Published in final edited form as:
Psychol Health Med. 2011 August ; 16(4): 437–449. doi:10.1080/13548506.2011.554569.

Parental Loss, Trusting Relationship with Current Caregivers and Psychosocial Adjustment among Children Affected by AIDS in China

Junfeng Zhao, Ph.D.[1], **Xiaoming Li, Ph.D.**[1,2], **Douglas Barnett, Ph.D.**[3], **Xiuyun Lin, Ph.D.**[4], **Xiaoyi Fang, Ph.D.**[4], **Guoxiang Zhao, Ph.D.**[4], **Sylvie Naar-King, Ph,D.**[2], and **Bonita Stanton, M.D.**[2]

[1] Department of Psychology, Henan University, China

[2] Carman and Ann Adams Department of Pediatrics Prevention Research Center, Wayne State University School of Medicine, USA

[3] Department of Psychology, Wayne State University, USA

[4] Institute of Developmental Psychology, Beijing Normal University, China

Abstract

Objective—to examine the relationship between parental loss, trusting relationship with current caregivers, and psychosocial adjustment among children affected by AIDS in China.

Methods—Cross-sectional data were collected from 755 AIDS orphans (296 double orphans and 459 single orphans), 466 vulnerable children living with HIV-infected parents, and 404 comparison children in China. The trusting relationship with current caregivers was measured with a 15-item scale (Cronbach alpha=.84) modified from the Trusting Relationship Questionnaire (TRQ) developed by Mustillo and colleagues (2005). The psychosocial measures include rule compliance/acting out, anxiety/withdrawal, peer social skills, school interest, depressive symptoms, loneliness, self-esteem, future expectation, hopefulness about future, and perceived control over the future.

Results—Group mean comparisons using ANOVA suggested a significant association ($p<.0001$) between the trusting relationship with current caregivers and all the psychosocial measures except anxiety and depression. These associations remained significant in General Linear Model analysis, controlling for children's gender, age, family SES, orphan status (orphans, vulnerable children, and comparison children), and appropriate interaction terms among factor variables.

Discussion—The findings in the current study support the global literature on the importance of attachment relationship with caregivers in promoting children's psychosocial development. Future prevention intervention efforts to improve AIDS orphans' psychosocial well-being will need to take into consideration the quality of the child's attachment relationships with current caregivers and help their current caregivers to improve the quality of care for these children. Future study is needed to explore the possible reasons for the lack of association between a trusting relationship and some internalizing symptoms such as anxiety and depression among children affected by HIV/AIDS.

Corresponding author: Xiaoming Li, Ph.D., The Carman and Ann Adams Department of Pediatrics Prevention Research Center, Wayne State University School of Medicine, 4707 St. Antoine Street, Suite W534, Detroit, MI 48201, Tel: 313-745-8663, Fax: 313-745-4993, xiaoli@med.wayne.edu.

Keywords

Trusting relationship; AIDS; Orphans; Vulnerable children; Psychosocial adjustment

Introduction

The number of AIDS orphans worldwide could reach 25 million by 2010 and 40 million by 2020 (UNICEF, 2004; Phiri & Webb, 2005). The China Ministry of Health estimated there were at least 100,000 AIDS orphans in China by the end of 2004 (Zhao et al., 2007). While limited data exist on the psychosocial outcomes of these children, previous studies have demonstrated that children affected by AIDS (either orphaned or made vulnerable to be orphaned by AIDS) suffered more psychological problems than children from the same community who did not experience HIV-related illness or death in their family (Fang et al., 2009; Cluver, Gardner & Operario, 2007). Previous studies have also suggested a number of contextual factors that may potentially mediate or moderate the effect of parental HIV/AIDS on children's mental health (Cluver et al., 2007; Foster, 2002; Makame, Ani, & Grantham-McGregor, 2002). One such contextual factor is the extent to which caregivers are available (both physically and emotionally) to protect, nurture, and care for the child during bereavement and beyond (Bowlby, 1980; Li et al., 2008).

Research around the world over the past 50 years has provided strong support for the idea that caregiver availability and sensitivity are key in determining children's attachment security (Chisholm, 1998; O'Connor, 2003). Children's attachment security is thought to reflect their underlying trust in others interest and availability to provide emotional support; and their confidence in themselves in handling daily challenges and their concomitant emotions. Previous research has consistently shown that children and adolescents with secure attachments have an advantage on measures of language, academic, and social and emotional functioning (Schneider, Atkinson, & Tardif, 2001; van IJzendoorn, Dijkstra, & Bus, 1995). In contrast, impersonal and distant involvement of adults does not support the intimate attachment relationship thought necessary for healthy human development (Larose, Berneir, & Tarabulsy, 2005; Marsh, McFarland, Allen, McElhaney, & Land, 2003).

The loss of an attachment figure during childhood is a stressful, if not traumatic, event that can undermine a child's ability to trust and go on to have lasting effects on health and adjustment. At the same time, humans have a resilient capacity to recover from loss and to go on to form new secure attachments. Research on children's adjustment to parental loss has underscored the importance of taking into consideration the quality of the child's relationships with current caregivers after the loss of their parents (Bowlby, 1980; Fraley & Shaver, 1999). Although global literature suggests that the quality of children's relationships with caregivers after the loss might likely be important in predicting their concurrent and future social and emotional health, there are limited studies in examining the role of these relationships in psychological adjustments among children affected by AIDS in developing countries, including China. The current study utilized baseline data from a longitudinal assessment of psychosocial needs of children orphaned or made vulnerable by HIV/AIDS in China, to examine (1) the group difference in perceived trusting relationship with their current caregivers between children orphaned or made vulnerable by HIV/AIDS and their peers from the same community; (2) association between children's psychosocial adjustment and the trusting relationship with their current caregivers; and (3) unique contribution of a trusting relationship to psychological adjustment over and beyond the children's orphan status and other key socio-demographic factors.

Method

Study Site

The data in the current study were conducted in 2006-2007 in two rural counties in central China in which the residents had been infected with HIV through unhygienic blood collection (Li, Fang et al., 2009). Some governmental and commercial blood stations/centers started collecting blood in remote rural areas of central China between the late 1980s and middle 1990s. The farmers, who were not tested for HIV, Hepatitis B, Hepatitis C, or other blood-borne infections, gave blood to collection centers, which 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 the rapid spread of the virus through the local population. Many HIV-infected farmers have progressed to AIDS and thousands have died and left their children behind (Zhao et al., 2007). Both participating counties were rural (94% rural residents) and had similar demographic and economic profiles. Both counties have the highest prevalence of HIV-infection in the area. We obtained village-level HIV surveillance data from the counties' anti-epidemic stations to identify the villages with the highest number of deaths from HIV/AIDS or confirmed HIV infections. The participants in the current study were recruited primarily from five administrative villages (rural administrative units under the county) that had jurisdiction over 111 natural villages.

Participants

A total of 1625 children, 6- to 18-years old were surveyed as part of this study. These participants included 755 AIDS orphans (i.e., children who lost one or both of their parents to HIV/AIDS), 466 vulnerable children living with HIV-infected parents, and 404 comparison children who were from the same community and did not have HIV/AIDS-related illness or death in their families. The orphan sample include 176 (23%) double orphans (i.e., children who lost both parents to AIDS) living in the government-funded orphanages (i.e., orphanage sample), 30 (4%) double orphans living in community-based small group homes where community volunteers served as “house parents” and took care of a small group of double orphans in family setting, 90 (12%) double orphans and 459 (61%) single orphans (i.e., children who lost one parent to AIDS) in family or kinship care (orphans in family care).

Sampling Procedure

The recruitment and consenting procedures for the current study have been described in detail elsewhere (Li, Barnett et al., 2009). Briefly, the orphanage sample was recruited from four government-funded orphanages (2 orphanages in each county) and eight small group homes which had enrolled children at the time of baseline survey in the two counties. A total of 244 AIDS orphans were living in the four AIDS orphanages, among whom 176 (72%) participated in the survey. A total of 43 orphans were living in eight group houses among whom 30 (70%) participated in the survey. To recruit orphans from the family or kinship care and vulnerable children, 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 was more than one eligible child in a household, a single child was randomly selected. This process was repeated until either all eligible children were approached or target sample sizes (i.e., about 1,200 in total) for the AIDS orphans and vulnerable children were achieved.

The comparison group was recruited from the same communities (villages) where the orphans and vulnerable children were recruited. We worked with the village leaders to create a list consisting of households in which no one was known to be HIV-infected or died of HIV/AIDS. We randomly approached a small number of the families on the list in each village 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 was selected from the list. This process was repeated until the target sample size of the comparison group (e.g., about 400) was achieved. 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 was administered 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 typically took about 75 to 90 minutes, depending on the age of the children. Younger children (e.g., those ≤ 8 years old) were offered a 10-15 minute break after every 30 minutes of assessment. Each child received a gift (e.g., age-appropriate toys or school supplies such as books, notebooks, and pencils/pens) at completion of the assessment as a token of appreciation.

Adaptation of Trusting Relationship Questionnaire (TRQ) into Chinese

The child version of the TRQ (Mustillo, Dorsey, & Farmer, 2005) was adapted in the current study to assess the quality of the relationship between children and their current caregivers. The initial translation from English to Chinese and independent back-translation of the TRQ were done following a standard procedure established in the current study for instrument adaptation (Li, Fang et al., 2009). Following the recommendations from the developers of original TRQ (Mustillo et al, 2005), 14 of the original 16 items were retained in the current study. One new item was added to the scale in the current study to assess whether children took the initiative in seeking help from caregivers during the time of crisis (i.e., “Do you initiate contact with ‘adult’ during times of crisis?”). The psychometric properties of the 15 item scale can be found in the results and the English translation of the items can be found in the Appendix.

Other Measures

Demographic characteristics—Children were asked to provide a number of individual and family characteristics during the survey. These characteristics include age, sex, ethnicity, perceived health status (very good, good, fair, and poor), number of siblings in the family, parental education (no schooling, elementary school, middle school, ≥ high school), and the main occupational activities their parents are currently engaged or were engaged before their death (farming, working in cities as a migrant worker, local small merchant, or other). A composite score was created to assess 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.

Psychosocial scales—Beside TRQ, a total of eight psychosocial scales were employed in this study. These scales include the Child Rating Scale (Hightower, 1987), the Center for Epidemiological Studies Depression Scale for Children (CES-DC), (Fendrich, Weissman, &

Warner, 1990), the Children's Loneliness Scale (CLS), (Asher, Hymel, & Renshaw, 1984), the Self-Esteem Scale (Rosenberg, 1965), a modified version of the Children Future Expectation Scale (Future) (Bryan, Rocheleau, Robbins, & Hutchison, 2005), the Hopefulness about Future (Hope), and the Perceived Control over Future (Control) scales (Whitaker, Miller, & Clark, 2000). A list of all the scales/subscales and their internal consistency estimates (Cronbach alpha), accompanied by brief descriptions of the content of measurement and/or sample questions is provided in Table 1. For scales that have not been used in China before, they were translated from English into Chinese in the current study by the investigators following the same procedure as the translation of the TRQ. A composite score (usually mean score or sum score with appropriate reverse coding) was obtained for each of the scales with a higher score indicating a higher level of the perception/behavior the scale intends to measure.

Statistical Analysis

First, analysis of variance (ANOVA; for continuous measures) or Chi-square test (for categorical measures) was performed to examine the difference of sample characteristics by children orphan status (AIDS orphans, vulnerable children, comparison children). Second, ANOVA was performed to assess the difference of mean scores of TRQ by gender, age group (<12 years, 12-14 years, and >14 years), child orphan status, and family SES. Third, ANOVA was performed to assess the associations of a trusting relationship with psychosocial adjustments. To facilitate the comparison of continuous psychosocial measures by the level of a trusting relationship, the participants were divided into three groups (i.e., bottom 25%, middle 50%, and top 25%) based on their TRQ scores. For those variables with overall significant group difference among the three levels of a trusting relationship, post hoc multiple comparisons were conducted to identify the pair-wise differences using one-way ANOVA with the criterion of the least significant difference.

Finally, a multivariate analysis using general linear model (GLM) procedure was performed to test the unique contribution of a trusting relationship to psychosocial adjustments among the entire sample controlling for children orphan status and other demographic variables (sex, age, and family SES) in the model. The 3-group trusting relationship measure was employed as the main between-subjects factor in GLM analysis. Orphan status and sex were employed as additional factor variables. The interaction terms among a trusting relationship, orphan status, and sex were assessed simultaneously in GLM. Children's age and family SES (both as continuous measures) were included in the GLM as covariates. All psychosocial measures were employed as the dependent variables in the GLM analysis. The multivariate significance using Pillai's trace with approximate F statistic and the univariate ANOVA for each dependent variable were provided from GLM analysis. All analyses were conducted using SPSS for Windows V16.0.

Results

Sample Characteristics

As shown in Table 2, the sample in the current study consisted 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 (M=12.89; SD=2.20 vs. M=12.82; SD=2.23). Ninety-nine percent of the children were Han ethnicity. Two-thirds of the sample considered themselves as being “very good” or “good” in health. The majority of the sample (>70%) reported that their father or mother had no more than a middle school education. About one-fifth of the children did not know their parental education attainment. The majority of the parents (66% fathers and 81% mothers) worked mainly in farming or as rural migrant workers. There were a number of significant differences in demographic characteristics among the three groups. Orphans were older

(M=13.13; SD=2.20) than either vulnerable children (M=12.36; SD=2.24) or comparison children (M=12.83; SD=2.11). 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 each parent) or comparison children (13% for each parent). More orphans or vulnerable children reported that their parents mainly engaged in farming than comparison children (i.e., 65% and 58% vs. 41% for father; 80% and 75% vs. 67% for mother). Composite SES score was significantly higher among comparison children (M=2.15; SD=1.15) than orphans (M=1.92; SD=1.17) or vulnerable children (M=1.79; SD=1.17).

Psychometric Properties of TRQ

As shown in Table 3, the 15 items of TRQ had an excellent reliability estimate with a Cronbach alpha of .84 for the entire sample. The internal consistency estimates were similar between gender (.84 for girls and .84 for boys), across age groups (ranged from .84 to .87), orphan status (ranged from .82 to .87), and levels of family SES (ranged from .83 to .88). The mean scores of TRQ significantly differed by gender with girls reporting a higher level of trusting relationship than boys ($p<.01$). The TRQ scores increased with the age group with older children reporting a better trusting relationship than younger ones ($p<.0001$). AIDS orphans and vulnerable children reported a lower trusting relationship than comparison children (2.50, 2.53 vs. 2.72; $p<.0001$). However, there was a negative relationship between family SES and trusting relationship with higher family SES being associated with a lower level of trusting relationship ($p<.01$). The examination of the scale score distribution revealed no signs of either floor or ceiling effects of the measures for any subgroup. The deviations of the score distribution from normal distribution were minimal across various subgroups (with skewness statistics ranging from -.135 to .162 and kurtosis statistics ranging from -.547 to .172).

Trusting Relationship and Psychosocial Adjustment

The bivariate associations of trusting relationship with psychosocial measures are shown in Table 4. Level of a trusting relationship was significantly associated with all psychosocial measures with exceptions of anxiety and depression. Post hoc pair-wise multiple comparisons indicated a liner trend between levels of a trusting relationship and those psychosocial measures with children reporting higher levels of child-caregivers trusting relationship also reporting better psychosocial adjustments (e.g., fewer psychological problems and better psychosocial well-being).

The GLM analysis (Table 5) revealed a multivariate significance for each of the main factor variables and covariates. The level of a trusting relationship showed a significant effect on all but one of the psychosocial measures (depression). The orphan status had a significant effect on all psychosocial measures except rule compliance and future expectation. The sex was a significant covariate for rule compliance, peer social skills, and school interest. Children's age was a significant covariate for all psychosocial measures except anxiety, school interest, and depression. The Family SES was a significant covariate for future expectation. None of the two-way or three-way interaction terms were significant at multivariate test except the interaction between trusting relationship and sex. The interaction between trusting relationship and sex was significant for univariate test of self-esteem. The further inspection of the cell means revealed that the interaction resulted from inconsistent sex difference in self-esteem scores across different level of trusting relationship. Specifically, boys scored higher than girls on self-esteem among both low and medium trusting relationship groups (e.g., 2.81 vs. 2.71 for the low group, 2.88 vs. 2.83 for the medium group), however, boys scored lower than girls on self-esteem in the high trusting relationship group (2.96 vs. 3.08).

Discussion

The data in the current study demonstrated excellent psychometric properties for TRQ among rural Chinese children. Given the collectivism cultural orientation of Chinese society, the attachment or trusting relationship with caregivers is an important contextual factor for the psychosocial development of Chinese children. The culturally adapted version of TRQ should provide researchers with a reliable and valid tool for the assessment of such a factor. The scale also seemed appropriate for children of a wide range of ages and family socioeconomic status, of different gender, and in different care or living situations (e.g., in institutional care, living with parents or other non-parent caregivers).

The current study revealed a higher trusting relationship scores among older children than younger children, which may be because of the better adaptability of these children. Likewise, the better adaptability may also contribute to the higher TRQ scores among girls than boys. In general, children affected by AIDS (AIDS orphans and vulnerable children) reported a lower trusting relationship with their current caregivers than comparison children. This may be because of the non-parental relationship, or short-duration of the relationship, or shadow of parental loss/illness among children affected by AIDS. The lower TRQ scores among orphans also may reflect difficulties establishing trust with a new caregiver after having had lost one or both parents.

Because the HIV epidemic in the study area was caused by the poverty-driven blood sale, most the families affected by HIV/AIDS had a lower socioeconomic status. However, the trusting relationship showed a different pattern with family SES from that with orphan status. In general, children from lower SES families reported a higher level of trusting relationship than children from higher SES families. Most of these families with lower SES were families with parents engaging in farming activities and these parents might stay home more often than parents in other occupation groups (e.g., migrants). Therefore, children in these families might have more interaction with their parents and consequently felt closer to their parents. Future study is needed to understand the determinants of the TRA scores.

The TRQ scores showed a stronger association with externalizing behaviors and future orientation than with internalizing symptoms such as anxiety and depression which were highly associated with AIDS orphan status (Fang et al., 2009; Lin et al., 2010). Future study is needed to explore the possible reasons for the lack of association between trusting relationship and internalizing symptoms among rural Chinese children, especially those children affected by AIDS. Apparently, the establishment of a new trusting relationship is not enough to overcome the hardships of losing a parent to HIV/AIDS as orphan status continued to predict negative outcomes for children over and above the effects of a current trusting relationship. The current data do suggest a potential mediation effect of trusting relationship on the effects of family HIV/AIDS on children's rule compliance and future orientation. The relationships between family HIV/AIDS and rule compliance and future orientation were significant in prior work (Lin et al., 2010) but were not significant when trusting relationship was included in the multivariate analysis.

One of the most important findings in the current study was that the association between trusting relationship and psychosocial adjustment was independent of children's family HIV/AIDS experience (parental loss, parental illness, or HIV-free), gender, age, and family SES. This finding suggests a robust and global role of trusting relationship in children's psychosocial adjustment. This finding highlights the importance of the subsequent caregiving relationship after the death of a parent in understanding children's adaptation to losing their parent. Moreover, this finding has a strong intervention implication. While the programs aiming to improve child-caregiver attachment relationship have to be culturally

and developmentally appropriate, a positive attachment relationship or trusting relationship with caregivers could benefit children from different family backgrounds, in various living situations, across different developmental stages, and facing different challenges in their lives.

The current study has several potential limitations. 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., 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 <.70 for self-esteem, perceived control over future, and all four RCS subscales). Future research would be improved through inclusion of more reliable measurement scales.

Despite these potential limitations, to the best of our knowledge, this study is one of the first efforts to study the trusting relationship and its association with psychosocial adjustment among children affected by HIV/AIDS in China or other developing countries. The findings support the use of trusting relationship scale in Chinese cultural settings and with children affected by HIV/AIDS. The findings also underscore the important role of trusting relationship in the psychosocial adjustment among children affected by HIV/AIDS and call for culturally and developmentally appropriate efforts to help both children and caregivers to nurture a positive attachment relationship which can help mitigate the devastating effects of HIV/AIDS in their families and communities.

Acknowledgments

The study described in this report was supported by NIH Research Grant R01MH76488 by the National Institute of Mental Health and the National Institute of Nursing Research. 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 also want to thank Joanne Zwemer for assistance with manuscript preparation.

Appendix

Child-Caregiver Trusting Relationship Questionnaire Items

item#	TRQ Items[1]
1	Does “adult” identify things he or she likes about you?
2	Does “adult” talk to you about his or her problems?
3	Does “adult” want to spend time with you?
4	Does “adult” talk positively about you to others?
5	Does “adult” seek out counseling or advice from you?
6	Does “adult” consider your point of view?
7	Does “adult” tell you s/he is sorry?
8	Does “adult” tell you when something you have done has hurt him/her?
9	Do you share things you like about “adult” with him/her?
10	Do you share personal information about yourself with “adult”?
11	Do you tell “adult” when you are sorry?
12	Do you talk with others in a positive way about “adult”?
13	Do you enjoy spending time with “adult”?

item#	TRQ Items[1]
14	Do you consider “adult's” point of view?
15	Do you initiate contact with “adult” during times of crisis?

Note:

[1]The “adult” was replaced with appropriate terms for caregivers or parents in relevant questionnaires. The response option to each item ranges from 1= “never” to 5= “very often”;

References

Asher SR, Hymel S, Renshaw PD. Loneliness in Children. Child Development. 1984; 55(4):1456–1464.

Bowlby, J. Loss. New York: Basic; 1980.

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 Psychology. 2005; 24:133–142. [PubMed: 15755227]

Cluver L, Gardner F, Operario D. Psychological distress amongst AIDS-orphaned children in urban South Africa. Journal of Child Psychology and Psychiatry. 2007; 48(8):755–763. [PubMed: 17683447]

Chisholm K. A three-year follow-up of attachment and Indiscriminate friendliness in children adopted from Romanian orphanages. Child Development. 1998; 69:1092–1106. [PubMed: 9768488]

Fang X, Li X, Stanton B, Zhao G, Lin D, Lin X, Zhao J, Hong Y, Zhang L. Parental HIV/AIDS on psychosocial adjustment of rural Chinese children. Journal of Pediatric Psychology. 2009; 34(10): 1053–1062. [PubMed: 19208701]

Fendrich M, Weissman MM, Warner V. Screening for depressive disorder in children and adolescents: Validating the center for epidemiologic studies depression scale for children. American Journal of Epidemiology. 1990; 131(3):538–551. [PubMed: 2301363]

Foster G. Beyond education and food: psychosocial well-being of orphans in Africa. Acta Paediatrica. 2002; 91:502. [PubMed: 12113315]

Fraley, C.; Shaver, PR. Loss and bereavement: Attachment theory and recent controversies concerning “grief work” and the nature of detachment. In: Cassidy, J.; Shaver, PR., editors. Handbook of Attachment. New York: Guilford; 1999.

Hightower AD. The Child Rating Scale: The Development of a Socioemotional Self-Rating Scale for Elementary School Children. School Psychology Review. 1987; 16(2):239–255.

Larose S, Berneir A, Tarabulsy GM. Attachment state of mind, learning dispositions and academic performance during the college transition. Development and Psychopathology. 2005; 41:281–289.

Li X, Naar-King S, Barnett D, Stanton B, Fang X, Thurston C. A Developmental Psychopathology Framework of the Psychosocial Needs of Children Orphaned by HIV/AIDS. Journal of the Association of Nurses in AIDS Care. 2008; 19(2):147–157. [PubMed: 18328965]

Li X, Barnett D, Fang X, Lin X, Zhao G, Zhao J, Zhang L, Hong Y, Naar-King S, Stanton B. Lifetime Incidences of Traumatic Events and Mental Health among Children Affected by HIV/AIDS in Rural China. Journal of Clinical Child and Adolescent Psychology. 2009; 38(5):731–744. [PubMed: 20183657]

Li X, Fang X, Stanton B, Zhao G, Lin X, Zhao J, Zhang L, Hong Y, Chen X. Psychometric Evaluation of the Trauma Symptoms Checklist for Children (TSCC) among Children Affected by HIV/AIDS in China. AIDS Care. 2009; 21(3):261–270. [PubMed: 19280403]

Lin X, Zhao G, Li X, Stanton B, Zhang L, Hong Y, Zhao J, Fang X. Perceived HIV stigma among children in a high HIV-prevalence area in central China: Beyond the parental HIV-related illness and death. AIDS Care. 2010; 22(5):545–555. [PubMed: 20397077]

Makame V, Ani C, Grantham-McGregor S. Psychological well-being of orphans in Dar El Salaam, Tanzania. Acta Paediatrica. 2002; 91:459–465. [PubMed: 12061364]

Marsh P, McFarland FC, Allen JP, McElhaney KB, Land D. Attachment, autonomy, and multifinality in adolescent internalizing and risky behavioral symptoms. Development and Psychopathology. 2003; 15:451–467. [PubMed: 12931837]

Mustillo SA, Dorsey S, Farmer EMZ. Quality of Relationships Between Youth and Community Service Providers: Reliability and Validity of the Trusting Relationship Questionnaire. Journal of Child and Family Studies. 2005; 144:577–590.

O'Connor TG. Natural experiments to study the effects of early experience: Progress and limitations. Development and Psychopathology. 2003; 15:837–852. [PubMed: 14984129]

Phiri, S.; Webb, D. Cornia, GA., editor. The impact to HIV/AIDS on orphans and programme and policy responses. AIDS, public policy and child well-being. [April 9, 2005]. Available at: http// www.unicef-icdc.org/research/ESP/aids/aids_index_html

Rosenberg, M. Society and the adolescent self-image. Princeton, NJ: Princeton University Press; 1965.

Schneider BH, Atkinson L, Tardif C. Child-parent attachment and children's peer relations: A quantitative review. Developmental Psychology. 2001; 37:86–100. [PubMed: 11206436]

UNICEF. Children on the Brink 2004: A Joint Report of New Orphan Estimates and a Framework for Action. New York: UNICEF; July. 2004

van IJzendoorn JH, Dijkstra J, Bus AG. Attachment, intelligence, and language: A meta-analysis. Social Development. 1995; 4:115–125.

Whitaker DJ, Miller KS, Clark LF. Reconceptualizing adolescent sexual behavior: beyond did they or didn't they? Family Planning Perspectives. 2000; 32(3):111–117. [PubMed: 10894256]

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):1075–1082. [PubMed: 18058390]

Table 1
Description of Psychosocial Scales Used in the Study

Scale/Subscales	# of Items	α	Content/Sample Questions
Child Rating Scale (CRS)	24		
Rule Compliance/ Acting Out (CRS1)	6	.44	Conduct with regard to typical school and classroom riles “I behave in school”, “I follow the class rules”
Anxiety/Withdrawal scale (CRS2)	6	.63	Internal reaction to distress (e.g., “I get scared in school,” “I worry about things at school”).
Peer Social Skills scale (CRS3)	6	.53	Interpersonal functioning and confidence in dealing with peers (e.g., “I have many friends”, “My classmates like me”).
School Interest scale (CRS4)	6	.54	Interest in school related activities (e.g., “I like to do school work”, “I like to answer questions in class”).
Center for Epidemiological Studies Depression Scale for Children (CES-DC)	20	.81	Depressive symptoms
Children 's Loneliness Scale (CLS)	16	.82	Perceived loneliness and social dissatisfaction
Self-esteem (Esteem)	10	.64	Global feelings of self-worth or self-acceptance
Children Future Expectation (Future)	6	.84	Expectations about specific 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)
Hopefulness about Future (Hope)	4	.74	hopefulness with regard to some concrete outcomes in the future (e.g., graduation from high school)
Control over the Future (Control)	7	.64	personality-based/dispositional measure relating to perceived control over the future (e.g., “What happens to me in the future mostly depends on me”)

Table 2

Sample Characteristics

	Overall	AIDS Orphans	Vulnerable Children	Comparison Children
N(%)	1625(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 (SD)	12.85(2.21)	13.13(2.20)	12.36(2.24)	12.83(2.11)*
# of Siblings (SD)	1.61(1.34)	1.58(1.46)	1.67(1.36)	1.59(1.04)
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	143(9%)	67(9%)	52(12%)	24(6%)
Elementary School	614(39%)	238(33%)	208(46%)	168(42%)
Middle School	421(21%)	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	131(9%)	45(6%)	35(8%)	51(13%)
Local Small Merchant	415(27%)	146(21%)	129(29%)	140(35%)
Other	117(8%)	54(8%)	21(5%)	42(11%)
Mother Occupation*				
Farmer	1141(75%)	540(80%)	335(75%)	266(67%)
Migrant	90(6%)	32(5%)	18(4%)	40(10%)
Local Small Merchant	193(13%)	60(9%)	73(16%)	60(15%)
Other	95(6%)	47(7%)	19(4%)	29(7%)
Family SES (SD)	1.94(1.17)	1.92(1.17)	1.79(1.17)	2.15(1.15)*

*p<.0001

Table 3

TRQ Scale Statistics

	N[1]	Cronbach α	Mean	Standard Deviation	Range	Skewness	Kurtosis
Overall	1625	.84	2.56	.70	4.00	.065	-.132
Gender							
Boys	824	.84	2.52	.72	4.00	.054	-.118
Girls	798	.84	2.61*	.68	4.00	.105	-.179
Age Group							
<12	441	.84	2.47	.70	4.00	.158	.049
12-14	760	.85	2.49	.69	4.00	.129	-.093
>14	410	.87	2.79**	.67	3.93	-.122	-.038
Orphan Status							
Orphans	753	.87	2.50	.71	4.00	.100	-.193
Vulnerable children	466	.86	2.53	.71	4.00	.139	-.018
Comparison children	403	.82	2.72**	.64	3.53	.023	-.086
Family SES Score							
0	195	.88	2.63	.73	4.00	.132	.172
1	398	.86	2.59	.66	4.00	.050	.122
2	519	.85	2.58	.71	3.53	.029	-.437
3	331	.85	2.55	.71	4.00	.162	-.010
4	179	.83	2.38*	.70	2.87	-.135	-.547

Note:

[1]The numbers for some measures did not add up to the total sample size due to missing data.

*p<.01;

**p<.0001

Table 4
Association between trusting relationship and psychosocial adjustments

	Level of Trusting Relationship			
	Low	**Medium**	**High**	**Post Hoc Comparison[1]**
N(%)	406(25%)	815(50%)	405(25%)	
Girls	179(45%)	409(50%)	210(52%)	
Age	12.50(1.96)	12.77(2.24)	13.35(2.32)****	(1<2) (1<3) (2<3)
Family SES	2.08(1.18)	1.90(1.19)	1.86(1.11)*	(1>2) (1>3)
Rule compliance	2.28(.29)	2.37(.28)	2.43(.25)****	(1<2) (1<3) (2<3)
Anxiety	1.49(.42)	1.53(.42)	1.56(.44)	
Peer social skills	2.34(.36)	2.47(.36)	2.59(.35)****	(1<2) (1<3) (2<3)
School interest	2.41(.36)	2.56(.35)	2.63(.34)****	(1<2) (1<3) (2<3)
Depression	.94(.40)	.95(.43)	.89(.45)	
Loneliness	2.69(.69)	2.41(.68)	2.20(.69)****	(1>2)(1>3)(2>3)
Self-esteem	2.76(.39)	2.86(.40)	3.02(.44)****	(1<2) (1<3) (2<3)
Future	2.70(.95)	3.07(.86)	3.40(.79)****	(1<2) (1<3) (2<3)
Hopefulness	2.61(.81)	2.86(.66)	3.09(.64)****	(1<2) (1<3) (2<3)
Control	2.80(.58)	2.99(.55)	3.15(.48)****	(1<2) (1<3) (2<3)

Note:

[1] Group pairs that differ at p<.05

* p<.05;

** p<.01;

*** p<.001;

**** p<.0001

Table 5

Multivariate Analysis (GLM) of Association between Trusting Relationship and Psychosocial Adjustment

	Trust	Group[1]	Sex	Trust by Sex[2]	Age	SES
Multivariate Test	11.16****	8.27****	6.33****	1.69*	13.02****	2.03*
Rule compliance	20.13****	2.60	24.13****	1.11	5.75*	<1
Anxiety	3.74*	13.10****	<1	1.85	<1	<1
Peer social skills	27.60****	3.48*	21.97****	1.19	19.94****	<1
School interest	31.63****	3.06*	14.60****	2.16	1.57	<1
Depression	1.69	32.49****	<1	2.46	1.14	<1
Loneliness	27.60****	33.46****	1.09	<1	29.89****	2.68
Self-Esteem	27.66****	16.10****	<1	7.37***	7.69**	<1
Future	46.68****	1.73	2.87	<1	15.15****	6.50*
Hopefulness	32.06****	9.60****	3.39	<1	4.88*	1.57
Control	22.06****	5.67**	1.85	<1	65.03****	<1

Note:

[1] Group variable: AIDS orphans, vulnerable children, and comparison children;

[2] Other interaction terms were omitted from the table because of absence of multivariate significance.

* p<.05;

** p<.01;

*** p<.001;

**** p<.0001