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Stigma Against Children Affected by AIDS (SACAA): Psychometric Evaluation of a Brief Measurement Scale

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Abstract

The current study was designed to develop and evaluate a brief scale measuring perceived public stigma against children affected by HIV/AIDS. The participants include 755 children who have lost one or both parents to HIV/AIDS (AIDS orphans), 466 children facing the potential of losing their parents to HIV/AIDS (vulnerable children), and 404 comparison children who did not have HIV-related illness or death in their families. The data in this study demonstrated that the SACAA scale provides a psychometrically sound measure of perceived stigma against children affected by AIDS in China. The SACAA scale is a reliable measure for children of both genders, at different developmental stages, and for both children affected by HIV/AIDS and comparison children. Known-group validation and correlation analysis demonstrate excellent construct validity of this

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brief SACAA scale. The SACAA score was positively associated with psychopathological symptoms and negatively associated with psychosocial well-being among participating children.

Keywords

AIDS orphans; Vulnerable children; HIV stigma; China

Introduction

The global epidemic of HIV/AIDS has been accompanied by the emergence of significant stigma against people living with HIV/AIDS (PLWHA) [1]. HIV/AIDS related stigma impacts both the life of PLWHA and the life of their children [2].The global literature has provided extensive evidence regarding the negative impact of HIV-related stigma on AIDS prevention, testing, treatment and care as well as psychosocial well-being of individuals who are infected or at risk of infection [3–7]. Limited literature from Western nations and Sub-Saharan African nations suggests that children of PLWHA frequently encounter hostility from their extended families and community, and might be rejected, denied access to schooling and health care [8–10].

HIV-related stigma is a multidimensional concept [1] and often is 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. Researchers have examined the stigma from the insider's view as "emic" and the outsider's view as the "etic" perspective [11] .The "outsiders" or the "perpetrators of stigma" are often 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 (i.e., HIV infection or AIDS) or the related behaviors [12]. Following this line of reasoning, some researchers have discussed different types of HIV/AIDS stigma: received (or perceived) stigma, internalized stigma, enacted stigma, and associative stigma [13–17]. The received or perceived stigma refers to all types of stigmatizing attitudes or behaviors towards PLWHA, as experienced or perceived by themselves or others; internalized stigma involves thoughts and behaviors stemming from the person's own negative perceptions about themselves because of their HIV status; enacted stigma refers to the real experience of discrimination experienced by the target of stigma [18–20], and associative stigma refers to stigma that result from a person's association with PLWHA [13]. The stigma by association with PLWHA is also called secondary stigma and can affect family members of PLWHA such as children orphaned or made vulnerable to be orphaned by AIDS [16]. In a study of "etic" view of AIDS stigma, Visser et al. [17] 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.

An important difference between children affected by AIDS and children affected by other diseases is that the children affected by AIDS have lost or faced the potential of losing their parents to a preventable but highly stigmatized disease, which can cause additional distress

and anger in these children [21]. Children affected by AIDS may be negatively impacted by stigma in several ways. First, stigma may cause the anxiety and fear relating to the incomplete disclosure of their parents' illness and consequently reduce children's ability to express their grief [22, 23]. Second, children affected by AIDS may be denied schooling, and suffer other direct consequences of discrimination, which results in a greater secondary loss for these children than for children affected by other diseases. Third, stigma often precludes adequate family and community support [24], including providing foster care for children orphaned by AIDS [25, 26]. Regular orphanages for non-AIDS orphans and schools often are reluctant to admit children from families infected with AIDS. Some infected parents and their children have withdrawn from contact with others to avoid the potential for social rejection, making it more difficult for these children to obtain the help they need [27, 28]. In addition, because of children's intellectual and emotional immaturity [21], HIV-related stigma may have a greater impact on children than on adults, especially among those children who have already experienced or witnessed the devastating effect of HIV on their families and communities.

Despite the general recognition of negative effects of stigma on children affected by AIDS, to date few studies have investigated the impact of such stigma. The lack of a psychologically adequate measurement scale that specifically assesses the stigma against children affected by AIDS (SACAA) may be contributing to this void. Therefore, the current study, utilizing baseline data from a longitudinal assessment of psychosocial needs of children in an area of high HIV prevalence in rural central China, was designed to develop and evaluate a brief scale measuring perceived public stigma against children affected by AIDS, including both children who lost one or both of their parents to HIV/AIDS (AIDS orphans) and children living with HIV-infected, alive parents (vulnerable children). The psychometric properties assessed in this study include reliability and construct validity. The construct validity of the scale was assessed using both known-group validation [29] and association between the scale and other measures of HIV stigma and psychosocial functioning. We anticipate that the SACAA scale will show adequate internal consistency among rural Chinese children. We hypothesize that the children affected by AIDS (e.g., AIDS orphans or vulnerable children) will report higher levels of SACAA than their peers from the same community who did not experience HIV-related illness and death in their families (i.e., comparison children). We also hypothesize that SACAA scale will demonstrate excellent construct validity by showing a positive association with psychopathological symptoms (e.g., depression, loneliness) and a negative association with psychosocial well-being (e.g., self-esteem, positive future orientation) among these children. In addition, because SACAA was developed to measure a distinct stigma (perceived public stigma against children affected by AIDS), we anticipated that SACAA would be highly correlated with other measures of HIV stigma (e.g., perceived public stigma against PLWHA, enacted stigma).

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 collected 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 center 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 rapid spread of the virus through the local population. Many HIV-infected farmers have progressed to AIDS and thousands have died in the areas [30]. 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/AIDS-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 AIDS orphans (i.e., children who lost one or both of their parents to HIV/AIDS), 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 6–18 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 [31]. Briefly, the orphanage sample was recruited from 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/AIDS. 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 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 AIDS 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 scales of psychosocial adjustment. 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 75–90 min, depending on the age of the children. Younger children (e.g., those ≤8 years of age) were offered a 10–15 min break after every 30 min during the assessment. Each child received a gift at completion of the assessment as a token of appreciation.

Development of SACAA

The development of the SACCA items followed procedures established in previous research [32]. We developed the initial item pool based on four sources: (1) the global literature on HIV-related stigma research [1, 33, 34], (2) the global literature on measurement of HIV stigma [32, 35, 36], (3) studies on the impact of HIV in China [37, 38], and (4) our own field observations and qualitative research related to the psychosocial consequences for children experiencing parental loss due to HIV/AIDS [27, 28, 39]. Informed by the findings in these resources, the investigation team reached the consensus that the main manifestations of public stigma against children affected by AIDS are the loss of social status (“status loss”) and the results of being labeled (“labeling”) [6, 40]. “Status loss” may include the social sanction or exclusion (e.g., denied schooling or residence) and purposeful avoidance. “Labeling” may include perceived inferior qualities directly resulted from their parental illness and death and related secondary loss in the child’s life (e.g., lack of hygiene, increased infection, deleted household income). The existing measures of HIV-related stigma in the literature (especially those measuring perceived public stigma) and themes merged from our field work were examined by a team of investigators for their relevance to these three manifestations (i.e., social exclusion, purposeful avoidance, perception of inferior qualities) and subsequently an initial pool of 24 items was generated by the investigation team (some items were taken verbatim from children’s responses in our qualitative interviews). After a careful review of these 24 items, the investigation team finally selected ten items that included three items measuring social sanction or exclusion against children affected by AIDS (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 AIDS 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 main considerations for the selection of the final ten items include the representativeness of the items in the item pool and our intention to produce a short measurement scale (≤ten items). Children were asked to indicate that in their opinion how many people in the society would be in agreement with each of these statements (4 = most people, 3 = some people, 2 = few people, and, 1 = none).

Translation and Finalization of SACAA

The initial translation of SACAA from English to Chinese was performed by English–Chinese bilingual research team members. The Chinese version was reviewed by a group of psychology and education faculty and students in China to assess whether the Chinese version of SACAA was both culturally and developmentally appropriate for children in China. Based on the feedback from the Chinese faculty and students, some wording in the Chinese version was modified. The modified SACAA was then independently translated back into English to examine whether the meaning of items had changed or been lost in the modification and translation process. Items that appeared to have changed in meaning were then adjusted until the meaning met with the research team's intentions.

The Chinese version of SACAA was pilot-tested (along with other scales in our assessment inventory) prior to the field data collection to examine reactions of Chinese children to the items and their understanding of the measures. The pilot-testing sample ranged from 7 to 16 years of age and included both boys and girls. Following the pilot-testing, no substantive change but several minor wording modifications were made to improve the comprehensibility of items among younger children (e.g., those <10 years of age). The final SACAA scale (in English) is provided in the Appendix for review.

Other Measures

Demographic Characteristics—Children were asked to report on individual and family characteristics during the survey. These characteristics include age, sex, ethnicity, perceived health status (i.e., very good, good, fair, and poor), parental education (no schooling, elementary school, middle school, ≥high school), and the main occupational activities in which their parents currently engaged or were engaged before their death (i.e., farmer, migrant worker, local small merchant, or other). To facilitate the group comparison by age, children were divided into three developmental groups: pre-adolescents (<12 years of age), early adolescents (12 through 14 years of age), and middle adolescents (>14 years of age). 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 0–4, with a high score indicating a better family SES.

Perceived Public Stigma Against PLWHA—A 10-item scale was employed to assess children's perceptions of public stigma against PLWHA. This scale was a modification of an existing scale for general population in the literature [34]. Children were asked to indicate that 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 think a person with HIV/AIDS is disgusting"; "People look down at someone who has HIV/AIDS", "People will look down at a family if someone in the family has HIV/AIDS"). The scale has a Cronbach alpha of .86 for the current study sample.

Enacted Stigma—Children affected by AIDS (both AIDS orphans and vulnerable children) were asked to indicate, on a 14-item list, whether they had experienced some of stigmatization acts and prejudice from others or the consequences of such stigmatization and

prejudice. 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 14 items have an excellent internal consistency (Cronbach alpha = .88) for the current study sample.

Depression—Children’s depressive symptoms were measured using the Center for Epidemiological Studies Depression Scale for Children (CES-DC) [41]. 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). The scale demonstrated a good internal consistency for the current study sample (Cronbach alpha = .81).

Loneliness and Social Dissatisfaction—The Chinese version of the Children’s Loneliness Scale (CLS) [42, 43] was administered to the children in the current study. The CLS consists of 24 items, 16 of which assess children’s perceived loneliness and social dissatisfaction and the remaining eight items served as the “filler items” that focus on children’s hobbies and other activities. The filler items were designed to help children relax while completing the scale [42]. Sample items of loneliness measures include “I have nobody to talk to” and “it is hard for me to make friends”. The CLS items have a 5-point response option ranging from 1 = “not at all true” to 5 = “always true”. Cronbach alpha for the 16 loneliness items was .82 for the current study sample.

Self-esteem—The participants were also asked about their global feelings of self-worth or self-acceptance using the 10-item Self-Esteem Scale developed by Rosenberg [44]. Sample items include “I feel that I have a number of good qualities” and “I am able to do things as well as most other people”. The Self-Esteem Scale with a 4-point response option (i.e., 1 = “strongly disagree” to 4 = “strongly agree”) was introduced into China more than a decade ago [43]. Cronbach alpha for the current study sample was .64.

Future Expectation (Future)—Children were asked to complete a modified version of the Children Future Expectation Scale [45]. This modified version consists of six items assessing expectations about general future outcomes in life (e.g., handling problems in life, handling school work, having friends, staying out of trouble, having a happy life, having interesting things to do). Children were asked to indicate along a 5-point scale (1 = “not at all” to 5 = “very much”) as to how confident the children were that these positive outcomes were going to happen in the future. The six items have a Cronbach alpha of .84 for the current study sample.

Hopefulness About Future (Hope)—A four-item scale used in a previous study [46] was employed to assess a child’s hopefulness with regard to some concrete outcomes in the future (e.g., “How likely do you think you will graduate from high school some day?”). The items in the scale have a four-point response option ranging from 1 = “will not happen” to 4 = “will definitely happen”. Cronbach alpha for the scale was .74 for the current study sample.

Perceived Control over the Future (Control)—A seven-item personality-based/dispositional measure [46] was employed to assess child's perceived control over their future (e.g., "What happens to me in the future mostly depends on me"). The children indicated the degree of their agreement to each of the statements with a four-point response option ranging from 1 = "disagree a lot" to 4 = "agree a lot". Cronbach alpha for the scale was .64 in the current study.

Statistical Analysis

The Cronbach alpha was employed as the internal consistency estimate. Cronbach alpha coefficients of SACAA scale were calculated for the entire sample, as well as subgroup of children by their orphanhood status (i.e., AIDS orphans, vulnerable children and comparison children), gender, and age groups (i.e., <12 years, 12–14 years, and >14 years). Item distributions (e.g., mean, standard deviation [SD], range, skewness, and kurtosis) were used to examine the distributional properties and possible floor and ceiling effects of the items. Inter-item correlations and exploratory factor analysis were employed to examine the dimensionality of the items.

The construct validity of the SACAA was assessed in the current study using the known-group validation procedure [29] and the association between the SACAA and other measures of HIV stigma and psychosocial adjustment. The known-group validation procedure involved two group comparisons of perceived SACAA scores using analysis of variance (ANOVA). The first comparison was among AIDS orphans, vulnerable children and comparison children. We anticipated that children who experienced HIV-related illness and death in their families would score higher on SACAA than children who did not have such an experience. The second comparison assessed SACAA among different levels of family SES. Because the main cause of the AIDS epidemic in the study area was poverty-driven blood-selling, we anticipated that children from families with a better SES would score higher on SACAA than children from families with a lower SES.

The associations between the SACAA and other measures of HIV stigma and psychosocial adjustment were assessed using Pearson Product Moment Correlation Coefficients (Pearson r). We anticipated that the SACAA score would be positively associated with other measures of HIV stigma and psychopathology symptoms (e.g., depression, loneliness) and negatively associated with psychosocial well-being (e.g., self-esteem, positive future orientation, hopefulness, perceived control over the future). Because previous research [31] suggested a strong association of psychosocial adjustment with children's orphanhood status, sex, age and their family SES, the bivariate associations between SACAA and psychosocial adjustment were further verified using General Linear Model (GLM) analysis controlling for orphanhood status, sex, age, and family SES. To use SACAA score as a between-subjects factor in GLM, a categorical score of SACAA was created by dividing the participants into three groups based on children's scores on the SACAA (i.e., approximately bottom 25%, middle 50%, and top 25%). The categorical score of SACAA (low, medium, and high), orphanhood status, and sex were employed as the between-subjects factors in the GLM analyses. Age and family SES (both as continuous measures) were employed in the GLM as covariates.

Results

Sample Characteristics

As shown in Table 1, the sample in the current study consists of 826 boys (51%) and 799 girls (49%). The mean age was 12.85 years (SD = 2.21) and did not differ between boys and girls (12.89, SD = 2.20 vs. 12.82, SD = 2.23). Ninety-nine percent of the children were of Han ethnicity. Two-thirds of the sample considered themselves as being in “very good” or “good” health. The majority of the sample (>70%) reported that their father or mother had no more than middle school education. About one-fifth of the children did not know the educational attainment of their parents. The majority of the parents (66% fathers and 81% mothers) worked mainly in farming or worked in cities as rural migrant workers.

There were a number of significant differences in demographic characteristics among the three groups (Table 1). Orphans were older (13.16, SD = 2.20) than either vulnerable children (12.36, SD = 2.24) or the comparison children (12.83, SD = 2.11) ($F(2,1613) = 19.24$, $P < .001$). Comparison children reported a higher family SES (2.15, SD = 1.15) than either AIDS orphans (1.92, SD = 1.17) or vulnerable children (1.79, SD = 1.17) ($F(2,1623) = 11.00$, $P < .001$). The proportion of children who did not know their parental education attainment was significantly higher among AIDS orphans (24% for father and 29% for mother) than vulnerable children (14% for both parents) or comparison children (13% for both parents) ($\chi^2(8) = 52.27$, $P < .001$ for father; $\chi^2(8) = 77.66$, $P < .001$ for mother). More children affected by AIDS (orphans and vulnerable children) reported that their parents mainly engaged in farming than comparison children (i.e., 65% and 58% vs. 41%, $\chi^2(6) = 39.79$, $P < .001$ for father; 80% and 75% vs. 67%, $\chi^2(6) = 70.77$, $P < .001$ for mother).

Reliability of SACAA

The SACAA demonstrated excellent internal consistency with a Cronbach alpha of .88 for the entire sample. Cronbach alphas were similar between boys and girls (Cronbach alpha = .88 for both groups), among pre-, early, and middle adolescents (Cronbach alpha = .85, .89, and .89, respectively), and among AIDS orphans, vulnerable children, and comparison children (Cronbach alpha = .88, .86, and .89 respectively).

Distribution and Dimensionality of SACAA Items

As shown in Table 2, all inter-items correlation coefficients were statistically significant ($P < .001$) with a range from .28 (between item 2 and item 9) to .56 (between item 8 and item 9). The examination of item distribution (the last five rows in Table 2) revealed no signs of either floor or ceiling effects of the measures. Although all the items were positively skewed (e.g., with negative skewness statistics), the deviations of their distribution from the normal distribution were mild (with skewness statistics ranging from −1.17 to −.13 and kurtosis statistics ranging from −1.24 to .20). Exploratory factor analysis with principal axis factoring produced two initial eigenvalues ≥1.00 (4.779 and 1.072) that explained 58.51% of the total variance (47.79 and 10.72%, respectively). However, the scree plot of eigenvalues (not shown) strongly suggested a single factor solution [47].

Sex and Age Difference of SACAA

The SACAA has an overall mean score (2.10, SD = .70). The SACAA score was similar between boys (2.11, SD = .71) and girls (2.10, SD = .68). Pre-adolescents reported a higher SACAA score (2.28, SD = .73) than early adolescents (2.03, SD = .69) or middle adolescents (2.06, SD = .64) ($F(2,1606) = 19.18$, $P < .001$; effect size [eta^2] = .023).

Construct Validity: Known-group Validation

There was a significant omnibus group difference in SACAA score among AIDS orphans, vulnerable children, and comparison children ($F(2,1617) = 5.00$, $P = .007$; $eta^2 = .006$). Both AIDS orphans (2.16, SD = .71) and vulnerable children (2.08, SD = .68) reported a higher score than comparison children (2.03, SD = .68), although post-hoc pair-wise comparison with the least significant difference (LSD) criterion suggested that only the difference between AIDS orphans and comparison children reached statistical significance ($P = .002$). As we anticipated, the family SES index was positively associated with the SACAA score ($F(4,1616) = 4.61$, $P < .001$; $eta^2 = .011$). Children with the highest SES (i.e., a maximum score of 4) reporting the highest SACAA score (2.29, SD = .74), compared to children with lower SES scores (i.e., SACAA scores ranged from 2.04 to 2.14 for SES scores<4).

Construct Validity: Association with Other HIV Stigma and Psychosocial Measures

The correlation matrices among SACAA and other HIV stigma and psychosocial measures across three groups of children are presented in Table 3. The SACAA score was highly correlated with the other two HIV stigma measures. Pearson r between SACAA and perceived public stigma against PLWHA ranged from .57 ($P < .001$) for comparison children to .69 ($P < .001$) for vulnerable children. Pearson r between SACAA and enacted stigma were .35 and .20 for AIDS orphans and vulnerable children, respectively ($P < .001$ for both correlation coefficients). The SACAA score was positively associated with depression ($r = .19$ for both AIDS orphans and comparison children and $r = .30$ for vulnerable children, $P < .001$ for all coefficients) and loneliness ($r = .21$ for AIDS orphans and $r = .20$ for vulnerable children and comparison children, $P < .001$ for all coefficients). The SACAA score was negatively associated with self-esteem, future orientation, hopefulness, and perceived control over the future across the three groups of children, although the correlation coefficients of SACAA with hopefulness ($r = -.07$) and perceived control over future ($r = -.08$) did not reach statistical significance. The magnitudes of the correlation coefficients were stronger among AIDS orphans and vulnerable children than comparison children.

The bivariate associations were confirmed by the multivariate analysis (Table 4). In the GLM analysis, SACAA categorical score (low, medium, and high) was significant in both multivariate and univariate tests for all psychosocial measures. Likewise, children status (AIDS orphans, vulnerable children, and comparison children) was significant in both multivariate and all univariate tests except the future orientation. Child gender was significant in the multivariate test but none of the univariate tests. Child age was a significant covariate in the multivariate test and all univariate tests for psychosocial variables. Family SES was a significant covariate in multivariate test but none of the univariate tests. None of the two-way and three-way interactions among the factor variables (i.e., SACAA, children

status, and gender) showed significance in either the multivariate test or any of the univariate tests.

Discussion

The data in this study confirmed our hypothesis that SACAA provides a psychometrically sound measure of perceived stigma against children affected by AIDS in China. The SACAA is a reliable measure for children of both genders, at different developmental stages ranging from pre-adolescents through middle adolescents, and for both children affected by AIDS and comparison children from the same community. Likewise, both known-group validation and association with other HIV stigma and psychosocial measures demonstrate excellent construct validity of this brief SACAA scale. While perceived SACAA varies by children's family HIV experience (i.e., AIDS orphans, vulnerable children and comparison children), developmental stage, and social economic status, the association between perceived SACAA and children's psychosocial functioning appears consistent across these children groups.

The data in the current study suggest that the stigma against children affected by AIDS not only have a negative impact on the children who had experienced HIV-related parental illness and death in their own family, but also, to a lesser degree in terms of the magnitudes of correlation coefficients, on the children of HIV-free family in the same community. Because the entire community that was hardly hit by HIV/AIDS might be subject to HIV stigma due to its high HIV prevalence and resulting economic deterioration, children living in the community, even without direct family experience with HIV/AIDS, might have "internalized" the HIV stigma to a certain degree, which has negatively impacted their mental health and other psychosocial outcomes (e.g., future orientation). The data in the current study suggested that the effects of SACAA on mental health are largely independent of child orphanhood status and gender (as evidenced by the non-significance of various interaction terms in the multivariate analysis).

Because the nature of the relationship between the SACAA and the psychosocial variables did not differ based on child orphanhood status, the SACAA can be used to assess psychological vulnerability due to HIV stigma among both male and female children regardless of whether they are immediately affected by HIV in their lives. Nevertheless, future study is needed to better understand the interplay between social context of personal life experience and its effect on mental health among children living in a community with a high HIV prevalence, including both children experiencing HIV/AIDS in their families and other children from the same communities who were not immediately affected by HIV in their lives.

There are several potential limitations in the current study. First, the sample in the current study might not be representative of children affected by AIDS in other areas of China. While efforts were taken to ensure the representativeness of the sample, our sample was recruited from two rural Chinese counties with a unique cause of HIV transmission (i.e., through poverty-driven blood-selling) and dominantly Han ethnicity (99%). Second, some psychological scales in the current study had relatively low reliability estimates (e.g.,

Cronbach α = .64 for self-esteem and perceived control over future). Future research would be improved through inclusion of more reliable measurement scales. Third, although SACAA scores differed significantly by some demographic variables (e.g., children orphanhood status, age group, and family SES), the effect size (eta^2) related to these differences were relatively small. Fourth, data were not available to assess some other aspects of the psychometric properties (e.g., test–retest reliability) in the current study.

Future research is needed to study other possible manifestations of stigma against children affected by AIDS. The current study mainly focused on three aspects of stigma (i.e., social sanction or exclusion, purposeful avoidance, and perception of inferior qualities). While we believe that these outcomes are among the most serious expressions of stigma against children of PLWHA, doubtless stigma has other manifestations which also have significant impact on children's psychosocial adjustment.

Because the main objective of the current study was to assess the psychometric properties of the SACAA, we did not examine other important dimensions of stigma (e.g., personal stigma against PLWHA, internalized stigma) among these children. Therefore, future study is needed to further study the relationship between SACAA and other forms of HIV stigma. While these different forms of stigma may have unique expression, the high correlations between SACAA and some other measures of HIV stigma in the current study suggest that they may share the same roots and causes (e.g., fear of AIDS contagion; culture-based moral judgment). Therefore, a further understanding of their relationship as well as their independent contribution to children's psychosocial problems will inform future research and AIDS care efforts among children affected by AIDS in China and other developing countries.

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Appendix: SACAA Scale

Instruction:

The following are possible attitudes towards children of people living with HIV/AIDS (PLWHA); please indicate that in your opinion how many people in the society would have such attitudes: (Response option: 4 = most people, 3 = some people, 2 = few people, and, 1 = none).

1. People think children of PLWHA should leave their villages
2. People do not think children of PLWHA deserve sympathy
3. People think children of PLWHA should quit school or never go to school
4. People are unwilling to take care of children of PLWHA

5. People think children of PLWHA should only live with children of PLWHA
6. People do not want their children to play with children of PLWHA
7. People think children of PLWHA should only play with children of PLWHA
8. People think children of PLWHA are unclean
9. People think children of PLWHA may have disease
10. People do not think children of PLWHA can be as good as other children

References

1. Parker R, Aggleton P. HIV and AIDS-related stigma and discrimination: a conceptual framework and implications for action. Soc Sci Med. 2003;57(1):13–24. [PubMed: 12753813]
2. Daniel M, Apila HM, Bjorgo R, Lie GT. Breaching cultural silence: enhancing resilience among Ugandan orphans. Afr J AIDS Res. 2007;6(2):109–20. [PubMed: 25866060]
3. Chesney MA, Smith AW. Critical delays in HIV testing and care. Am Behav Sci. 1999;42(7):1162–74.
4. Herek GM, Capitanio JP, Widaman KF. HIV-related stigma and knowledge in the United States: prevalence and trends, 1991–1999. Am J Public Health. 2002;92(3):371–7. [PubMed: 11867313]
5. Kang E, Rapkin BD, Remien RH, Mellins CA, Oh A. Multiple dimensions of HIV stigma and psychological distress among Asians and Pacific Islanders living with HIV illness. AIDS Behav. 2005;9(2):145–54. [PubMed: 15933834]
6. Mahajan AP, Sayles JN, Patel VA, et al. Stigma in the HIV/AIDS epidemic: a review of the literature and recommendations for the way forward. AIDS. 2008;22(Suppl 2):S67–79.
7. Mak WWS, Cheung RYM, Law RW, et al. Examining attribution model of self-stigma on social support and psychological well-being among people with HIV+/AIDS. Soc Sci Med. 2007;64(8):1549–59. [PubMed: 17223239]
8. Campbell C, Deacon H. Unraveling the contexts of stigma: from internalization to resistance to change. J Commun Appl Soc Psychol. 2006;16(6):411–7.
9. Campbell C, Foulis CA, Maimane S, Sibiya Z. “I have an evil child at my house”: stigma and HIV/AIDS management in a South African community. Am J Public Health. 2005;95(5):808–15. [PubMed: 15855456]
10. Campbell C, Nair Y, Maimane S, Nicholson J. ‘Dying twice’: a multi-level model of the roots of AIDS stigma in two South African communities. J Health Psychol. 2007;12(3):403–16. [PubMed: 17439992]
11. Weiss M, Doongaji D, Siddhartha S, et al. The explanatory model interview catalogue (EMIC). Contribution to cross-cultural research methods from a study of leprosy and mental health. Br J Psychiatry. 1992;160:819–30. [PubMed: 1617366]
12. Herek GM, Capitanio JP. Symbolic prejudice or fear of infection? A functional analysis of AIDS-related stigma among heterosexual adults. Basic Appl Soc Psychol. 1998;20:230–41.
13. Holzemer WL, Uys L, Makoae L, et al. A conceptual model of HIV/AIDS stigma from five African countries. J Adv Nurs. 2007;58:541–51. [PubMed: 17484748]
14. Pryor JB, Reeder GD, Landau S. A social-psychological analysis of HIV-related stigma. Am Behav Sci. 1999;42:1193–211.
15. Project Siyam’kela. A report on the fieldwork leading to the development of HIV/AIDS stigma indicators and guidelines. POLICY Project, South Africa; Centre for the Study of AIDS, University of Pretoria; United States Agency for International Development; Chief Directorate: HIV, AIDS & TB, Department of Health, 2003.
16. Brown L, Macintyre K, Trujillo L. Interventions to reduce HIV/AIDS stigma: what have we learned? AIDS Educ Prev. 2003;15:49–69. [PubMed: 12627743]
17. Visser MJ, Kershaw T, Makin JD, Forsyth BWC. Development of parallel scales to measure HIV-related stigma. AIDS Behav. 2008;12:759–71. [PubMed: 18266101]

18. Jacoby A Felt versus enacted stigma: a concept revisited. Evidence from a study of people with epilepsy in remission. Soc Sci Med. 1994;38:269–74. [PubMed: 8140453]
19. Malcolm A, Aggleton P, Bronfman M, Galvão J, Mane P, Verrall J. HIV-related stigmatization and discrimination: its forms and contexts. Crit Publ Health. 1998;8:347–70.
20. Scrambler G Stigma and disease: changing paradigms. Lancet. 1998;352:1054–5. [PubMed: 9759769]
21. Li X, Naar-King S, Barnett D, et al. A developmental psychopathology framework of the psychosocial needs of children orphaned by HIV/AIDS. J Assoc Nurses AIDS Care. 2008;19(2):147–57. [PubMed: 18328965]
22. Siegel K, Gorey K. Childhood bereavement due to parental death from acquired immunodeficiency syndrome. J Dev Behav Pediatr. 1994;15(Suppl):S66–70. [PubMed: 8063923]
23. Wood K, Chasea E, Aggletona P. 'Telling the truth is the best thing': teenage orphans' experiences of parental AIDS-related illness and bereavement in Zimbabwe. Soc Sci Med. 2006;63(7):1923–33. [PubMed: 16777307]
24. Ntozi JPM. AIDS morbidity and the role of the family in patient care in Uganda. Health Transit Rev. 1997;7(Suppl):1–22.
25. Hamra M, Ross MW, Karuri K, Orrs M, D'Agostino A. The relationship between expressed HIV/AIDS-related stigma and beliefs and knowledge about care and support of people living with AIDS in families caring for HIV-infected children in Kenya. AIDS Care. 2005;17(7):911–22. [PubMed: 16120508]
26. Seeley J, Kajura E, Bachengana C, Okongo M, Wagner U, Mulder D. The extended family and support for people with AIDS in a rural population in south west Uganda: a safety net with holes? AIDS Care. 1993;5(1):117–22. [PubMed: 8461355]
27. Zhao G, Li X, Fang X, Zhao J, Yang H, Stanton B. Care arrangement, grief, and psychological problems among children orphaned by AIDS in China. AIDS Care. 2007;19(9):1075–82. [PubMed: 18058390]
28. Zhao G, Li X, Kaljee L, et al. Psycho-social consequences for children experiencing parental loss due to HIV/AIDS in Central China. AIDS Care. 2009;21(6):769–74. [PubMed: 19437169]
29. DeVellis RF. Scale development: theory and applications. 2nd ed. Thousand Oaks: Sage; 2003.
30. Rosenthal E AIDS scourge in rural China leaves villages of orphans. New York Times. 2002.
31. Fang X, Li X, Stanton B, et al. Parental HIV/AIDS on psychosocial adjustment of rural Chinese children. J Pediatr Psychol. 2009. Advance Access published February 10, 2009; doi: 10.1093/jpepsy/jsp006.
32. Kalichman S, Simbayi L, Jooste S, et al. Development of a brief scale to measure AIDS-related stigma in South Africa. AIDS Behav. 2005;9:135–43. [PubMed: 15933833]
33. Green G, Platt S. Fear and loathing in health care settings reported by people with HIV. Sociol Health Illn. 1997;19(1):70–92.
34. Liu H, Hu Z, Li X, Stanton B, Naar-King S, Yang H. Understanding interrelationships among HIV-related stigma, concern about HIV infection, and intent to disclose HIV serostatus: a pretest–posttest study in a rural area of eastern China. AIDS Patient Care STD. 2006;20(2):133–42.
35. Berger BE, Ferrans CE, Lashley FR. Measuring stigma in people with HIV: psychometric assessment of the HIV stigma scale. Res Nurs Health. 2001;24(6):518–29. [PubMed: 11746080]
36. Wright K, Naar-King S, Lam P, Templin T, Frey M. Stigma scale revised: reliability and validity of a brief measure of stigma for HIV+ youth. J Adolesc Health. 2007;40:96–8. [PubMed: 17185215]
37. Lu Y, Trout S, Lu K, Creswell JW. The needs of AIDS-infected individuals in rural China. Qual Health Res. 2005;15:1149–63. [PubMed: 16204398]
38. Yang H, Wu Z, Duan S, et al. Living environment and schooling of children with HIV infected parent in southwest China. AIDS Care. 2006;18:647–55. [PubMed: 16971271]
39. Zhang L, Li X, Kaljee L, et al. "I Felt I Have Grown Up as an Adult": caregiving experience of children affected by HIV/AIDS in China. Child Care Health Dev. 2009;35(4):542–50. [PubMed: 19438874]
40. Foster G, Levine C, Williamson JA. Generation at risk: the global impact of HIV/AIDS on orphans and vulnerable children. Cambridge: Cambridge University Press; 2005.

41. Fendrich M, Weissman MM, Warner V. Screening for depressive disorder in children and adolescents: validating the center for epidemiologic studies depression scale for children. Am J Epidemiol. 1990;131:538–51. [PubMed: 2301363]
42. Asher SR, Hymel S, Renshaw PD. Loneliness in children. Child Dev. 1984;55(4):1456–64.
43. Wang X Rating scales for mental health (Chinese Journal of Mental Health Supplement). Beijing: Chinese Association of Mental Health; 1993.
44. Rosenberg M. Society and the adolescent self-image. Princeton: Princeton University Press; 1965.
45. Bryan A, Rocheleau CA, Robbins RN, Hutchison KE. Condom use among high-risk adolescents: testing the influence of alcohol use on the relationship of cognitive correlates of behavior. Health Psychol. 2005;24(2):133–42. [PubMed: 15755227]
46. Whitaker DJ, Miller KS, Clark LF. Reconceptualizing adolescent sexual behavior: beyond did they or didn't they? Fam Plan Persp. 2000;32(3):111–7.
47. Cattell RB. The scree test for the number of factors. Multivar Behav Res. 1966;1:245–76.

Table 1

Sample characteristics

	Overall	AIDS orphans	Vulnerable children	Comparison children
N (%)	1,625 (100%)	755 (47%)	466 (29%)	404 (25%)
Boys	826 (51%)	403 (53%)	219 (47%)	204 (51%)
Girls	799 (49%)	352 (47%)	247 (53%)	200 (50%)
Mean age in years (SD)	12.85 (2.21)	13.16 (2.20)	12.36 (2.24)	12.83 (2.11) *
Health				
Very good	464 (30%)	193 (27%)	139 (32%)	132 (33%)
Good	523 (34%)	258 (36%)	146 (33%)	119 (30%)
Fair	499 (32%)	234 (33%)	132 (30%)	133 (34%)
Poor	65 (4%)	34 (5%)	20 (5%)	11 (3%)
Father education *				
No school	41 (3%)	29 (4%)	7 (2%)	5 (1%)
Elementary school	527 (33%)	231 (31%)	175 (38%)	121 (30%)
Middle school	597 (38%)	251 (34%)	166 (36%)	180 (45%)
≥ High school	134 (8%)	49 (7%)	44 (10%)	41 (10%)
Don’t know	294 (19%)	177 (24%)	65 (14%)	52 (13%)
Mother education *				
No school	476 (9%)	67 (9%)	52 (12%)	24 (6%)
Elementary school	614 (39%)	238 (33%)	208 (46%)	168 (42%)
Middle school	421 (27%)	177 (25%)	115 (25%)	129 (32%)
≥High school	70 (5%)	28 (4%)	16 (4%)	26 (7%)
Don’t know	318 (20%)	206 (29%)	61 (14%)	51 (13%)
Father occupation *				
Farmer	879 (57%)	462 (65%)	255 (58%)	162 (41%)
Migrant	415 (27%)	146 (21%)	129 (29%)	140 (35%)
Local merchant	131 (9%)	45 (6%)	35 (8%)	51 (13%)
Other	117 (8%)	54 (8%)	21 (5%)	42 (11%)
Mother occupation *				
Farmer	1,141 (75%)	540 (80%)	335 (75%)	266 (67%)

	Overall	AIDS orphans	Vulnerable children	Comparison children
Migrant	193 (13%)	60 (9%)	73 (16%)	60 (15%)
Local merchant	90 (6%)	32 (5%)	18 (4%)	40 (10%)
Other	95 (6%)	47 (7%)	19 (4%)	29 (7%)
Family SES composite score (SD)	1.94 (1.17)	1.92 (1.17)	1.79 (1.17)	2.15 (1.15)*

* $p < .001$

Table 2

Inter-item correlation and other item statistics of SACAA

	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7	Item 8	Item 9	Item 10
Item 1										
Item 2	.51									
Item 3	.54	.48								
Item 4	.38	.35	.35							
Item 5	.44	.38	.43	.41						
Item 6	.35	.31	.37	.39	.45					
Item 7	.43	.33	.45	.36	.50	.53				
Item 8	.41	.35	.46	.35	.42	.54	.51			
Item 9	.35	.28	.35	.32	.35	.49	.42	.56		
Item 10	.33	.31	.36	.32	.39	.46	.44	.52	.51	
Mean	3.20	3.23	3.30	2.71	2.92	2.59	2.87	2.87	2.6	2.72
SD	.98	.95	.96	1.02	1.01	1.07	1.02	1.01	1.02	1.02
Range	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4	1–4
Skewness	−.92	−.96	−1.17	−.29	−.51	−.13	−.46	−.46	−.21	−.29
Kurtosis	−.38	−.21	.20	−1.04	−.89	−1.24	−.92	−.92	−1.07	−1.04

Note: All correlation coefficients are significant at $P < .001$. Please see Appendix for the description of each SACAA item

Table 3

Correlation matrix among main study variables

	1	2	3	4	5	6	7	8
AIDS orphans (n = 755)								
1. SACAA								
2. Stigma against PLWHA	.66***							
3. Enacted stigma[a]	.35***	.30***						
4. Depression	.19***	.20***	.52***					
5. Loneliness	.21***	.19***	.33***	.34***				
6. Self-esteem	−.15***	−.09*	−.13***	−.18***	−.47***			
7. Future	−.14***	−.14***	−.07	−.12***	−.41***	.41***		
8. Hope	−.12***	−.10**	−.07	−.07	−.32***	.37***	.51***	
9. Control	−.14***	−.08*	−.21***	−.21***	−.29***	.20***	.29***	.30***
Vulnerable children (n = 466)								
1. SACAA								
2. Stigma against PLWHA	.69***							
3. Enacted stigma[a]	.24***	.25***						
4. Depression	.30***	.32***	.56***					
5. Loneliness	.20***	.25***	.31***	.33***				
6. Self-esteem	−.20***	−.16***	−.26***	−.17***	−.49***			
7. Future	−.22***	−.24***	−.19***	−.10*	−.38***	.31***		
8. Hope	−.19***	−.23***	−.16***	−.17***	−.29***	.22***	.46***	
9. Control	−.22***	−.25***	−.34***	−.32***	−.45***	.40***	.45***	.49***
Comparison children (n = 404)								
1. SACAA								
2. Stigma against PLWHA	.57***							
3. Enacted stigma[a]	N/a	N/a						
4. Depression	.19***	.23***	N/A					

	1	2	3	4	5	6	7	8
5. Loneliness	.20***	.15**	N/A	.50***				
6. Self-esteem	−.10*	−.10*	N/A	−.27***	−.36***			
7. Future	−.11*	−.11*	N/A	−.07	−.34***	.24***		
8. Hope	−.07	−.07	N/A	−.08	−.20***	.28***	.35***	
9. Control	−.08	−.08	N/A	−.21***	−.42***	.42***	.44***	.35***

*$P < .05$,

**$P < .01$;

***$P < .001$

[a]Data were only available from AIDS orphans and vulnerable children

Table 4

Results of GLM

	Main effect			Covariate	
	SACAA	**Children status**[a]	**Gender**	**Age**	**SES**
Multivariate[b]	9.03***	13.60***	2.29*	18.07***	3.03*
Depression	41.85***	34.12***	<1	3.87*	<1
Loneliness	16.14***	43.54***	2.26	31.74***	1.41
Self-esteem	11.16***	18.51***	<1	9.78**	<1
Future	10.70***	2.67	1.62	20.39***	3.67
Hope	5.40**	15.54***	3.80	6.13*	3.00
Control	6.03**	10.70***	1.77	67.77***	2.15

Note: All the 2-way or 3-way interactions terms were excluded from this table because of the absence of either multivariate or univariate significance

*$P < .05$,

**$P < .01$,

***$P < .001$

[a]Children status: AIDS orphans, vulnerable children, and comparison children

[b]Pillai's trace *F* statistics were presented in the table for multivariate test and conventional *F* statistics (based on type III sum of square) were presented for univariate tests