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Association of misconceptions about HIV transmission and discriminatory attitudes in rural China

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Abstract

This study examined HIV-related knowledge and attitudes among 524 randomly selected adult residents from 12 rural Chinese communities where HIV infection among plasma donors has been reported. Most participants were familiar with the main routes of HIV transmission but had substantial misconceptions about risk of HIV transmission through casual social contacts. Higher score of misconception and being older and married independently predicted stronger discriminatory attitude. Intervention programs with focus on eliminating misconceptions about HIV transmission may reduce stigma.

Introduction

AIDS-related stigma has been defined as ‘the prejudice, discounting, discrediting and discrimination that are directed at people perceived to have AIDS’ (Corrigan et al., 1999). Stigma imposes double jeopardy on the lives of people who are living and struggling with HIV disease and constitutes a major barrier to HIV/AIDS prevention and control (Gielen et al., 1997; Gostin et al., 1997; Lieber et al., 2006; Piot 2001; Zierler et al., 2000). Although the causes of stigma are complex, it is generally believed that its origins are deeply rooted in the convoluted domains of gender, race, ethnicity, class, sexuality and culture (Valdiserri, 2002). Perceptions of ‘immorality’ of behaviors related to HIV infection and misunderstanding about the mechanisms of HIV transmission have been two frequently reported reasons for discrimination. Hence, gay men and injection drug users have been discriminated against because they are disproportionately affected by the epidemic and have ‘immoral’ sexual orientation or substance using behavior (Day et al., 2003; Diaz et al., 2004). Overestimation

of the risk of contracting HIV via casual social contact has also been found to be associated with discrimination (Letamo, 2003). Since a recent qualitative study showed that there was substantial discrimination toward the 'blameless' population in rural China who contracted HIV through selling plasma in unhygienic ways (Cao et al., 2006), our study aimed to quantitatively measure HIV-related discriminatory attitudes and evaluate their association with knowledge and misconceptions about HIV transmission in rural Chinese communities with former commercial plasma donors and HIV/AIDS cases.

Methods

Sampling and data collection

The study design was described elsewhere (Qian et al., 2005a). In brief, a total of 660 villagers aged 18–59 years were selected randomly from a sampling framework of 9,205 residents in 12 villages with former plasma/blood donors (FPDs) in southern Shanxi Province, China in 2003. After informed consent was obtained from the study participants, standardized questionnaire interviews were administered to collect data on participants' demographic characteristics, medical history and HIV/AIDS knowledge, attitudes and behaviors, including past blood donation. The study protocol was approved by the institutional review boards of the Chinese National Center for AIDS Control and Prevention and the University of Alabama at Birmingham.

Measures

Knowledge about HIV transmission was assessed with seven items focusing on established routes of HIV transmission (sexual intercourse, blood transfusion, sharing a needle, sharing a shaver and transmission during breastfeeding, pregnancy and delivery). Misconceptions about HIV transmission were measured using five items on risk associated with casual social contacts (shaking hands, sharing meals, speaking face to face, swimming and mosquito bites). All questions were adapted from the Family Health International HIV/AIDS/STD Behavioral Surveillance Surveys (FHI BSS) (FHI, 2000), and the World Health Organization (WHO) Research Package: Knowledge, Attitudes, Beliefs and Practices on AIDS (WHO, 1990). Two composite summary scores of HIV knowledge and risk misconception were created for each respondent by calculating the total number of correct answers to the seven questions of knowledge about established routes of HIV transmission and the total number of false answers to the five questions about transmission of HIV through casual social contacts, respectively.

Five attitude questions were adapted from the FHI BSS instrument to fit local realities (Table I), with the resulting summary score of HIV discriminatory attitude being incremented by one for each discriminatory proposition endorsed by the respondent. All questions were pilot tested for clarity and acceptability among 15 local villagers and eight healthcare staff.

Statistical analysis

We used χ^2 tests to compare the distribution of responses to knowledge and attitude questions by sex and blood/plasma-donor status. Student *t*-tests were used to assess differences in mean age and scores of knowledge, misconception and attitude between groups of interest.

To use the same metric across summary variables and facilitate comparisons with other studies, raw scores of knowledge, misconception and attitude were transformed into standardized *z*-scores. We treated these *z*-scores as continuous variables. Scatter plots showed that the distribution of the *z*-scores of attitude was close to normal. We fitted a multiple linear regression model to identify predictors of discriminatory attitude. Given the study's aim, the *z*-scores of HIV knowledge and risk misconception were entered in the model first. Additional explanatory variables included demographic variables (sex, age, education, marital status, occupation,

economic status) and HIV status, as suggested by the literature (Chen et al., 2005; Liu et al., 2006; Valdiserri, 2002). Having ever sold plasma or blood and knowing anyone with HIV/AIDS were also entered into the models because local residents were aware of the link between plasma/blood selling and HIV risk and knowing anyone with HIV/AIDS might have led to attitude change. All variables that met the 0.10 significance level were retained in the model (Table II).

Results

Demographic characteristics

Of 540 villagers who participated in the study, 524 (97%) had ever heard of AIDS and therefore were included in the analyses. Mean age of respondents was 40.1 years (standard deviation [SD], 11.0), 50.2% were male, 96% were married and 68.7% had another source of income in addition to farming. Eighty-three percent of men and 70% of women had more than six years of education ($P < 0.001$). Former plasma/blood donors were older than non-donors (mean age: 46 versus 39 years; $P < 0.001$) and less educated (>6 years of education: 60 versus 81%, $P < 0.001$). HIV-risk behaviors among participants included a history of selling plasma or blood (22%), having reported more than one lifetime sexual partners (11.8%), having commercial or casual sexual partners (6.5%), never using condoms (80.7%) and ever using illicit drugs (0.4%).

Knowledge and misconceptions about HIV transmission

A high proportion of respondents knew that a person can get HIV from sexual intercourse (94.8%) and that risk can be reduced by being faithful (93.1%), abstaining from sex (91.0%) and using condoms (83.6%). Over 90% of villagers knew that HIV infection can be acquired from receiving contaminated blood (96.8%) and sharing used needles (93.1%). Most participants also knew that an infected mother could transmit HIV to her infant during pregnancy (87.6%), delivery (73.9%) and breastfeeding (74.6%). Misconceptions about HIV transmission were widespread. High proportions of participants believed that HIV infection can be acquired by swimming (41.8%), sharing meals (26.5%), shaking hands (24.6%) and speaking face to face (24%) with an infected person; 70.4% thought that mosquito bites could transmit HIV. Men and women, as well as blood/plasma donors and non-donors had similar scores of HIV knowledge and risk misconception ($P > 0.05$).

Attitudes toward persons with HIV/AIDS

Discriminatory attitudes were common in these communities. About 80% of participants reported that they would not allow their children to play with a child with HIV/AIDS and would not buy fresh vegetables from a stall-keeper with AIDS (Table I). Over half said that they would not allow a teacher with HIV to continue teaching in school and would keep away from a neighbour with HIV. About one third of participants said that they would keep away from family members of an HIV-infected person. Men and women had similar attitude scores (mean of 2.7 versus 2.9; $P > 0.05$); FPDs had stronger discriminatory attitudes than non-donors (mean score of 3.3 versus 2.7; $P < 0.01$).

In multiple linear regression analysis, villagers who scored higher on risk misconception, who were older and married, had significantly higher scores of discriminatory attitude ($P \leq 0.05$). HIV knowledge score did not enter the model at the $p \leq 0.10$ level; and plasma/blood donor status was not associated with discriminatory attitude at the $P \leq 0.05$ level (Table II).

Discussion

The major findings of this study are that residents in these Chinese rural communities commonly overestimated risk of HIV transmission through casual social contacts while having

a fairly good base of knowledge about the true routes of HIV transmission. Misconception about risk of HIV transmission through casual social contacts was the strongest predictor of discriminatory attitudes toward persons with HIV/AIDS, whereas knowledge about the true main routes of HIV transmission was not associated with these attitudes. Since HIV/AIDS cases were reported in the study communities in the late 1990s, disease control departments have conducted education programs that typically emphasized the principal modes of HIV transmission without addressing prevalent misconceptions about the disease and the detrimental consequences of discriminatory attitudes. Since more FPDs begin to develop symptomatic AIDS in rural China (Qian et al., 2005b) and since unfounded beliefs about casual transmission of HIV may heighten fears of HIV/AIDS and in turn re-inforce discriminatory attitudes, new intervention programs are needed to eliminate misconceptions about HIV transmission and reduce stigma.

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Discriminatory attitudes regarding HIV/AIDS, by sex and former plasma/blood donor status among 524 adult resident in Shanxi Province China.

Table 1

Items	Discriminatory attitude	Proportion of discriminatory answers (%)					p-value	Nondonors (N=409)	p-value
		Total (N=524)	Male (N=263)	Female (N=261)	Donors (N=115)	Nondonors (N=409)			
If a teacher has the HIV/AIDS virus, but is not sick, should he or she be allowed to continue teaching in school?	No	57.2	58.2	55.9	67.0	54.3	0.61	0.02	
Would you buy fresh vegetables from stall-keeper with AIDS?	No	79.0	77.2	80.8	90.4	75.6	0.30	<0.001	
Would you allow your child to play with a child who has HIV/AIDS?	No	81.9	80.6	83.1	91.3	79.2	0.45	0.001	
If you knew one of your neighbours was infected with the AIDS virus, how would you treat him/her?	Avoid	50.0	46.0	54.0	60.0	47.2	0.07	0.02	
If you knew one of your neighbours was infected with the AIDS virus, how would you treat his or her family members?	Avoid	35.9	31.2	40.6	43.5	33.7	0.02	0.05	

Note: 'Avoid' indicates that respondent say that they would keep away from the person.

Table II

Multiple linear regression analysis of characteristics associated with discriminatory attitude regarding HIV/AIDS among 524 adult residents in rural Shanxi Province, China.

	Difference in z-score (95%CI) of discriminatory attitude	<i>p</i> -value
Z-score of misconception about risk of HIV transmission via casual social contacts (1 SD positive difference)	0.37 (0.29, 0.40)	<0.001
Age (5-year positive difference)	0.07 (0.03, 0.10)	0.001
Marital status (married)	0.53 (0.11, 0.94)	0.01
Having ever sold blood/plasma	0.10 (-0.03, 0.36)	0.09

Note: CI=confidence interval; SD=standard deviation. All variables that did not contribute to the model at the $p \leq 0.10$ level were excluded.