



ORIGINAL ARTICLE

Changes in Human Immunodeficiency Virus-related Knowledge and Stigmatizing Attitudes among Korean Adolescents from 2006 to 2011

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Abstract

Objectives: This study assessed the prevalence and changes of human immunodeficiency virus (HIV) knowledge and stigmatizing attitudes in 2006, 2008, and 2011.

Methods: Three cross-sectional surveys were conducted in 2006, 2008, and 2011. A cross-sectional sample of high school students in Seoul, South Korea was targeted. A self-administered questionnaire measuring general and transmission and discriminatory attitudes was used.

Results: Misconceptions about casual contact were widespread, even though the proportion responding incorrectly decreased significantly over the 5-year period. The respondents in all surveys displayed a high level of discrimination against those with HIV/AIDS in some situations, particularly in the idea of HIV/AIDS making the respondent feel disgusted (63.3% in 2006, 57.5% in 2008, and 52.6% in 2011), avoiding sitting with people with HIV/AIDS (50.6% in 2006, 50.5% in 2008, and 48.5% in 2011), and blaming those with HIV for becoming infected (46.6% in 2006, 42.8% in 2008, and 43.0% in 2011). Even though respondents had a high level of stigmatizing attitudes, the survey showed that the stigma has declined over the 5-year period.

Conclusion: The survey results showed that public health policy should recognize that HIV stigmatizing attitudes persist in Korea. This finding has implications for the development of intervention programs focusing on reducing the levels of discrimination.

1. Introduction

The stigma of human immunodeficiency virus (HIV)/AIDS has interfered with effective responses and presents

major barriers to HIV/AIDS prevention and treatment. Deacon defines the stigma associated with HIV/AIDS in the following manner. Illness is constructed as preventable or controllable. Immoral behaviors causing the

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illness are identified. These behaviors are associated with carriers of the illness in other groups, drawing on existing social constructions of the other. Certain people are thus blamed for their own infection, and status loss is projected onto the other, which may (or may not) result in disadvantage to them. These factors will lead to stigmatizing of persons with HIV/AIDS (PWHAs), to blaming, shaming, and status loss [1]. Therefore, these stigmatizing attitudes often lead to PWHAs hiding their condition. This has been linked with increased depression, increased transmission rates, and lower HIV testing [2,3]. Feelings of isolation, shame, and fear have deterred people from being tested for HIV and from disclosing their positive status to sexual partners, family, and friends [4,5]. This stigma has even been linked to early death [1]. Lack of family and social ties—symptoms of discrimination and perceived discrimination—have been linked to both inconsistent condom use and HIV prevalence [6]. Choi et al [7] found that discrimination and financial hardship—often, though not always, a consequence of employment or familial discrimination—were associated with unprotected anal sex. Discrimination also had a direct effect on unprotected anal or vaginal intercourse with both women and men [7]. Finally, stigma and discrimination have been associated with HIV risk, and found to be a barrier to HIV prevention interventions [8].

Stigmatizing attitudes are strongly associated with the misconception of HIV transmission and negative attitudes toward the social group, particularly homosexuals and sex workers [4,8,9]. Knowledge is an important prerequisite for prevention in other areas of HIV transmission. Most national programs have made considerable effort to increase the knowledge of HIV, increase knowledge of the behaviors that spread the disease and the ways it can be avoided, and reduce the stigma against PWHAs [4]. Dealing with discrimination and stigma is particularly difficult throughout Asia because it addresses so many taboo, shameful, or uncomfortable topics, such as HIV/AIDS, sexual behavior, and homosexuality [10]. Widespread education and programs that promote discussions on the topics surrounding HIV have been found to reduce stigma and discrimination, but doing so is deeply uncomfortable for many Asian people including Koreans. In China, it is reported that schools do not provide sexuality education, and that talking to parents or other adults (and in many cases even sexual partners) is culturally prohibited, leaving the information sources available to those who seek it of unknown quality at best, and simply wrong at worst [10]. The common avoidance of talking about this topic can actually increase discrimination and stigma, as ignorance and misconception leads to the common belief that sexually transmitted infections happen only to drug users, prostitutes, and other stigmatized groups [10].

This stigmatization on a community and societal level is necessary for maintaining social order and reinforcing social inequalities, with the stigmatized groups representing a negative, unwanted value. When working with

Korean society, decreasing or changing the stigma and discrimination cannot occur by focusing on individuals, but must be based on changing the broader societal forces and inequalities at the root of the problem. Most Korean national programs since 2000 supported by the government have made considerable efforts to increase knowledge about HIV, the behaviors that spread the disease, and the ways it can be avoided in order to reduce the stigma against people with PWHAs [4].

School-based sexuality education started in the early 1990s in Korea, was precipitated by previous studies showing a lack of HIV knowledge, misconceptions about HIV transmission, and negative attitudes toward HIV-positive persons among young people. Despite such preventive efforts during the past two decades, the Ministry's reported number of HIV-positive persons in Korea has increased continuously from 2470 in 2003 to 7835 in 2011. Of those, 24.5% are young people aged between 10 years and 29 years [8,11,12].

However, there are few reports that include empirical data about the extent to which the stigma actually persists, or changes in stigmatizing attitudes and misconceptions about HIV transmission among Korean adolescents. These are important determinants to change HIV-related behaviors. Empirical data on the prevalence of HIV/AIDS stigma would be useful not only for designing and evaluating HIV/AIDS prevention programs, but also for formulating a health policy about HIV/AIDS and other HIV/AIDS related issues. The present study described the trends, prevalence, and nature of HIV/AIDS-related stigmatizing attitudes in Korea, using data from surveys conducted with probability samples of Korean adolescents in 2006, 2008, and 2011.

2. Materials and Methods

2.1. Research design

Three cross-sectional surveys were conducted in 2006, 2008, and 2011. A cross-sectional sample of high school students in Seoul, South Korea was targeted. The surveys were self-administered. The ethical considerations of this study were approved by the Sahmyook University Institutional Review Board (IRB), and an IRB number was issued to conduct the study.

2.2. Sample and data collection

For the 2006 survey, the sampling frame was a population of high school students in Seoul, South Korea [9]. A list of schools according to region was obtained from the Seoul Office of Education (SOE). The high school data were collected from eight high schools: two special-purpose high schools (vocational high schools) and six general high schools. All subjects participated voluntarily and completed the questionnaire anonymously during or after regular school hours.

The questionnaire took the subjects an estimated 15 minutes to complete.

The 2008 and 2011 surveys used the same sampling frame and procedures as the 2006 survey. In the 5 years of data collection, the total number of selected subjects was 1516, 1547, and 1548, consecutively. The response rates in 2006, 2008, and 2011 were 97%, 98%, and 96% [9,13,14]. To examine trends, we compared data from the 2008 and 2011 surveys with findings from the 2006 survey Table 1. Methodological details for the 2006 and 2008 surveys have been reported elsewhere [8,9,13,14].

2.3. Instruments

The survey questionnaires were developed from the 2006 survey. Structural questionnaires were developed after consulting with two professionals and performing content validation in the 2006 survey. The items for assessing knowledge of HIV/AIDS and stigmatizing attitudes were the same as those used in the 2006 survey as much as possible. Some new items were added and other items were dropped in 2008 and 2011. The present study reports response patterns for items that were administered in all three surveys.

2.4. Knowledge

Eleven questions were used to measure the knowledge of HIV/AIDS with the possible answers of “true,” “false,” and “don’t know.” Subjects who answered “don’t know” were coded together with incorrect answers. As incorrect knowledge of HIV/AIDS transmission was correlated in many studies [4,9,13], we assessed the knowledge of whether or not HIV could be transmitted through various routes such as kissing, sharing a toilet, sharing cups, mosquito bites, or daily school life.

2.5. Stigmatizing attitudes towards PWHAs

The HIV/AIDS stigmatizing attitudes were measured using a five-point Likert scale, ranging from “strongly agree” to “strongly disagree.” The section included six questions of negative feelings about HIV or PWHAs such as “HIV/AIDS makes me feel disgusted” and “I will avoid sitting with PWHAs,” and three questions of willingness to be together such as “I can share a meal with a person infected with HIV.” Nine survey items asked the subjects to indicate their degree of agreement regarding the stigmatizing attitudes towards PWHAs.

2.6. Statistical analyses

The data were analyzed using SPSS 19.0 (SPSS Inc, Chicago, IL, USA). As the same items were used in three surveys, the data can be examined for trends in HIV-related knowledge and stigmatizing attitudes from 2006 to 2011. For the dependent variables, responses to each item were coded 0 or 1, with the percentage reported in Tables 2 through 5 corresponding to responses coded 1. To account for the unequal time gaps between surveys (i.e., 2 years between the 2006 and 2008 surveys, 3 years between 2008 and 2011 surveys), an independent variable for year was coded 0 (2006), 2 (2008), or 5 (2011). Changes in knowledge and stigmatizing attitudes were assumed to be linear and consistent across the years in which data were not collected. Statistically significant odds ratios ($p < 0.05$) are reported.

3. Results

3.1. HIV/AIDS knowledge

Many respondents in the 2011 survey believed incorrectly that HIV could be transmitted through casual

Table 1. Sociodemographic characteristics by survey

		2006 (<i>n</i> = 1547)		2008 (<i>n</i> = 1516)		2011 (<i>n</i> = 1548)	
Gender	Boys	862	55.7	759	50.1	923	59.6
	Girls	685	44.3	757	49.9	625	40.4
Age	16	440	28.5	502	34.7	535	34.6
	17	600	38.8	496	32.7	511	33.0
	18	506	32.8	494	32.6	502	32.4
Academic performance (self reported)	High	276	17.8	294	19.4	270	17.4
	Average	906	58.6	899	59.3	884	57.1
	Low	362	23.4	323	21.3	385	24.9
	No response	3	0.2	0	0.0	9	0.6
Parental marital status	Living together	1324	85.6	1304	86.0	1338	86.4
	Divorced	101	6.5	121	8.0	119	7.7
	Separated	38	2.5	33	2.2	32	2.1
	Widowed	36	2.3	27	1.8	22	1.4
	Remarried	28	1.8	22	1.5	21	1.4
	Orphans (lost both parents)	5	0.3	5	0.3	4	0.3
	Others	15	1.0	4	0.3	12	0.8

Table 2. Incorrect answer rate of HIV knowledge (myths) for each study year (2006, 2008, 2011)

	% (95% CI)						
	2006		2008		2011		OR Year
HIV could be transmitted via							
kissing (F)	56.2	(53.7-58.7)	49.0	(46.5-51.5)	49.9	(47.4-52.4)	0.955***
sharing toilet (F)	54.7	(52.2-57.2)	46.2	(43.7-48.7)	40.5	(38.1-43.0)	0.895***
sharing cups (F)	53.4	(50.9-55.9)	39.7	(37.2-42.1)	42.5	(40.1-45.0)	0.925***
mosquito bites (F)	72.7	(70.4-74.9)	65.1	(62.7-67.6)	68.2	(65.9-70.5)	0.966*
daily school life (F)	53.6	(51.1-56.1)	23.8	(21.6-25.9)	39.5	(37.0-41.9)	0.911***
If a person has HIV-infected, he can be died within a few month (F)	44.8	(42.4-47.3)	37.3	(34.8-39.7)	39.6	(37.1-42.0)	0.963**

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

Table reports point-estimates with 95% confidence intervals (CIs; in parentheses). Percentages are based on totals that include "don't know" responses and refusals. OR = odds ratio. Figures in the OR Year column are odds ratios, indicating annual change in likelihood of percentage of the question.

contact such as kissing (49.9%), sharing a toilet (40.5%), sharing cups (42.2%), mosquito bites (68.2%), and daily school life (39.5%). In 2006 and 2011, many respondents (72.7% and 68.2%, respectively) still believed that HIV could be transmitted by mosquito bites. Misconceptions about other casual contact were widespread even though the proportion responding incorrectly decreased significantly over the 5-year period. About 45% of respondents in 2006 had the misconception that if a person had HIV, he or she could be dead within a few months; this proportion dropped significantly to nearly 37% in 2008 but rose slightly to 39.6% in 2011. The odds of misconceptions declined significantly between 1996 and 2011 (Table 2).

Most respondents in all surveys understood that HIV could be transmitted by sharing syringes and a healthy looking person could still be infected; these proportions increased slightly in 2008 but declined significantly in 2011. About eight out of 10 respondents in 2006 knew correctly that HIV could be transmitted via a mother to her baby; but this proportion dropped significantly to 72.0% in 2011. The fact that condom use can prevent HIV infection is important knowledge, but only six out of ten respondents answered correctly in all surveys. In addition, about 58% in 2006 believed correctly that if

HIV is treated properly, an average HIV-infected person could live for more than 20 years; this proportion increased to 62% in 2008 and declined again to 55.2%. The odds of a correct answer declined significantly between 2006 and 2011 (Table 3).

The knowledge of HIV transmission through casual contact and the fact that PWHAAs can live a long and fulfilled life with treatment increased, while the accurate knowledge of condom use, sharing syringe, and mother to baby infection and treatment of HIV declined (Tables 2, 3).

3.2. Stigmatizing attitudes towards PWHAAs

The respondents in all surveys displayed a high level of discrimination against those with HIV/AIDS in some situations, particularly in the idea of HIV/AIDS making the respondent feel disgusted (63.3% in 2005, 57.5% in 2008, and 52.6% in 2011), avoiding sitting with PWHAAs (50.6% in 2006, 50.5% in 2008, and 48.5% in 2011), and blaming those with HIV for becoming infected (46.6% in 2006, 42.8% in 2008, and 43.0% in 2011). Even though respondents had a high level of stigmatizing attitudes, the survey shows that the stigma has declined over the 5-year period. Logistic regression analyses indicated that the odds of stigmatizing attitudes

Table 3. Correct answer rate of HIV knowledge (facts) for each study year (2006, 2008, 2011)

	% (95% CI)						
	2006		2008		2011		OR Year
HIV could be transmitted via sharing syringe (T)	89.2	(87.6-90.7)	91.4	(90.0-92.8)	85.6	(83.9-87.4)	0.924***
HIV could be prevented by condom use (T)	58.1	(55.6-60.6)	59.6	(57.1-62.0)	58.4	(55.9-60.9)	NS
Health looking person could be infected (T)	90.6	(89.2-92.1)	93.9	(92.7-95.1)	89.0	(87.5-90.6)	0.949*
HIV could be transmitted via mother to her baby (T)	79.5	(77.4-81.5)	78.0	(75.9-80.1)	72.2	(70.0-74.4)	0.921**
If HIV is treated properly, and average HIV-infected person can live more than 20years (T)	58.1	(55.6-60.6)	62.3	(59.9-64.8)	55.2	(52.8-57.7)	0.971*

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

Table reports point-estimates with 95% confidence intervals (CIs; in parentheses). Percentages are based on totals that include "don't know" responses and refusals. OR = odds ratio; NS = not significant. Figures in the OR Year column are odds ratios, indicating annual change in likelihood of percentage of the question.

Table 4. The proportion of negative feelings for HIV/AIDS and persons with HIV/AIDS (PWHAs) for each study year (2006, 2008, 2011)

	% (95% CI)						
	2006		2008		2011		OR Year
HIV/AIDS makes me feel disgusted	63.3	(60.9-65.7)	57.5	(55.0-55.9)	52.6	(50.1-55.0)	0.917***
I will avoid sitting with PWHAs	50.6	(48.1-53.1)	50.5	(48.0-53.0)	48.5	(46.0-51.0)	NS
PWHAs seems to be sexually promiscuous	34.5	(32.1-36.8)	45.6	(43.1-48.1)	39.6	(37.1-42.0)	1.030*
HIV infection is the fault of the individual	46.6	(44.1-49.1)	42.8	(40.3-45.3)	43.0	(40.6-45.5)	NS
PWHAs should be dropped from school	20.5	(18.5-22.5)	19.6	(17.6-21.6)	17.5	(15.6-19.4)	0.927*
PWHAs should be isolated and sent to Isolation facilities	29.9	(27.6-32.2)	25.1	(22.9-27.3)	23.4	(21.2-25.5)	0.936***

*** $p < 0.001$, * $p < 0.05$.

Percentage who responded "agree" and "strongly agree." Percentages are based on totals that include "don't know" responses and refusals. Table reports point-estimates with 95% confidence intervals (CIs; in parentheses). OR = odds ratio, NS = not significant. Figures in the OR Year column are odds ratios, indicating annual change in likelihood of percentage of the question.

Table 5. The proportion of willingness of contact with PWHAs for each study year (2006, 2008, 2011)

	% (95% CI)						
	2006		2008		2011		OR Year
I could share a meal with a PWHA	23.8	(21.7-25.9)	24.5	(22.4-26.7)	25.8	(23.6-28.0)	NS
If one of my family members is infected with HIV, I could live with them	51.9	(49.4-54.4)	51.3	(48.8-53.8)	51.3	(48.8-53.8)	NS
I could get along with my neighbor who has HIV/AIDS	25.4	(23.3-27.6)	26.0	(23.8-28.2)	28.8	(26.6-31.1)	1.036*

* $p < 0.05$.

Percentage who responded "agree" and "strongly agree." Percentages are based on totals that include "don't know" responses and refusals. Table reports point-estimates with 95% confidence intervals (CIs; in parentheses). OR = odds ratio; NS = not significant. Figures in the OR Year column are odds ratios, indicating annual change in likelihood of percentage of the question.

in "feeling disgusted," "PWHAs should be dropped from school," and "should be isolated" declined significantly. The proportion of respondents believing that "PWHAs seem to be sexually promiscuous" had a significant increase from 34.5% in 2006 to 39.6% in 2011 (Table 4).

The respondents in all surveys showed less willingness to share a meal with PWHAs (23.8% in 2006, 24.5% in 2008, and 25.8% in 2011) and those proportions of "agree" did not significantly change over the 5-year period. About half of the respondents in all surveys answered that they could live with an infected family member, so this proportion was not changed. The proportion that could get along with an HIV-infected neighbor increased significantly (Table 5).

4. Discussion and Conclusion

The survey trends showed that the level of HIV/AIDS knowledge among Korean adolescents increased significantly over the 5-year period, especially about the HIV transmission through kissing, sharing a toilet, sharing cups, mosquito bites, and daily school life. This finding was hopeful, because HIV transmission knowledge was

correlated with the stigma of HIV. However, the 2011 survey suggests that many adolescents still have significant gaps in their knowledge base, with 68% of respondents not knowing whether mosquito bites can transmit HIV. In addition, knowledge of condom use, sharing syringes, mother-to-baby infection, and the treatment of HIV declined over the survey period. These results showed that the level of HIV/AIDS knowledge is still relatively low. These findings are similar to those from other Korean studies for adolescents, and lower for adults [9,13,15]. Approximately 40% to 70% of the subjects believed that HIV transmission was possible by daily life contact with PWHAs, such as through kissing, sharing toilets and cups, or mosquito bites. The use of condoms as an HIV prevention measure was not well understood by the participants. The correct response rate has not changed from the 2006 survey (58.1%) to the 2011 survey (58.4%). These findings highlight the need for education on the use of condoms to prevent HIV transmission in Korea.

The survey trends showed that the level of HIV/AIDS stigmatizing attitudes among Korean adolescents dropped significantly over the 5-year period, especially negative feelings towards PWHAs (disgust), belief that HIV infection is the fault of individual, and the belief that PWHAs should be dropped from school and sent to

isolation facilities. However, the avoidance of sitting with PWHAs had not changed over the study period. In addition, the willingness of being PWHAs in hypothetical situations (sharing a meal and living with an HIV-infected family member) have not changed. Even though the negative feelings of PWHAs have declined, the willingness of being together with PWHAs has not changed. Thus this result showed that considerably more felt uncomfortable about contact with PWHAs and still had a high level of stigmatizing attitudes. If Korean adolescents are exposed to PWHAs, they will avoid more and have more discriminatory attitudes towards them in some real-world interactions.

Although the Korea Center for Disease Control carried out the national HIV/AIDS prevention campaign to reduce the level of discriminatory attitudes towards HIV-infected persons by giving the correct knowledge of HIV transmission, only one-quarter of those surveyed in 2011 expressed willingness to share a meal with PWHAs, and half of the respondents could live with an HIV-infected family member. These attitudes have not changed over the study period. These results showed that Korean adolescents had still considerable social stigma toward PWHAs. These findings are worrisome because PWHAs are both more likely to engage in high-risk behaviors and less likely to tell others, including their partners, or to get tested in highly-discriminatory environments [4,16,17].

The survey results showed that public health policy should recognize that HIV stigmatizing attitudes persist in Korea. This finding has implications for the development of intervention programs focusing on reducing the levels of discrimination. HIV knowledge, especially HIV transmission knowledge affects the stigmatizing attitudes towards PWHAs; those who believe that HIV infection cannot occur through casual contact are more willing to get along with PWHAs [9,13]. Effective education, promotion, and national campaigns are tools to reduce the stigmatizing attitudes towards PWHAs that will also affect the success of policies to prevent HIV transmission.

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