Published in final edited form as:

Community Ment Health J. 2012 June ; 48(3): 275–283. doi:10.1007/s10597-011-9424-7.

Relative importance of various measures of HIV-related stigma in predicting psychological outcomes among children affected by HIV

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Abstract

Objective—To assess the relative importance of four different measures of HIV-related stigma in predicting psychological problems among children affected by HIV in rural China.

Methods—Cross-sectional data were collected from 755 orphans (i.e., children who lost one or both of their parents to HIV), 466 vulnerable children (children who were living with HIV-infected parents), and 404 comparison children who were from the same community and did not have HIV-related illness or death in their families. Four HIV-related stigma measures include perceived public stigma against people living with HIV/AIDS (PLWHA), perceived public stigma against children affected by HIV (orphans and vulnerable children), personal stigmatizing attitudes against PLWHA, and enacted stigma among children affected by HIV. Psychological problems included depression and adjustment problems.

Results—Various measures of HIV-related stigma independently and differentially contribute to children psychological problems. Enacted stigma and children's perceived public stigma against PLWHA or children affected by HIV are generally stronger predictors of psychological problems than their own feelings or attitudes towards PLWHA.

Conclusion—Various aspects of HIV-related stigma are important for us to understand the perception, attitudes, and experience of children affected by HIV, including both children experiencing HIV-related parental illness and death in their own family and children who were living in the communities hardly hit by HIV. Future health promotion and psychological care efforts for children affected by HIV need to consider the effect of various forms of HIV-related stigma on these children's psychosocial well-being and mobilize the community resources to mitigate the negative effect of HIV-related stigma on PLWHA and their children.

Keywords

Perceived stigma; Personal stigma; Enacted stigma; HIV; Children; China

Introduction

Worldwide efforts fighting against HIV have been carried out for decades. However, stigmatization against people living with HIV/AIDS (PLWHA) is perpetuated (Valdiserri, 2002). PLWHA are highly stigmatized in many societies since AIDS is considered a fatal disease and, in most situations, and the infection of HIV is related to some socially

undesirable behaviors such as promiscuous sexual behaviors and drug abuse (Campbell, Foulis, Maimane & Sibiya, 2005; Campbell, Nair, Maimane & Nicholson, 2007; Deng, Li, Sringeriyuang & Zhang, 2007; Herek, 2002; Thomas, 2006). HIV-related stigma refers to “the prejudice, discounting, and discrediting directed at PLWHA and groups and communities with which they are associated” (Parker & Aggleton, 2003). Since the beginning of the HIV epidemic, HIV related stigmatization has interfered with the life of PLWHA (Herek, Capitanio & Widaman, 2002). In addition, HIV-related stigma has extended to family members of PLWHA (Pomeroy, Rubin & Walker, 1995), including their children (Herek & Capitanio, 1998).

Previous studies have shown that these various stigmatizing attitudes and behaviors against PLWHA or their family members have negative impacts on a number of treatment and social outcome, including timely and proper testing, treatment and care (Chesney & Smith, 1999), health seeking (Lieber, Li, Wu, Rotheram-Borus & Guan, 2006), social support (Lee, Kochman & Sikkema, 2002; Varas-Díaz, Serrano-García & Toro-Alfonso, 2005), preventive behaviors (Bond, Chaseb & Aggleton, 2002; Duffy, 2005; Letamo, 2003; Reidpath, Brijnath & Chan, 2005), and psychosocial well-being (Varas-Díaz et al., 2005). It is important to note that HIV-related stigma not only has a negative impact on physical health, but also has a negative impact on mental health, because social exclusion, rejection, and high stress due to stigma may lead to stress-related mental illness (Holzemer et al., 2007). Previous studies also reported an association of stigma with high depression (Bird, Bogart & Delahanty, 2004; Roeloffs et al., 2003) and low self-esteem (Wright, Gronfein & Owens, 2000).

HIV-related stigma has often been defined differently in the literature to reflect the different perspectives of the stigma in different context or with different population that is the focus of the study (Herek, 1999; Parker & Aggleton, 2003). The “outsiders” or the “perpetrators of stigma” often are individuals who hold negative attitudes or enact stigmatizing or discriminatory behaviors, while the “insiders” or the “target of stigma” often refer to those with or associated with the condition (e.g., HIV infection) or the related behaviors (Herek, 1999; Herek & Capitanio 1998). Visser and colleagues (2008) have described two forms of stigma from outsiders’ perspectives: *public stigma* (or attributed stigma) which refers to the general perception of how people in a society or community feel and respond toward PLWHA, and *personal stigma* which refers to the personal beliefs and feelings that individuals hold toward PLWHA (Visser, Kershaw, Makin, & Forsyth, 2008).

From the perspectives of the “insiders”, some researchers have discussed three types of HIV-related stigma: received (or perceived) stigma, enacted stigma and internalized stigma (Holzemer et al., 2007). The received or perceived stigma refers to all types of stigmatizing behaviors towards a PLWHA, as perceived by themselves; internalized stigma involves thoughts and behaviors stemming from the person's own negative perceptions about themselves because of their HIV status. Some authors referred enacted stigma to the real actions of stigmatization or discrimination experienced by the target of stigma (Jacoby, 1994; Malcolm et al., 1998; Scrambler, 1998).

Besides the stigma directly against PLWHA, there is also associated stigma that results from a person's close association with PLWHA (Herek & Capitanio, 1997; Holzemer et al., 2007). While limited data are available regarding the relationship between various types of HIV-related stigma and personal association with PLWHA, a few studies suggested that a close association with the target of stigma would reduce the level of personal stigmatizing attitudes against the target. Letamo (2003) reported that nurses who had a family member with HIV had reported feeling less inclined to stigmatizing PLWHA than did nurses who had little personal or family level experience with HIV. Kopacz, Grossman and Klamen (1999) also reported medical students with homosexual and/or HIV-positive friends were

significantly more tolerant toward AIDS patients than their counterparts without such friends.

While previous research has called for the use of parallel measures of stigma to capture multidimensional aspects of stigma (Visser et al., 2008), there are several knowledge gaps in the existing global literature. First, few studies have examined the relative importance of various measures of HIV in predicting various psychological outcomes. Second, most of the existing studies have been focusing on stigma against children or adolescent infected with HIV (Bell et al., 2008; Petersen et al., 2010) and few studies have focused secondary stigma against children affected by HIV including children who lost their parents to HIV (orphans) and children who faced the potential of losing their parents to HIV (vulnerable children). Third, few studies that had addressed these issues were conducted in Western and Sub-Saharan African nations, and limited data are available in other countries and regions including China, where HIV-related stigma has been a significant barrier in HIV prevention, treatment and care efforts (Li et al., 2007). Therefore, the current study, using data from China, was designed to examine the relative contribution of various forms of HIV-related stigma measures in predicting internalizing and adjustment problems among children affected by HIV.

Informed by the global literature on assessment of HIV-related stigma, we examined four stigma measures that are most relevant to the study population in the current study (i.e., orphans and vulnerable children or children affected by HIV) according to the target of stigma (PLWHA or children affected by HIV) and types of stigma (public, personal, or enacted). The layout of the four stigma measures (perceived public stigma against PLWHA, perceived stigma against children affected by HIV, personal stigma against PLWHA, and enacted stigma among children affected by HIV because of parental HIV) is displayed in Table 1.

We hypothesized that (1) various forms of stigma measures would be highly correlated; (2) various measures of stigma would be higher among children with personal experience of parental HIV; (3) various measures of HIV-related stigma would be associated with children's psychological problems, controlling for other key demographic characteristics and personal experience of parental HIV; and (4) various stigma measures may contribute uniquely to different psychological problems (internalizing vs. adjustment problem).

Methods

Study Site

The current study was conducted in 2006-2007 in two rural counties in central China where many residents had been infected with HIV through unhygienic blood collection. Between the late 1980s and middle 1990s, some governmental and commercial blood stations/centers started collecting blood in rural areas of central China. The farmers, who were not tested for HIV, Hepatitis B, Hepatitis C, or other blood-borne infections, considered this as an opportunity of poverty-relief and repeatedly gave their blood to collection centers for cash. The collection centers pooled the blood of several donors of the same blood type, separated the plasma, and injected the remaining red-blood cells back into individual donors to prevent anemia. Such procedures, plus the reuse of needles and contaminated equipment enabled a rapid spread of the virus through the local population. Many HIV-infected farmers have progressed to AIDS and thousands have died in the areas (Rosenthal, 2002). Both counties participating in the current study had the highest prevalence of HIV-infection in central China. We obtained village-level HIV surveillance data from the counties' anti-epidemic stations to identify the villages with the highest number of HIV-related death or confirmed HIV infection. The participants in the current study were mainly recruited from five

administrative villages (rural administrative units under the county) that had jurisdiction over 111 natural villages.

Participants and Sampling

The participants in the current study include 755 orphans (i.e., children who lost one or both of their parents to HIV), 466 vulnerable children (children who were living with HIV-infected parents), and 404 comparison children who were from the same community and did not have HIV-related illness or death in their families. Children 6 to 18 years of age were eligible to participate in the study. Age eligibility was verified through local community leaders, school records, or caregivers. Both the recruitment process and consenting procedure for the current study have been described in detail elsewhere (Fang et al., 2009). Briefly, part of the orphan sample was recruited from the centralized care settings including four government-funded orphanages (n=176) and eight community-based small group homes (n=30). The participation rates of the orphanage sample and the small group home sample were 72% and 70%, respectively. The remaining orphans (n=549) and vulnerable children (n=466) were recruited from family or kinship (i.e., extended family) care settings. We worked with the village leaders to generate lists of families caring for orphans or with confirmed diagnosis of HIV. We approached the families on the lists and recruited one child per family to participate in the assessment. If a child in a selected family was not available to participate, the next child in the family or next family on the list was selected. When there were siblings in an orphanage, group home, or household, only one child was randomly selected. This process was repeated until the target sample size for the orphans and vulnerable children (i.e., about 1,200 in total) was reached. Following a similar procedure, the comparison group (with a target sample size of 400) was recruited from the same villages where the orphans and vulnerable children were recruited. The research protocol, including consenting procedure, was approved by the Institutional Review Boards at both Wayne State University in the United States and Beijing Normal University in China.

Survey Procedure

Each participating child in the study completed an assessment inventory including detailed measures of demographic information and several psychosocial scales. For children who were too young or had limited literacy, interviewers read each question to them, and the children gave oral responses to the interviewers who recorded the responses in the survey instrument. During the survey, necessary clarification or instruction was provided promptly when needed. The entire assessment inventory took about 75 to 90 minutes, depending on the age of the children. Younger children (e.g., those 8 years of age) were offered a 10-15 minute break after every 30 minutes during the assessment. Each child received a gift at completion of the assessment as a token of appreciation.

Measures

Demographic characteristics—Children were asked to report on individual and family characteristics during the survey. These characteristics include age, sex, ethnicity, parental education (no schooling, elementary school, middle school, high school), and the main occupational activities in which their parents currently engaged or engaged prior to their death (i.e., farmer, migrant worker, local small merchant, or other). A composite score was created to estimate children's family socioeconomic status (SES) by indexing those children whose parents (father and mother) had more than elementary school education and engaged in non-farming occupational activities. The SES score had a range of 0 to 4, with a high score indicating a better family SES.

Perceived public stigma against PLWHA (Stigma 1)—A 10-item scale was developed to assess children's perceptions of public stigma against PLWHA. Children were asked to indicate, in their opinion, how many people (most, some, few, and none) in the community/society would have certain stigmatizing attitudes or actions toward PLWHA and their family (e.g., “People will think someone with HIV is unclean”; “People will look down at someone who has HIV”, “People will look down at a family if someone in the family has HIV”). The Cronbach alpha for the scale was .86 for the current study sample.

Perceived public stigma against children affected by HIV (Stigma 2)—Children's perceived public stigma against children affected by HIV was measured using the SACAA scale (Zhao et al., 2010). The SACAA (Stigma Against Children Affected by AIDS) includes a total of 10 items with three items measuring social sanction or exclusion against children affected by HIV (e.g., “People think children of PLWHA should leave their villages”, “People think children of PLWHA should quit school or never go to school”), four items measuring purposeful avoidance (e.g., “People are unwilling to take care of children of PLWHA”, “People do not want their children to play with children of PLWHA”), and three items measuring perceptions that children affected by HIV are inferior to children of uninfected parents (e.g., “People think children of PLWHA are unclean”, “People do not think children of PLWHA can be as good as other children”). The Cronbach alpha for the SACAA scale was .88 for the current study sample.

Personal stigmatizing attitudes against PLWHA (Stigma 3)—A 10-item scale was developed to assess a child's own stigmatizing attitudes against PLWHA. Children were asked whether they agreed with each of the statements reflecting either negative perception of PLWHA or social sanctions/exclusion against PLWHA. Sample questions include “PLWHA should feel ashamed of themselves”, “Most individuals caught HIV because they were fool”, and “PLWHA should be isolated”. The scale has a 5-point response option (“strongly disagree” to “strongly agree”). The Cronbach alpha for the scale was .87 for the current study sample.

Enacted stigma (Stigma 4)—Children affected by HIV were asked to indicate, on a 14-item list, whether they had experienced some stigmatization acts or their consequences. The sample stigmatizing experience included “being beaten by other kids”, “being called bad names”, “being teased or picked on by other kids”, “kids did not play with me anymore”, “relatives stopped visiting when parents got sick or died”, and “my family lost land or other property”. The response option ranged from 1=“never happened” to 5=“always happened”. The Cronbach alpha of the 14 items was .88 for the current study sample.

Internalizing problems—Children's internalizing problems were measured using the Center for Epidemiological Studies Depression Scale for Children (CES-DC) (Fendrich, Weissman & Warner, 1990). Sample items include “I was bothered by things that usually don't bother me.” The CES-DC is a 20-item self-report depression measure with a 4-point response option (i.e., 0=not at all, 1=a little, 2=some, 3=a lot). Cronbach alpha of the scale was .81 for the current study sample.

Adjustment problems—Children's adjustment problems were measured using the Child Rating Scale (CRS), a 24-item self-rating scale for children to complete. The CRS has been used as a screening tool to identify children experiencing school adjustment problems (Hightower et al., 1987). Using a three-point rating scale (1=usually no, 2=sometimes, 3=usually yes), the CRS items that assess children's conduct with regard to a number of typical school and classroom rules (e.g., “I bother classmates who are working,” “I follow the class rules”), children's internal reaction to distress (e.g., “I get scared in school,” “I

worry about things at school”), children's interpersonal functioning and confidence in dealing with peers (e.g., “I have many friends,” “My classmates tease me,”), and children's interest in school related activities (e.g., “I like to do school work,” “I like to answer questions in class”). The Cronbach alpha for the 24 items was .73 in the current study. A sum score (with appropriate reverse coding) was obtained as the scale composite score with higher scores indicating worse adjustment problems among children. Statistical Analysis

First, Chi-square (for categorical variables) and ANOVA (for continuous variables) were employed to assess the group differences in key demographic variables (age, sex, family SES), stigma measures (perceived public stigma against PLWHA, perceived public stigma against children affected by HIV, personal stigma against PLWHA, enacted stigma) and child psychological problems (internalizing vs. adjustment) among orphans, vulnerable children, and comparison children. Post-hoc comparison was performed using the least significant difference (LSD) criterion to identify pair-wise differences for those continuous variables that show an overall significant difference among three groups. Second, Pearson Product Moment Correlation Coefficients were employed to assess the relationship among various stigma and psychological measures among the entire sample, as well as various subgroups of children.

Third, multiple regression analysis was employed to assess the relative contribution of various forms of stigma measures to both internalizing and adjustment problems. Because the data on enacted stigma were only available from children affected by HIV, two sets of regression analyses were conducted. The first set was among the entire sample (with first three stigma measures) and the second set was among children affected by HIV (with all four stigma measures). In the first set of regression analyses, two dummy coding variables were created in the regression to represent the categorical children variable (orphans, vulnerable children, and comparison children). Key demographic characteristics (age, gender, and family SES) were included in both set of regression models to control for their potential confounding effect on psychological problems.

Results

Group Differences

The detailed individual characteristics of the study sample have been reported elsewhere (Fang et al., 2009). As shown in Table 2, there were a number of group differences in key demographic characteristics, stigma measures and psychological problems among orphans, vulnerable children, and comparison children. Orphans were older than both vulnerable children and comparison children and comparison children were also older than vulnerable children. Comparison children reported a higher family SES than both orphans and vulnerable children and orphans also reported a higher family SES than vulnerable children. Orphans scored higher than vulnerable children, who in turn scored higher than comparison children on two forms of perceived public stigma (i.e., stigma against PLWHA and stigma against children affected by HIV). Likewise, orphans reported a higher level of psychology problems than vulnerable children and vulnerable children reported a higher level of psychological problems than comparison children, although the difference in adjustment between orphans and vulnerable children did not reach statistical difference. There was neither difference among the three groups of children in their personal stigmatizing attitudes against PLWHA, nor difference between orphan and vulnerable children in enacted stigma (i.e., their own experience being stigmatized). Correlations among stigma and psychological measures

Table 3 depicts the Pearson correlation coefficients among various forms of stigma and psychological problem measures for the entire sample as well as various subgroups of

children. The correlation coefficients among the four stigma measures for the entire sample ranged from .19 (between personal stigma and enacted stigma) to .65 (between two perceived public stigma measures). The correlation coefficients between psychological and stigma measures ranged from .08 (between personal stigma and depression) to .50 (between enacted stigma and depression). The correlation coefficients among girls and boys showed a similar pattern as the entire sample. The correlation coefficients among various measures of stigma and psychological problems were similar for orphans and vulnerable children with the exception of correlation between personal stigma and depression ($r=.00$ for orphans and $r=.17$, $p<.0001$ for vulnerable children). Compared to children affected by HIV, the comparison children overall had lower correlations except a higher correlation between depression and adjustment. The correlations among the first three stigma measures (as the enacted stigma was only available for orphans and vulnerable children) were in general higher among orphans and vulnerable children (ranged from .38 to .67) than comparison children (ranged from .24 to .57).

In terms of the strength of the correlation coefficients, the highest correlations were the ones between two measures of perceived public stigma (ranged from .57 to .69 among various groups), followed by the ones between enacted stigma and depression (ranged from .50 to .51). The weakest correlations were the ones between personal stigma against PLWHA and depression (ranged from .00 to .17), followed by the correlations between personal stigma and enacted stigma (ranged from .13 to .29).

Multiple regression analysis

The result of regression analysis for entire sample was shown in Table 4. As shown in the left side of Table 4, older age, being an orphan (in contrast with comparison children), higher scores on perceived public stigma measures were significantly predictive of depression. As shown in the right side of Table 4, male gender, being an orphan, being a vulnerable child, and higher scores on all three stigma measures were predictive of poor adjustment.

Table 5 depicts the results of regression analysis for children affected by HIV. As shown in the left side of Table 5, older age, being an orphan (in comparison with vulnerable children), perceived public stigma against PLWHA and enacted stigma were significantly predictive of depression among children affected by HIV. The regression analysis for adjustment showed that male gender, personal stigmatizing attitudes, and enacted stigma were the significant predictors of adjustment problems (the right side of Table 5).

Discussion

The findings in the current study suggest that various aspects of stigma are important for us to understand the perception, attitudes, and experience of children affected by HIV, including both children experiencing HIV-related parental illness and death in their own family and children who were living in the communities hardly hit by HIV. The results show that various measures of stigma contribute to children internalizing and adjustment problems independent of key demographic factors (age, gender, SES and personal experience of parental HIV). However, not all of the stigma measures function in the same manner in predicting child psychological problems. For example, personal stigmatizing attitudes contributed little to internalizing problems, while they were significantly related to adjustment problems. Perceived public stigma against children affected by HIV was significantly associated with both internalizing and adjustment problems independent of family experience of HIV (HIV-related death, HIV-related illness, or HIV-free). However, when children's personal experience being stigmatized (i.e., enacted stigma) was included in

the regression model, perceived public stigma against children affected by HIV lost its predictive power.

The data in the current study suggest that the children's perceived public stigma against PLWHA or children affected by HIV is generally a stronger predictor of psychological problems than their own feelings or attitudes towards PLWHA. In addition, the data suggest that the two perceived public stigma against PLWHA or children affected by HIV may be two unique concepts that reflect different manifestations of HIV-related stigma. While the two perceived public stigma were highly correlated, the two measures independently contribute to both internalizing and adjustment problems in the absence of children's own experience of being stigmatized.

The data in the current study suggest that the various stigma against PLWHA or children affected by HIV not only have a negative association with psychological problems among children who had experienced HIV-related parental illness and death in their own family (i.e., children affected by HIV), but also, to a lesser degree in terms of the magnitudes of correlation coefficients, among children of HIV-free family in the same community. Because the entire community that was hardly hit by HIV might be subject to HIV-related stigma due to its high HIV prevalence and resulting economic deterioration, children living in the community, even without direct family experience with HIV, might have "internalized" the public stigma to a certain degree, which has negatively impacted their depression and adjustment problems.

The data also suggest some important individual demographic factors that could potentially moderate the relationship between stigma measures and psychological problems. For example, child age is related to internalizing problems and gender is a significant factor related to adjustment problems. Personal experience of parental HIV is highly associated with internalizing and adjustment problems, suggesting the importance of psychological support for children affected by HIV.

The current study has some potential limitations. First, the representativeness of our samples may be limited for several reasons. Our samples were recruited from one of the HIV epicenters in China with a unique cause of parental HIV (i.e., unhygienic blood collection) and dominant Han ethnicity composition. The HIV epidemic in China also contains several other modes of viral transmission (e.g., sex, intravenous drug use). In addition, HIV has disproportionately affected ethnic minorities in other areas of China. Therefore, future studies need to involve children from other ethnic backgrounds and also with different causes of parental HIV in order to validate the findings in the current study. Second, there might be some selection bias in sampling as convenience sampling rather than random sampling method was used. Third, the data were based on children's self-report; therefore they were subject to self-reporting bias.

Despite these potential limitations, the current study is one of the first efforts to address the issues of multiple measures of HIV-related stigma and their impact on psychological problems among children affected by HIV, including both children who experienced HIV-related parental illness and death in their family and children from the same community but did not have immediate family experience of HIV. Future health promotion and psychological care efforts for children affected by HIV (including children living in communities with a high HIV prevalence) need to consider the effect of various forms of HIV-related stigma on these children's psychosocial well-being and mobilize the community resources to mitigate the negative effect of HIV-related stigma on PLWHA and their children.

Acknowledgments

This work was supported by the National Institute of Mental Health and the National Institute of Nursing Research (R01MH76488). The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institute of Mental Health or the National Institute of Nursing Research. The authors wish to thank Drs. Xiaoyi Fang, Xiuyun Lin, Yunfei Lv, and other members of the investigative team for their contribution in the scale development and field data collection. The authors also want to thank Ms. Joanne Zwemer for assistance with manuscript preparation.

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Table 1

Four Stigma Measures in the Current Study

Type of Stigma	Target of Stigma	
	PLWHA	Children Affected by HIV
Perceived Public Stigma	Stigma1	Stigma2
Personal Stigma	Stigma3	n/a
Enacted Stigma	n/a	Stigma4

n/a: Not available.

Table 2

Distribution of Sample Characteristics and Study Variables

	Overall	Orphans (1)	Vulnerable Children (2)	Comparison Children (3)	Post Hoc Comparison ¹
N(%)	1625(100%)	755(47%)	466(29%)	404(25%)	n/a
Boys	826(51%)	403(53%)	219(47%)	204(51%)	n/a
Age in Years	12.85(2.21)	13.13(2.20)	12.36(2.24)	12.83(2.11)	**** (1>2)(1>3)(2<3)
Family SES	1.94(1.17)	1.92(1.17)	1.79(1.17)	2.15(1.15)	**** (1>2)(1<3)(2<3)
Stigma 1	2.18(.68)	2.28(.70)	2.18(.69)	2.01(.61)	**** (1>2)(1>3)(2>3)
Stigma 2	2.10(.70)	2.16(.71)	2.08(.68)	2.03(.68)	** (1>2)(1>3)(2>3)
Stigma 3	2.32(.75)	2.31(.74)	2.37(.85)	2.29(.63)	
Stigma 4	1.61(.60)	1.63(.59)	1.58(.63)	n/a	
Depression	18.26(8.43)	20.24(8.78)	17.16(7.51)	15.84(7.90)	**** (1>2)(1>3)(2>3)
Adjustment	6.15(.95)	6.27(.95)	6.18(.96)	5.89(.89)	**** (1>3)(2>3)

Note: 1. Groups that differ significantly at $p < .05$ were listed with the direction of the mean difference.

Stigma 1: Perceived public stigma against PLWHA

Stigma 2: Perceived public stigma against children affected by HIV

Stigma 3: Personal stigma against PLWHA

Stigma 4: Enacted stigma (data were only available from children affected by HIV).

**

$p < .01$

$p < .0001$

Table 3
Correlations Coefficients for the Six Main Study Variables among rural Chinese children

Group	N	V1 V2	V1 V3	V1 V4	V1 V5	V1 V6	V2 V3	V2 V4	V2 V5	V2 V6	V3 V4	V3 V5	V3 V6	V4 V5	V4 V6	V5 V6
Entire Sample	1625	.65 [*]	.36 [*]	.28 [*]	.27 [*]	.22 [*]	.36 [*]	.31 [*]	.23 [*]	.23 [*]	.19 [*]	.08 ^{&}	.22 [*]	.50 [*]	.36 [*]	.36 [*]
Boys	826	.66 [*]	.37 [*]	.26 [*]	.26 [*]	.22 [*]	.40 [*]	.27 [*]	.23 [*]	.22 [*]	.19 [*]	.08 ^{&}	.20 [*]	.50 [*]	.33 [*]	.34 [*]
Girls	799	.64 [*]	.34 [*]	.31 [*]	.29 [*]	.23 [*]	.31 [*]	.35 [*]	.22 [*]	.24 [*]	.18 [*]	.09 ^{&}	.22 [*]	.51 [*]	.39 [*]	.39 [*]
Orphans	755	.66 [*]	.32 [*]	.30 [*]	.20 [*]	.19 [*]	.33 [*]	.35 [*]	.18 [*]	.23 [*]	.13 [*]	.00	.19 [*]	.50 [*]	.36 [*]	.32 [*]
Vulnerable Children	466	.69 [*]	.48 [*]	.25 [*]	.34 [*]	.28 [*]	.50 [*]	.24 [*]	.29 [*]	.25 [*]	.29 [*]	.17 [*]	.32 [*]	.51 [*]	.36 [*]	.30 [*]
Comparison Children	404	.57 [*]	.26 [*]	N/A	.27 [*]	.11 ^{&}	.24 [*]	N/A	.21 [*]	.15 [#]	N/A	.16 [§]	.14 [#]	N/A	N/A	.45 [*]

V1: Perceived public stigma against PLWHA

V2: Personal stigma against PLWHA

V3: Perceived public stigma against children affected by HIV

V4: Enacted stigma (data were only available from children affected by HIV).

V5: Depression (CESD-DC)

V6: Adjustment

& p<.05

p<.01

§ p<.001

* p<.0001

Table 4

Regression analysis of psychological problems for entire sample

IV	Depression			Adjustment		
	B	SE	T	B	SE	t
Age	.200	.098	2.029 *	-.002	.011	-.173
Gender (Boys=1 Girls=2)	.033	.402	.081	-.244	.045	-5.423 *****
SES	.025	.177	.141	.005	.020	.237
Orphans vs Comparison	2.093	.272	7.709 *****	.129	.030	4.261 *****
Vulnerable vs Comparison	-.548	.305	-1.800	.067	.034	1.954
Stigma 1	2.292	.398	5.759 *****	.102	.044	2.284 *
Stigma 2	1.211	.389	3.112 **	.160	.044	3.682 *****
Stigma 3	-.071	.302	-.235	.167	.034	4.946 *****

Stigma 1: Perceived public stigma against PLWHA

Stigma 2: Perceived public stigma against children affected by HIV

Stigma 3: Personal stigma against PLWHA

^{*} p<.05^{**} p<.01^{****} p<.0001

Table 5

Regression analysis of psychological problems for children affected by HIV

IV	Depression				Adjustment			
	B	SE	t		B	SE	t	
Age	.522	.105	4.973	****	0.016	.013	1.211	
Gender	.377	.420	.898		-.216	.051	-4.201	****
SES	.014	.187	.074		.002	.023	.104	
Orphans vs. Vulnerable	2.053	.448	4.585	****	.025	.055	.459	
Stigma 1	1.428	.414	3.451	***	1.067	.051	1.316	
Stigma 2	.397	.418	.949		.075	.051	1.475	
Stigma 3	-.497	.307	-1.620		.173	.038	4.596	****
Stigma 4	6.941	.371	18.728	****	.478	.045	10.542	****

Stigma 1: Perceived public stigma against PLWHA

Stigma 2: Perceived public stigma against children affected by HIV

Stigma 3: Personal stigma against PLWHA

Stigma 4: Enacted Stigma

p<.001

p<.0001