 1-2 or 3-4 affirmative responses respectively.

Knowledge about HIV: A composite variable regarding knowledge about HIV was developed on the basis of five questions, including knowing that: A healthy-looking person can have HIV, HIV can be prevented by using a condom every time a person has sex and by limiting sex to one uninfected partner who has no other partners, HIV cannot be transmitted by mosquito bites or by sharing food with someone who has HIV.

The Cronbach alpha for these five variables was 0.86. The composite knowledge variable constructed from the five variables was categorized into "no knowledge, some knowledge and more knowledge" if the respondent gave no, 1-2 or 3-5 correct responses respectively.

Socioeconomic and demographic (SED) variables: These included the variables related to background characteristics of study participants like age, sex, education, region, residence, and wealth.

Statistical analysis

Descriptive analysis was performed for each variable. Chi-square test was applied to see the association of knowledge about HIV and anticipated discriminatory attitudes toward PLHIV. Two models, one unadjusted and second was adjusted for SED variables; were developed to determine the association by using multinomial regression between knowledge of HIV and discriminatory attitude. Relative risk ratios with 95% confidence interval were calculated. Sample weights were applied to overcome the effect of the complex multistage sampling design for all the analysis performed using STATA version 14.0 software.

Ethical consideration

Consent from each participants was taken prior to the interview by interviewers, who were graduates from various universities and specially recruited and pre-trained for this purpose by National Institute of Population Studies (NIPS) (22). Data was used to analyze with permission from ICF and USAID. Moreover, consent from IRB of Fazaia Medical College was also been taken.

Results

Background characteristics of study sample

A total of 7,821 individuals were included in the study, of whom about three-fourths were female. Table 1 shows the background characteristics of the sample population. The highest proportion of respondents aged 27-37 years. Thirty-seven percent (2860) of respondents had a secondary education. Around 62% (4879) were residents of Punjab province, and 52% (4064) of respondents were rural.

Table 1: Ever-married women and men age 15-49 who have heard about AIDS by background characteristics

| Variables | Female | | Male | | Total | |
|--|--------------|------------|--------------|------------|--------------|------------|
| | Frequency | % | Frequency | % | Frequency | % |
| Age in years | | | | | | |
| 15-26 | 1,437 | 25.3 | 272 | 12.7 | 1,709 | 21.9 |
| 27-37 | 2,641 | 46.6 | 950 | 44.3 | 3,592 | 45.9 |
| 38-49 | 1,596 | 28.1 | 924 | 43.0 | 2,520 | 32.2 |
| Education | | | | | | |
| No education | 1,424 | 25.1 | 324 | 15.1 | 1,748 | 22.4 |
| Primary (Completing classes 1-5) | 1,083 | 19.1 | 443 | 20.7 | 1,526 | 19.5 |
| Secondary (Completing classes 6-10) | 1,958 | 34.5 | 902 | 42.0 | 2,860 | 36.6 |
| Higher (Completing classes 11 & above) | 1,210 | 21.3 | 477 | 22.2 | 1,687 | 21.5 |
| Region | | | | | | |
| ICF | 53 | 0.9 | 16 | 0.7 | 69 | 0.9 |
| Punjab | 3,862 | 62.8 | 1,318 | 61.4 | 4,879 | 62.4 |
| Sindh | 1,365 | 24.1 | 471 | 22.0 | 1,836 | 23.5 |
| KPK | 560 | 9.8 | 246 | 11.5 | 806 | 10.3 |
| Balochistan | 124 | 2.2 | 87 | 4.1 | 212 | 2.7 |
| Gilgit Baltistan (GB) | 11 | 0.20 | 8 | 0.3 | 19 | 0.2 |
| Residence | | | | | | |
| Urban | 2,540 | 44.8 | 1,217 | 56.7 | 3,757 | 48.0 |
| Rural | 3,135 | 55.2 | 929 | 43.3 | 4,064 | 52.0 |
| Wealth Quintile | | | | | | |
| Poorest | 167 | 3.0 | 197 | 9.2 | 365 | 4.7 |
| Poorer | 482 | 8.5 | 335 | 15.6 | 817 | 10.5 |
| Middle | 1,017 | 17.9 | 401 | 18.7 | 1,418 | 18.1 |
| Richer | 1,646 | 29.0 | 592 | 27.6 | 2,239 | 28.6 |
| Richest | 2,361 | 41.6 | 621 | 28.9 | 2,982 | 38.1 |
| Total | 5,675 | 100 | 2,146 | 100 | 7,821 | 100 |

Knowledge about HIV

Knowledge about HIV is almost equally distributed among men and women, as Figure 1 shows. Among both women and men, 67% were aware that a healthy-looking person can have HIV. Overall 78% and 58% of individuals knew that limiting sex to one uninfected partner and use of condom can reduce the risk of getting HIV respectively.

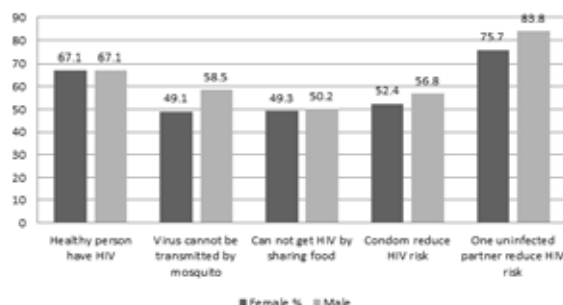


Figure 1: Knowledge about HIV

Around 17% of respondents correctly answered all five questions regarding transmission and prevention of HIV, while 23% gave four correct answers, and 26% gave three correct answers.

Overall by the composite three-category knowledge variable, 66% had more knowledge, 29% and 5% had some and no knowledge about HIV respectively.

Discriminatory attitudes toward PLHIV

As Figure 2 shows, only a small percentage of respondents said they would be unwilling to care for HIV-infected family members, while 58% of women and 62% of men said they would keep the positive HIV status of a family member secret.

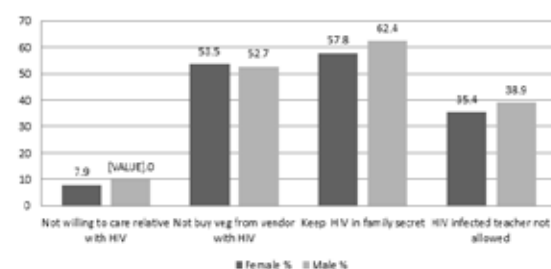


Figure 2: Discriminatory attitude toward PLHIV

Overall, 33% of respondents showed a discriminatory attitude on only one variable, while about 21% showed a discriminatory attitude on three variables. Only 16% of the respondents showed no discriminatory attitude toward PLHIV.

About 22.8% of respondents showed more discriminatory attitude, while 61.1% showed some and only 16% of the respondents showed no discriminatory attitude toward PLHIV.

Association of knowledge about HIV by discriminatory attitude

Respondents with no knowledge about HIV had the highest proportion with a more discriminatory attitude (41%) compared with those with some or more knowledge (30% and 18% respectively) as shown in Figure 3. Chi-square test was used to see the association of knowledge with discriminatory attitude and was found highly significant, with p -value < 0.001 .

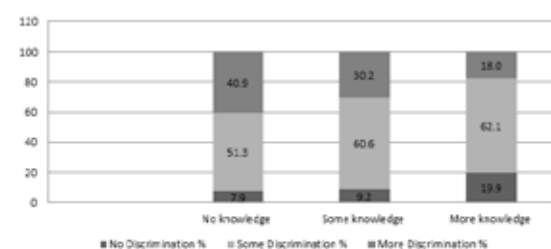


Figure 3: Discriminatory attitude toward PLHIV and knowledge about HIV

Association of knowledge about HIV and discriminatory attitude toward PLHIV with SED factors

In analysis, exploring the association of the composite variable of knowledge about HIV with selected SED factors by using a chi-square test; sex, education, region, residence, wealth (all $p < 0.001$), and age ($p < 0.01$) were significantly associated with HIV knowledge.

Discriminatory attitude was significantly associated with sex, education, wealth, and region (all $p < 0.001$). Discriminatory attitude was also significantly associated with age ($p < 0.05$), while the association with residence was of borderline significance ($p = 0.05$).

Regression results for discriminatory attitude by knowledge about HIV

Table 2 shows the unadjusted and adjusted for SED factors results of the multinomial regression model using knowledge about HIV to predict discriminatory attitude toward PLHIV, with "no knowledge" and "no discriminatory attitude" as reference.

Table 2. Regression models of discriminatory attitude toward PLHIV and knowledge about HIV

| Variables | Categories | Some discriminatory attitude | | More discriminatory attitude | |
|---|--------------------|------------------------------|-----------|------------------------------|------------|
| | | RR | CI | RR | CI |
| Model-I: Multinomial regression of discriminatory attitude toward PLHIV and knowledge about HIV (unadjusted) | | | | | |
| Knowledge | No knowledge (Ref) | | | | |
| | Some knowledge | 1.0 | [0.5,1.9] | 0.6 | [0.3,1.2] |
| | More knowledge | 0.5* | [0.3,0.9] | 0.2*** | [0.1,0.3] |
| Model II: Multinomial regression of knowledge about HIV and discriminatory attitude toward PLHIV adjusted for SED factors | | | | | |
| Knowledge | No knowledge (Ref) | | | | |
| | Some knowledge | 1.1 | [0.5,2.1] | 0.7 | [0.3,1.4] |
| | More knowledge | 0.5 | [0.3,1.0] | 0.2*** | [0.1,0.4] |
| Age in years | 15-26 (Ref) | | | | |
| | 27 - 37 | 1.0 | [0.8,1.2] | 1.0 | [0.8,1.3] |
| | 38 - 49 | 0.9 | [0.7,1.1] | 1.1 | [0.8,1.5] |
| Education | No education (Ref) | | | | |
| | Primary | 0.8 | [0.6,1.1] | 0.8 | [0.5,1.1] |
| | Secondary | 0.6** | [0.5,0.9] | 0.5*** | — |
| | Higher | 0.5*** | [0.4,0.7] | 0.4*** | [0.3,0.6] |
| Region | ICT (Ref) | | | | |
| | Punjab | 0.9 | [0.7,1.2] | 1.0 | [0.7,1.5] |
| | Sindh | 1.4* | [1.0,1.8] | 1.6* | [1.1,2.3] |
| | KPK | 0.9 | [0.6,1.4] | 0.8 | [0.5,1.3] |
| | Balochistan | 1.4 | [0.8,2.4] | 3.0*** | [1.7, 5.2] |
| | GB | 1.9* | [1.1,3.1] | 2.1* | [1.1,4.1] |
| Sex | Women (Ref) | | | | |
| | Men | 1.1 | [0.8,1.4] | 1.9*** | [1.4,2.6] |
| Residence | Rural (Ref) | | | | |
| | Urban | 0.9 | [0.7,1.1] | 1.0 | [0.7,1.3] |
| Wealth | Poorest (Ref) | | | | |
| | Poorer | 1.2 | [0.7,2.2] | 0.6 | [0.4,1.1] |
| | Middle | 0.9 | [0.5,1.4] | 0.4*** | [0.3,0.7] |
| | Richer | 1.0 | [0.6,1.6] | 0.5** | [0.3,0.8] |
| | Richest | 1.3 | [0.8,2.2] | 0.5* | [0.3,0.9] |

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

In unadjusted model, respondents with "more knowledge" about HIV exhibited; half the risk of expressing "some discriminatory attitude" ($RR=0.5$; $CI=0.3, 0.9$; $p < 0.05$) and about one-fifth the risk of "more discriminatory attitude" compared to those with no knowledge ($RR=0.2$; $CI=0.3, 0.9$; $p < 0.001$).

The risk of having "more discriminatory attitude" toward PLHIV (versus "no discriminatory attitude") was lower among respondents in the "more knowledge" category compared with the "no knowledge" group, and this relationship was significant statistically ($RR=0.2$; $CI=0.1, 0.4$; $p < 0.001$) even after adjusting for SED factors. However, after including SED factors in the model, the association between knowledge of HIV and "some discriminatory attitude" toward PLHIV found in the unadjusted model was no longer significant.

Table 2 also shows that "Some and more discriminatory attitude" (versus "no discriminatory attitude") were significantly associated with the level of education.

Risk of "some discriminatory attitude" was higher among residents of Sindh and GB, while that of "more discriminatory attitude" was three times higher in residents of Balochistan ($RR=3.0$; $CI=1.7, 5.2$; $p < 0.001$) as residents of ICT.

Men were almost twice as likely as women to have "more discriminatory attitude" and the relative risk ratio was extremely significant ($RR=1.9$; $CI=1.4, 2.6$; $p < 0.001$). Individuals in the top three wealth quintiles had lower risk for "more discriminatory attitude" (versus no discriminatory attitude).

Discussion

In our study, two-thirds (66%) of respondents had more knowledge about HIV compared with less knowledge (29%) and no knowledge (6%). Our finding is consistent with a study in South India, which found that most of the population had good knowledge about HIV (23). A study in Karachi (5) found the proportion of participants with good knowledge about HIV consistent with our study, while the proportion with no knowledge and less knowledge were different from our study. This difference could be because that study included only the population age 17-21 while our study population was age 15-49. In contrast to our finding, a study in Nijeria found less participants with good knowledge about HIV, and more with fair and poor knowledge. This difference between the studies is possibly due to differences in educational level of study populations, as three-fourths of our participants had primary, secondary, or higher education while two-thirds of participants in the Nigerian study had no formal schooling (24).

Similar to the findings of studies in India (25) and Bangladesh (26), 67% of respondents in our study knew that a healthy-looking person can have AIDS. This result was quite high compared with a recent study among fishermen in Karachi (21) which could be explained on the basis of their low literacy rate.

Around half of the study participants rejected the common misconception of transmission of HIV through mosquito bites, similar to studies in Bangladesh (26) and Iran (27), while studies in Japan (28) and South India (23) observed higher levels. The Japanese study, however, only included college students, and in the Indian study, more of the participants were male and all were relatives of PLHIV.

Finding regarding rejected the misconception that sharing food can transmit HIV is consistent with another study in Pakistan (29) but much lower than the study of South India, which only covered adult family members of PLHIV (23), who can be presumed to have more knowledge about HIV than the general population.

Knowledge regarding preventive measures against HIV was 54% concerning condom use and 78% concerning limiting sex to one uninfected partner, almost similar to a study in Bangladesh (26) and a national survey (NFHS-3) in India (25).

The level of knowledge about HIV was higher among men than women, individuals with more education, and residents of urban area. These findings agree with studies in Bangladesh and India (23, 25, 26). In our study participants age 27-37 and those in the highest wealth quintile had significantly more knowledge about HIV similar to a study conducted in Karachi (5).

Overall, only 16% of individuals in our study expressed no discriminatory attitude toward PLHIV, while 61% had some and 23% showed more discriminatory attitude. A study in Iran also found a high level of negative attitudes toward PLHIV among the general public (27). Study in Bangladesh found a moderate level of discriminatory attitude among health care workers (30). A study in South India found that more than half of the respondents had accepting attitude toward PLHIV (23), high level of knowledge being relatives of PLHIV may reflect the fact.

Findings related to discriminatory attitude toward buying vegetables from an HIV-infected vendor, allowing an HIV-infected teacher to continue teaching, and provision of care to their HIV-infected family members are similar to a study conducted in Botswana (31), but study in India found less prevalence of discriminatory attitude (25), a difference that could be explained by the higher educational level of participants compared with our study. This highlights the importance of education in reducing the discriminatory attitude of the general population toward PLHIV.

Our finding that 59% of respondents would keep secret the status of an HIV-positive family member is much higher than in the study in India, (25). The difference may be because more than half of respondents in the Indian study had at least secondary education. It might also be possible that by keeping HIV positive status of a member secret, our study population was considering it to be helpful for PLHIV in preventing them from untoward effects of stigmatization, which needs to be explored in future.

Men and individuals with no education in present study showed highly significant association with more discriminatory attitude similar to a study in China (32). The Indian clinic study also found a significant association between more education and lower discriminatory attitude (23).

Association of knowledge about HIV and discriminatory attitude toward PLHIV

The present study revealed an inverse relationship between the level of knowledge and the risk of having discriminatory attitude ($p < 0.001$), such that having more knowledge about HIV is associated with a lower likelihood of exhibiting more discriminatory attitude toward PLHIV. This finding is consistent with the studies in India, Bangladesh, and Iran (9, 23, 30, 33). Significant negative correlation was found between awareness about HIV and discriminatory attitudes toward PLHIV in another study of Iran (34).

A study in Kuwait showed a high level of negative attitude toward PLHIV despite a high level of knowledge about HIV (35), which actually supports our result, as men in our study showed twice the risk of discriminatory attitude in spite of having "more knowledge" about HIV. Study in Bangladesh, also found more negative attitude among men (30).

We found that discriminatory attitude toward PLHIV was more common among participants in the low wealth quintile and those with less education similar to studies in India and Bangladesh (23, 30).

Conclusion

There is a significant association between knowledge about HIV and discriminatory attitude toward PLHIV after adjusting for socioeconomic and demographic factors. Some discrimination was found at all levels of knowledge about HIV. Having secondary and higher education, more knowledge about HIV and being in richest wealth quintiles, were associated with lower likelihood of more discriminatory attitude toward PLHIV. Participants in Sindh, Balochistan, and GB provinces were associated with increased risk of more discrimination. Men had more discriminatory attitudes toward PLHIV.

Despite having knowledge about HIV, our study population showed negative views reflected through their discriminatory attitudes toward PLHIV. It's time for policymakers to pay attention in equitable allocation of resources towards health education component of NACP.

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