

## **Community environment and HIV/AIDS-related Stigma in China**

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### **Extended Abstract**

#### **Introduction**

Stigma and discrimination, the negative social responses to the HIV epidemic, have been increasingly recognized as the greatest obstacles to effective HIV prevention and care universally (UNAIDS 2002a; Parkers and Aggleton 2003). Fear of stigma and discrimination often discourage people with HIV from coming forward for HIV testing, counseling and treatment; from sharing their seropositive status with their sexual partners, family and friends; and from receiving support for HIV-related behavioral changes and responses. It also leads to “a lack of accurate information about levels of HIV prevalence, making informed preparation and responses impossible” (UNDP 2003).

AIDS-related stigma has been defined as “the prejudice, discounting, discrediting, and discrimination that are directed at people perceived to have AIDS” (Corriagan 1999). Existing literature has tended to understand the AIDS-related stigma in relation to an individual’s misperceptions of the HIV transmission mode or the risk of infection through everyday social contact. The empirical research has tended to focus on the negative feelings, belief and attitude toward people with HIV, such as the belief that they deserve their illness, avoidance, ostracism, responsibility and blame (Herek, 2003; 1999; Herek and Capitanio 1999).

As it has been reported, stigma, denial and secrecy might take place not only at the personal but also at the social level, with communities and nations across the region refusing to admit the scale for the problem (UNDP 2003; Malcolm et al. 1998). Recent theoretical developments have pointed to the importance of understanding community effect on HIV/AIDS-related stigma. As it has been argued, stigma is linked to social environments and is not simply the result of people’s misconception and misinformation about HIV. In societies with much of the bonds and allegiances to family, village, neighborhood and community, stigma and discrimination are obviously social and cultural phenomena linked to the actions and attributes of whole groups of people, and are not simply the consequences of individual behavior (Parker and Aggleton 2003, 2002; UNAIDS 2002a).

Due to the complexity and diversity of stigma and discrimination and limitations in current thinking, stigma and discrimination “remain among the most poorly understood aspects of the epidemic” (Parker and Aggleton 2002:1). New approaches to understand the social, cultural, and economic determinants of HIV/AIDS-related stigma are called for (Parker and Aggleton 2002:11). Therefore, there is a strong need to assess whether there is a community environmental effect on AIDS-related stigma beyond and above the effects of individual characteristics.

The HIV/AIDS epidemic has also evoked negative social responses towards people with HIV/AIDS in China (China HIV/AIDS Socio-Economic Impact Study Team 2002; UNAIDS 2002b; Zeng and Wu 2001). It has been reported that while China’s government has made a strong commitment to prevent and control the HIV/AIDS epidemic, the existing negative social responses toward people with HIV/AIDS have hampered the effective prevention control (Hesketh et al. 2002). Nevertheless, in China’s context, we know much less about the level and determinants of HIV/AIDS stigma than we know about the ethnographic and anecdotal evidence.

Do community environments affect individuals’ stigma toward people with HIV/AIDS in China? We hypothesize that stigma is not only related to individual misunderstanding of HIV/AIDS transmission but also linked to social environment. While multilevel models assessing the effects of community environments on individual health outcomes and behaviors have been common, few studies empirically examine the contextual effect on individual stigma toward people with HIV/AIDS, probably constrained by a lack of data. The Baseline IEC Survey

for AIDS Prevention conducted by the State Family Planning Commission in 2000 provides hierarchical data on individual attitudes toward people with AIDS in China. This study uses these data to assess if there is community effect on AIDS-related stigma after controlling for individual characteristics. Factors selected as potential explanatory variables of AIDS-related stigma include sex, age, marital status, ethnic minority status, level of education and media exposure, correct and incorrect knowledge about HIV/AIDS transmission, community level of HIV-related risk behaviors and availability of tap water, and provincial area.

## **Data**

The data used for this study are from the cross-sectional Baseline IEC Survey for HIV/AIDS Prevention in China, conducted by the State Family Planning Commission in December 2000. The survey provides baseline information on HIV/AIDS knowledge, attitude, and practice for further action plan. The original sample consists of 7,053 men and women who were aged 15-49 and residing in private households.

Respondents were drawn from a stratified multistage random sample of the general adult population with three different levels of economic development and HIV prevalence from 7 provinces. Among them, Shangcai county of Henan province and Baise county of Guangxi province were selected to represent low socioeconomic rural areas, while Jingan district of Shanghai Municipality and Sanya neighborhoods of Hainan province were selected to represent high socioeconomic urban areas. In addition, Dongqing county of Heilongjiang province, Huidong county of Guangdong province, and Changping district of Beijing Municipality were selected to represent the high socioeconomic rural areas.

The multistage sampling was taken place first by randomly selecting five townships/streets from an administrative frame in each of 7 selected rural counties or urban areas. Next, two villages/neighborhoods were selected from each of the five-selected townships/streets. Then, about 100 households were selected from each of the above two-selected villages/neighborhoods. At the last stage, within each selected household, one adult between the reproductive ages 15-49 was randomly selected for interview. As such, about 100 individuals were selected from each of the 72 selected communities (villages/neighborhoods) (State Family Planning Commission 2002; Chen et al. 2002; Holtzman et al. 2003).

Since the survey only collected information on stigma among respondents who had ever heard of HIV/AIDS, the data analyses of this study were restricted to a sub-sample of 5658 respondents who answered the question on HIV/AIDS-related stigma. Limited by smaller sample sizes of the sub-sample, we combined six pairs of communities (villages/neighborhoods with adjacent community codes in the same provincial area. As a result, the study sample sizes vary from 32 to 261 respondents in each of the 66 combined communities.

## **Variable definitions**

The outcome variable of this study refers to *stigma toward people with HIV/AIDS*. It is based on multiple responses to the question “If an acquaintance were infected with HIV, how would you treat him/her?” Respondents who answered “detest”, “avoid contact”, or “blame” were classified as having HIV/AIDS-related stigma. Respondents who did not have any of the above responses but responded with “sympathize with”, “be concerned about” or “other” were defined as not having the stigma.

Explanatory variables at the individual-level included the following socio-demographic variables: *sex*, *age* (15-29, 30-39, and 40-49), *marital status* (currently married, not married), and *education* (primary school or lower, middle school, high school or above). Other individual-level variables are *media exposure* (often, not often), *number of correct HIV/AIDS knowledge* (score ranging from 0 to 7), and *misunderstanding about casual contact for HIV transmission* (yes, no). Three community-level explanatory variables were also included. First, *community level of HIV-related risk behaviors* was defined as “high” if at least 50% of respondents in a community

reported that they were often aware of commercial sex activities, drug use, and/or illegal blood selling in the neighborhood; otherwise was defined as “not”). Secondly, *community level of household tap water* was defined as “rarely” if no more than 1% of respondents in a community reported having tap water in their households; otherwise was defined as “not”). In addition, a set of dummy variables was used to denote the provincial area.

## Methods

Multilevel logistic regression models are used to estimate the effects of individual socio-demographic characteristics and community characteristics on individuals’ HIV/AIDS-related stigma. Because individuals cluster by communities and share common neighborhood-level characteristics, individuals within the same neighborhood may be more similar in their AIDS-related stigma than others across communities. As such, there may be a correlation among individuals within a neighborhood. To examine the effects of characteristics at the individual level and the neighborhood level on individual outcome measure, it is important to use a multilevel model to correct for the biases in parameter estimates and standard errors of the estimates resulting from clustering of the data (Guo and Zhao 2000).

The multilevel logistic regression model takes on the following form:

$$\text{Log} [p_{ij}/(1-p_{ij})] = \Xi_0 + \Xi_1 x_{ij} + \Xi_2 x_{ij} + \dots + \Xi_m x_{ij} + \cdot_j$$

where  $\text{log} [p_{ij}/(1-p_{ij})]$  is the logit in which  $p_{ij}$  is the probability of the response of the  $i$ -th individual, nested in the  $j$ -th neighborhood.  $\Xi_0$  is the constant term representing the population average of the transformed probability.  $\Xi_1 \dots \Xi_m$  denote a set of fixed effects associated with  $m$  predictor variables (the  $X$ s) for individuals.  $\cdot_j$  represents the unobserved (unexplained) community-level random effect which is assumed to be normally distributed with mean 0 and variance  $\Phi$ .<sup>2</sup> (Guo and Zhao 2000). The variances of community effects measure the extent to which the HIV/AIDS-related stigma of respondents in the same communities resembles each other as compared with that among respondents in different communities.

We estimate our models using the MLwin version 2.1d software (Rasbash et al. 2000). The second order penalized quasi-likelihood (PQL) procedure of the MLwin was used to estimate the parameters of the multilevel logistic model. It is reported that the PQL procedure generates the least biased estimates with binary response data (Rasbash et al. 2000).

## Findings

The prevalence of stigma towards people with HIV/AIDS was high (45%) in China. There are clear socio-demographic differences in individual stigma toward people with HIV/AIDS. For example, respondents who had a lower level of education attainment and media exposure were more likely to hold stigmatizing attitudes towards people with HIV/AIDS. As expected, an individual’s misinformation about casual contact for HIV transmission was positively associated with stigmatizing attitude towards people with HIV/AIDS. However, an individual’s correct knowledge about HIV transmission and prevention was not associated with reduced risk of HIV/AIDS-related stigma. More importantly, community level of HIV/AIDS-related risk behaviors and availability of tap water were associated with individual HIV/AIDS-related stigma after controlling for individual socio-demographic characteristics, including correct and incorrect knowledge about HIV/AIDS transmission.

While the resulted unobserved variance at the community level becomes smaller once more community-level variables were controlled for, the remaining community effect is still statistically significant. It appears that we cannot fully explain why individuals within particular communities had higher HIV/AIDS-related stigma than others in different communities. There is much more that we need to understand about the relationship between community environment and HIV/AIDS-related stigma.

## Conclusions

This study provides new evidence that the prevalence of HIV/AIDS-related stigma is higher not only among individuals with lower level of education and media exposure, but also among people who live in an environment with a high community level of HIV/AIDS-related risk behaviors or poor supply for tap water. The results also show that increasing correct knowledge about HIV/AIDS transmission and prevention is not enough for reducing HIV/AIDS-related stigma. Intervention programs for reducing HIV/AIDS-related stigma need to pay special attention to societal and community influences, especially in the areas where there are increased risk behaviors and poor living conditions.

## Reference

- China HIV/AIDS Socio-Economic Impact Study Team. 2002. Limiting the future impact of HIV/AIDS on children in Yunnan (China). In *AIDS, Public Policy and Child Well-Being*, edited by G.A Cornia. UNICEF. [www.unicef-icdc.org](http://www.unicef-icdc.org).
- Chen, S., Zhang S., L. Mo, and S. Yang. 2002. HIV/AIDS in China: Survey provides guidelines for improving awareness. *Asia-Pacific Population and Policy* 62:1-4.
- Corriagan P.W., P.L. Penn. 1999. Lessons from social psychology on discrediting psychiatric stigma. *Am. Psychol* 54:765-776.
- Guo, G., and H. Zhao. 2000. Multilevel modeling for binary data. *Ann. Rev. Sociology* 26:441-62.
- Herek, G.M. 1999. AIDS and stigma. *American Behavioral Scientist* 42(7):1106-16.
- Herek, G.M. and J.P. Capitanio. 1999. AIDS stigma and sexual prejudice. *American Behavioral Scientist* 42:1126-43.
- Herek, G.M., J.P. Capitanio, and K.F. Widaman. HIV-related stigma and knowledge in the United States: prevalence and trends, 1991-1999. 2002. *American Journal of Public Health* 92(3):371-77.
- Hesketh, T., W.X. Zhu, and L. Duo. 2002. Editorial on epidemiology of HIV in China was misleading. *BMJ* 325:493.
- Holtzman, D., S. Chen, S. Zhang, J. Hsia, R. Rubinson, F. Bao, L. Mo, and D.V. McQueen. 2002. Current HIV/AIDS-related knowledge, attitudes, and practices among the general population in China: implications for action. *AIDScience* 3(1). Science's AIDS Prevention and Vaccine Research website.
- Malcolm, A., P. Aggleton, M. Bronfman, J. Galvao, P. Mane, and J. Verrall. 1998. HIV-related stigmatization and discrimination: its forms and contexts. *Critical Public Health* 8(4):347-370.
- Parker, R. and P. Aggleton. 2003. HIV and AIDS-related stigma and discrimination: a conceptual framework and implications for action. *Social Science & Medicine* 57:13-24.
- Parker, R. and P. Aggleton. 2002. HIV/AIDS-related Stigma and Discrimination: A Conceptual Framework and an Agenda for Action. <http://www.popcouncil.org/horizons/horizons.html>.
- Rasbash, J, W. Browne, H. Goldstein, M. Yang, I. Plewis, M. Healy, G. Woodhouse, D. Draper, I. Langford, and T. Lewis. 2000. *A User's Guide to Mlwin*. Institute of Education, University of London.
- State Family Planning Commission. 2002. Results of baseline survey for IEC in HIV/AIDS prevention project. Beijing.
- UNAIDS. 2002a. World AIDS Campaign 2002-2003: A conceptual framework and basis for action UNAIDS, HIV/AIDS stigma and discrimination 2002. Geneva, UNAIDS.
- UNAIDS. 2002b. HIV/AIDS: China's Titanic Peril: 2001 Update of the AIDS Situation and Needs Assessment Report. UNAIDS China Office.
- UNDP. 2003. Regional Human Development Report: HIV/AIDS and development in South Asia 2003:80. New Delhi.
- Zeng, Y. and Z. Wu. 2001. Control of AIDS epidemic in China. Paper presented to the Hong Kong AIDS Conference 2001. [www.hkcss.org.hk/useful\\_materials/AIDS/proceedings.htm](http://www.hkcss.org.hk/useful_materials/AIDS/proceedings.htm).