Published in final edited form as:
J Assoc Nurses AIDS Care. 2010 ; 21(4): 335–344. doi:10.1016/j.jana.2009.12.001.

Difference in Psychosocial Well-being Between Paternal and Maternal AIDS Orphans in Rural China

Qun Zhao, PhD,
Post-doctoral Fellow, Prevention Research Center, Carman and Ann Adams Department of Pediatrics, Wayne State University School of Medicine, Detroit, MI

Xiaoming Li, PhD,
Professor and Director, Prevention Research Center, Carman and Ann Adams Department of Pediatrics, Wayne State University School of Medicine, Detroit, MI

Xiaoyi Fang, PhD,
Professor and Associate Director, Institute of Developmental Psychology, Beijing Normal University, Beijing, China

Guoxiang Zhao, PhD,
Professor and Vice President, College of Educational Sciences, Henan University, Kaifeng, China

Junfeng Zhao, PhD,
Professor and Associate Dean, College of Educational Sciences, Henan University, Kaifeng, China

Xiuyun Lin, PhD, and
Assistant Professor, Institute of Developmental Psychology, Beijing Normal University, Beijing, China

Bonita Stanton, MD
Professor and Chair, Prevention Research Center, Carman and Ann Adams Department of Pediatrics, Wayne State University School of Medicine, Detroit, MI

Abstract

This study compares psychosocial well-being between paternal and maternal orphans in rural China in a sample (N = 459) of children who had lost one parent to HIV and who were in family-based care. Measures included academic marks, education expectation, trusting relationships with current caregivers, self-reported health status, depression, loneliness, posttraumatic stress, and social support. No significant differences were found between maternal and paternal orphans, except that paternal orphans reported better trusting relationships with caregivers than maternal orphans. Children with a healthy surviving parent reported significantly better depression, loneliness, posttraumatic stress, and social support scores than children with a sick parent. Analyses revealed significance with regard to orphan status on academic marks and trusting relationships with caregivers while controlling for age, gender, surviving parent's health status, and family SES. Findings underscore the importance of psychosocial support for children whose surviving parent is living with HIV or another illness.

Keywords

AIDS; China; HIV; maternal orphans; paternal orphans; well-being

The HIV epidemic has contributed to a dramatic increase in the number of AIDS orphans (children who have lost one or both of their parents to HIV infection). The United Nations estimated that by 2010 there will be at least 20 million of these orphans worldwide (Akukwe, 2007). Numerous studies reveal that many AIDS orphans who are growing up without the care and support of their parents are at risk for poor schooling outcomes, stigma, malnutrition, illiteracy, unemployment, and mental health problems (Bicego, Rutstein, & Johnson, 2003; Mangoma, Chimbari, & Dhlomo, 2008; Monasch & Boerma, 2004; Sengando & Nambi, 1997; United Nations Children's Fund [UNICEF]/United Nations Joint Programme on HIV/AIDS [UNAIDS]/World Health Organization [WHO], 2006).

In addition, significant differences in the impact of maternal and paternal death on the well-being of AIDS orphans have been found in some African studies. Some studies indicated that children who lost their mother (maternal orphans) were more vulnerable to poor schooling outcomes than children who lost their father (paternal orphans), and the loss of fathers was correlated with poor household socioeconomic status (Case & Ardington, 2006; Case, Paxson, &. Ableidinger, 2004; Nyamukapa & Gregson 2005; Yamano & Jayne, 2004). On the contrary, several studies conducted in South Africa found that paternal orphans were more likely to be behind in school (Parikh et al., 2007; Timaeus & Boler, 2007).

Almost all of the existing studies on the impact of maternal and paternal death on the well-being of AIDS orphans were conducted in Africa and focused primarily on family socioeconomic status and educational outcomes with mixed findings. Limited data are available regarding other important aspects of child well-being between paternal and maternal orphans. To the best of our knowledge, no published studies have compared the psychological well-being between paternal and maternal AIDS orphans in Asian countries, including China.

China had approximately 700,000 people living with HIV at the end of 2007 (UNAIDS, 2007). The China Ministry of Health has estimated that there were at least 100,000 AIDS orphans in China in 2004 (Zhao et al., 2007); the China Ministry of Civil Affairs projected that in the absence of aggressive and effective HIV prevention programs, the number of AIDS orphans would swell to 260,000 by 2010 (He & Ji, 2007). Many of the AIDS orphans in China known to the public are living in Henan Province, an agricultural province in central China with a population of 97 million (Li et al., 2009) where commercial blood centers collected blood in the late 1980s. Because of extreme poverty, many farmers sold blood to centers that used unhygienic blood collection procedures, resulting in the rapid spread of HIV (Cohen, 2004). Many of those people have subsequently died, leaving children orphaned (He & Ji, 2007; Zhao et al., 2007).

Previous studies in China suggested that both double AIDS orphans (children who lost both of their parents to HIV) and single AIDS orphans (children who lost one of their parents to HIV) were exposed to more trauma, poorer psychosocial adjustment, and higher school disadvantage than children who have not lost a parent to HIV infection (Fang et al., 2009; Tu et al., 2009). In addition, there were no significant differences in perceived social support and psychosocial adjustment between double orphans and single orphans in rural China (Fang et al., 2009; Hong et al., 2009). However, it is not clear whether maternal or paternal death will have a different effect on the child's well-being. Therefore, the current study was designed to compare the psychosocial well-being between paternal and maternal AIDS orphans in rural China.

Methods

Study Site and Participants

Participants in our study were a subsample of the baseline cohort of a longitudinal assessment of psychosocial needs of children affected by HIV in China (Li et al., 2009). The larger study was conducted in 2006–2007 in two rural counties in central China where many residents were infected with HIV through unhygienic blood collection. These counties had the highest prevalence of HIV infection in the area. The participants in our study included 459 single AIDS orphans in extended family or kinship care. Data from 20 children were excluded from analysis because of missing data on various measures. 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.

Sampling Procedure

The sampling and recruitment processes of the larger study have been described in detail elsewhere (Li et al., 2009). Briefly, the AIDS orphans were recruited from family or kinship care settings. We worked with village leaders to generate lists of families caring for orphans. We approached the families on the list 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 a household, a single child was randomly selected. This process was repeated until the target sample size for the AIDS orphans was achieved.

Consenting Procedure

After the eligibility of a child was confirmed, the interviewers provided him/her with a detailed description of the study design and potential benefits and risks (including confidentiality issues) and invited her/him to participate. Written assent was used for children between 13 and 18 years of age; and oral assent was used for children 6 to 12 years of age. Written or oral permissions (in case of illiteracy) were obtained from caregivers/legal guardians who were available to provide the consents for their children's participation. In case of oral consent, community members accompanying the interviewers served as witnesses for the consenting procedure. 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 child completed an assessment inventory. All measures were translated into Chinese by members of the research team who were fluent in both Chinese and English. All measures were then independently translated back into English to examine whether the meaning of items had changed or been lost in the translation process. Items that appeared to have changed in meaning were adjusted until the meaning met with the research team's intentions. The assessment inventory was pilot-tested prior to field data collection to examine reactions of Chinese children to the items and their understandings of the measures. The results of pilot testing indicated appropriate understanding among Chinese children. The statistics on internal consistency of measures (reported below) further supported the appropriateness of these measures for use with rural Chinese children. For children who were too young or had limited literacy, interviewers read the questions to them, and the children gave oral responses that were recorded on the survey instrument. During the survey, necessary clarification or instruction was provided promptly when needed. Completion of the entire assessment inventory required 60 to 90 minutes. Each child received a gift at completion of the assessment as a token of appreciation.

The gifts included age-appropriate toys or school supplies such as books, notebooks, and pencils/pens.

Measures

Demographic characteristics—Children were asked to provide a number of individual and family characteristics during the survey. These characteristics included age, gender, health status, and ethnicity. Items employed to assess the children's family socioeconomic status (SES) included paternal and maternal education (*no schooling*, *elementary school*, *middle school*, or *high school or more*) and the main occupations their parents engaged in before death (*farmer*, *migrant worker*, *street vendor*, or *other*). A composite score was created to provide an estimate of children's family SES by indexing those children whose parents had more than an elementary school education and engaged in non-farming occupational activities. Higher SES composite scores (range = 0–4) indicated a better family SES. Missing data on any of the four SES items were allowed during the calculation of the composite score. Children's physical health was measured using perceived health status *(very good* = 4, *good* = 3, *fair* = 2, *and poor* = 1). The children were also asked whether they lived with the surviving parent (*yes* or *no*) and about the surviving parent's health status *(healthy*, *infected with HIV*, *affected by other illness*, or *not sure*).

Schooling—Children's schooling was evaluated using two variables. The first was *school performance* in terms of academic grades (*mostly lower than 60* = 1, mostly 60–69 = 2, *mostly 70–79* = 3, *mostly 80–89* = 4, and *mostly 90 or higher* = 5). The second variable was *educational expectation* in terms of the highest level of education they expected to attain (*middle school* = 1, *high school or vocational school* = 2, *3-year college* = 3, *4-year university* = 4, *master's degree* = 5, or *doctoral degree* = 6).

Trusting relationship—The child version of the Trusting Relationship Questionnaire (TRQ; Mustillo, Dorsey, & Farmer, 2005) was modified in the current study to assess the quality of relationship between children and their current caregivers. Following the recommendations from the developers of the original TRQ (Mustillo, Dorsey, & Farmer, 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 (e.g., *Do you initiate contact with 'adult' during times of crisis?*). The response option for each item includes a 5-point scale (ranging from 1 = *never* to 5 = *always*). The 15 items had an excellent reliability estimate with a Cronbach's alpha of .87 for the current sample.

Depression—Children's depressive symptoms were measured using the Center for Epidemiological Studies Depression Scale for Children (CES-DC; Fendrich, Weissman, & Warner, 1990), for example, *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 (0 = *not at all*, 1 = *a little*, 2 = *some*, 3 = *a lot*). A mean score was employed as the CES-DC scale score with higher scores indicating increasing levels of depression. Cronbach's alpha of the scale was . 83 for the current study sample.

Loneliness and social dissatisfaction—The Chinese version of the Children's Loneliness Scale (CLS; Asher, Hymel, & Renshaw, 1984; Wang, 1993) was administered to our participants. The CLS consists of 16 items assessing how children perceived loneliness and social dissatisfaction. CLS items have a 5-point response option ranging from *not at all true* to *always true* (e.g., *I have nobody to talk to*). A mean score was employed as the CLS score with higher scores indicating increasing levels of loneliness. The Cronbach's alpha for the 16 loneliness items was .81 for the current study sample.

Posttraumatic stress—Children were asked to complete the posttraumatic stress (PTS) scale, 1 of the 6 clinical scales in the Chinese version of the Trauma Symptom Checklist for Children (TSCC; Briere, 1996; Li et al., 2009). The TSCC-PTS scale consists of 10 items measuring posttraumatic symptoms including intrusive thoughts, sensations, and memories of painful past events, nightmares, fears, and cognitive avoidance of painful feelings. Each PTS item presents a statement and children are asked to indicate how often (*never* = 0, *sometimes* = 1, *lots of times* = 2, *almost all of the time* = 3) the statement is true of their own thoughts, feelings, or behaviors. Raw scores were converted into *T* scores for the entire sample in the original study with a mean of 50 and a standard deviation of 10. The Cronbach's alpha of the 10 items scale was .81 for the current sample.

Perceived social support (PSS)—The *PSS measure* was adapted from the Multidimensional Scale of Perceived Social Support (MPSS; Zimet, Dahlem, Zimet, & Farley, 1988), which has been validated in children and adolescents (Canty-Mitchell & Zimet, 2000; Zimet, Powell, Farley, Werkman, & Berkoff, 1990). Sample items include: *I can talk about my problems with my family, I have friends who can share my joys and sorrow, I can count on my teachers when things go wrong*, and *There is a special person in my life who cares about my feelings*. The response option scale for the revised PSS scale ranged from 1 = *strongly disagree* to 5 = *strongly agree.* A mean score was employed as composite score for the whole PSS scale (16 items) with a higher score indicating a higher level of perceived support. Cronbach's alpha of the revised PSS scale is .88 for the current sample.

Statistical Analysis

Chi-square test (for categorical variables) and ANOVA (for continuous variables) were employed to examine the group differences between maternal and paternal AIDS orphans in individual characteristics. To facilitate group comparison on children's outcomes (academic marks, educational expectation, trusting relationships with caregivers, health status, depression, loneliness, posttraumatic stress, and perceived social support) among samples, the ages were dichotomized using the mean-split into two categories (≤ 13 vs. > 13 years). The health status of the surviving parent was grouped into two categories (healthy vs. HIV/other illness/not sure**).** The psychosocial well-being of children was examined by age group and surviving parent's health status using ANOVA. ANOVA was also employed to assess the children's outcomes between maternal and paternal AIDS orphans. Finally, general linear model analysis controlling for age (as a continuous variable), family SES (as a continuous variable), gender, and the health status of the surviving parent, was used to assess the overall difference between maternal and paternal AIDS orphans. All statistical analyses were performed using SPSS for Windows version 11.5.

Results

Sample characteristics

As shown in Table 1, the sample in the current study consisted of 225 (51.3%) paternal AIDS orphans and 214 (48.7%) maternal AIDS orphans. The sample included approximately equal numbers of boys and girls. Gender distribution was similar between paternal and maternal orphans. The vast majority of the sample (99.3%) was of Han ethnicity. The mean age was 13.46 (*SD* = 2.04) for the entire sample, 13.44 for the paternal orphans, and 13.48 for the maternal orphans. About 90% of the children were living with their surviving parents. One hundred-seventeen (26.7%) children reported that their surviving parents were healthy, 146 (33.3%) living with HIV, 43 (9.8%) living with other illness, and 133 (30.3 %) were not sure about the health status of their surviving parents. Family SES composite score was similar between paternal and maternal orphans.

Child Psychosocial Well-being by Age and Surviving Parent's Health Status

As shown in Table 2, older children reported significantly higher scores than younger children in the measures of trust relationship with caregivers ($p < .0001$), health status ($p < .0001$), depression ($p < .0001$), PTS ($p < .0001$), and social support ($p < .001$). Children whose surviving parents were healthy reported significantly lower scores on three psychological measures (depression, loneliness, PTS) than children whose surviving parents were living with HIV or other illnesses or children who were not sure of their parents' health status. The children whose surviving parents were healthy reported significantly higher scores on the measure of social support than their counterparts ($p < .05$).

Child Psychosocial Well-being by Orphan Status

Table 3 depicts the group difference of child psychosocial well-being between paternal and maternal AIDS orphans. The bivariate comparison showed that paternal orphans reported significantly higher scores on trusting relationships with their current caregivers than maternal orphans ($p < .001$).

The general linear model analysis (Table 4) reveals no multivariate significance ($F = 1.27$, $p > .05$) but univariate significance with regard to the effect of orphan status (i.e., paternal and maternal orphans) on the measures of academic marks ($p < .05$), and trusting relationship with caregivers ($p < .01$) while controlling for age, gender, surviving parent's health status, and family SES. Gender and family SES also did not show significant effects in the multivariate test. However, the health status of the surviving parent had a significant effect in both the multivariate test ($F = 2.25$, $p < .05$) and the univariate test for depression ($p < .01$), loneliness ($p < .01$), and social support ($p < .01$). In addition, age was a significant covariate for the measures of trusting relationship with caregivers ($p < .0001$), health status ($p < .01$), depression ($p < .05$), and social support ($p < .001$). None of the interaction terms among factor variables was significant.

Discussion

The findings in our study showed no significant differences on most measures of children's outcomes, such as self-rated health status, social support, and psychological symptoms (depression, loneliness, and PTS) between paternal and maternal AIDS orphans in rural China. These findings are not consistent with findings in South Africa that, compared to the loss of a father, the loss of a mother typically caused more psychological distress (Makame, Ani, & Grantham-McGregor, 2002) and was associated with more behavioral risk, negative biological outcomes, and educational disadvantage among adolescents (Kang, Dunbar, Laver, & Padian, 2008). The contrary findings between this study and others from South Africa might be the result of different social and cultural backgrounds in rural areas of these two regions. Some studies in South Africa indicated that most paternal orphans lived with their surviving mothers; however, most maternal orphans were not living with their surviving fathers and were frequently placed with other elderly or adolescent relatives (Case & Ardington, 2006; Monasch & Boerma, 2004, Nyamukapa, Foster, & Gregson, 2003; Nyamukapa & Gregson, 2005). One of the reasons for separation of maternal orphans from their surviving fathers was that the father was remarried and the new wife declined to take care of step children (Nyamukapa et al., 2003; Nyamukapa & Gregson, 2005). On the contrary, data from our study showed that nearly 90% of single orphans in China still lived with their surviving parents, and that number did not significantly differ between paternal and maternal orphans (91% vs. 87%). Not being separated from the surviving parent might be the main reason that we found no significant differences on most measures of psychosocial well-being of AIDS orphans in rural China.

Additionally, our study indicated that when the orphans' surviving parents were infected with HIV or other illness, the children reported significantly worse psychological problems (i.e., depression, loneliness, PTS) and social support scores than the children whose surviving parents were healthy. The findings implied that targeted services, such as developmentally appropriate psychological counseling/interventions and social support from relatives, friends, and communities should be given to AIDS orphans, especially children whose surviving parents have HIV infection and/or other illnesses.

Results also showed that paternal orphans reported a lower level of academic marks compared with maternal orphans in rural areas of China, which are consistent with findings from several previous studies in South Africa that paternal orphans were more likely to be behind in school. These studies in Africa indicated that children who lost fathers were found to live in significantly poorer households (Case et al., 2004; Yamano & Jayne, 2004) and that the death of a father could be an economic shock that resulted in educational disadvantages for the children (Parikh et al., 2007). The same situation might have existed in rural China where men had greater access to nonagricultural jobs to earn more money than women (Hannum, 2005). Previous studies in developing countries showed that poverty was often associated with low levels of educational attainment (Brown & Park. 2002; Filmer, 2000). The paternal orphans reported lower levels of educational outcomes, which might have been due to a greater secondary loss of family socioeconomic status following the death of a father in the household in rural China.

The results in our study also showed that paternal orphans reported a better relationship with their caregivers than maternal orphans. In our study, nearly 90% of single orphans were living with their surviving parents; children who were living with surviving mothers (paternal orphans) reported a better caregiver relationship than the orphans living with the surviving fathers (maternal orphans). The results are consistent with previous findings that Chinese adolescents generally perceived a more positive mother-child relationship than father-child relationship (Shek, 2005, 2007).

There are several potential limitations in the current study. First, all the data were based on self-report, which might be subject to self-reporting bias, especially in children's self-report of their surviving parent's health status. Second, the classification of surviving parent's health status (*healthy, infected with HIV, affected by other illnesses, not sure*) might not reflect symptom experience (e.g., many people with HIV are considered healthy, especially when on appropriate medical treatment), which might be the reason that about 30% of children were not sure about their surviving parent's health status or might not have known how to address this issue.

Third, information on some important factors that could affect the results was not available for analysis, such as the quality of school and family income. Students who attend good schools are more likely to get better academic marks; however, better schools always mean higher costs that many poor families can't afford. Future study, including such additional information, may provide greater insight to explain the difference in outcomes between paternal and maternal AIDS orphans in rural China.

Despite these limitations, the current study is one of the first to compare the psychosocial well-being between paternal and maternal AIDS orphans in China. Our research indicated that the society and government should pay equal attention in terms of emotional and material support to paternal and maternal AIDS orphans in rural China. The different results between our study and some studies in Africa suggested that regions with different social and cultural backgrounds and a different HIV epidemic might need to design culturally-appropriate strategies and policies to support HIV-affected children. The findings also underscore the importance of

psychosocial support and counseling to the children whose surviving parent is living with HIV or another illness.

Clinical Considerations

Nurses can improve the care of children orphaned by HIV by:

- Understanding the potential impact of paternal and maternal HIV-related death on children's psychosocial well-being.
- Understanding the potential impact of other caregiver characteristics (such as health status) on psychosocial well-being of children orphaned by HIV.
- Encouraging community and other health care providers to pay equal attention to children who lost a parent to HIV in terms of psychological and material support.
- Developing appropriate psychological counseling and support to AIDS orphans, especially children whose surviving parent or caregivers are living with HIV or other illnesses.

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 wish to thank Ms. Joanne Zwemer for assistance in manuscript preparation. The authors report no real or perceived vested interests that relate to this article (including relationships with pharmaceutical companies, biomedical device manufacturers, grantors, or other entities whose products or services are related to topics covered in this manuscript) that could be construed as a conflict of interest.

References

Akukwe, C. AIDS relief and the world's richest people: An opportunity for partnership on AIDS orphans and health workers. 2007. Retrieved from http://www.worldpress.org/Americas/3018.cfm

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

Bicego G, Rutstein S, Johnson K. Dimensions of the emerging orphan crisis in Sub-Saharan Africa. Social Science and Medicine 2003;56:1235–1247.10.1016/S0277-9536(02)00125-9 [PubMed: 12600361]

Briere, J. Trauma Symptom Checklist for Children: Professional manual. Lutz, FL: Psychological Assessment Resources Inc; 1996.

Brown PH, Park A. Education and poverty in rural China. Economics of Education Review 2002;21:523–541.10.1016/S0272-7757(01)00040-1

Canty-Mitchell J, Zimet GD. Psychometric properties of the multidimensional scale of perceived social support in urban adolescents. American Journal of Community Psychology 2000;28:391–400.10.1023/A:1005109522457 [PubMed: 10945123]

Case A, Ardington C. The impact of parental death on school outcomes: Longitudinal evidence from South Africa. Demography 2006;43(3):401–420. [PubMed: 17051820]

Case A, Paxson C, Ableidinger J. Orphans in Africa: Parental death, poverty, and school enrollment. Demography 2004;41:483–508. [PubMed: 15461011]

Cohen J. HIV/AIDS in China: An unsafe practice turned blood donors into victims. Science 2004;304 (5676):1438–1439. [PubMed: 15178781]

Fang X, Li X, Stanton B, Hong Y, Zhang L, Zhao G, … Lin D. Parental HIV/AIDS and psychosocial adjustment among rural Chinese children. Journal of Pediatric Psychology 2009;34(10):1053–1062.10.1093/jpepsy/jsp006 [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]

Filmer, D. The structure of social disparities in education. Washington, DC: World Bank; 2000. World Bank policy research Working Paper No. 2268

Hannum E. Market transition, educational disparities, and family strategies in rural China: New evidence on gender stratification and development. Demography 2005;42(2):275–299. [PubMed: 15986987]

He Z, Ji C. Nutritional status, psychological well-being and the quality of life of AIDS orphans in rural Henan Province, China. Tropical Medicine & International Health 2007;12(10):1180–1190.10.1111/j.1365-3156.2007.01900.x [PubMed: 17956500]

Hong Y, Li X, Fang X, Zhao G, Lin X, Zhang J, … Zhang L. Perceived social support and psychosocial distress among children affected by AIDS in China. Community Mental Health Journal. 2009 Advance Online Publication. 10.1007/s10597-009-9201-z

Joint United Nations Programme on HIV/AIDS (UNAIDS). Beijing, China: State Council AIDS Working Committee Office and UNAIDS; 2007. Joint Assessment Report of HIV/AIDS Prevention, Treatment and Care in China 2007. Retrieved from http://www.unaids.org.cn/en/index/Document_view.asp?id=210

Kang M, Dunbar M, Laver S, Padian N. Maternal versus paternal orphans and HIV/STI risk among adolescent girls in Zimbabwe. AIDS Care 2008;20(2):214–217.10.1080/09540120701534715 [PubMed: 18293132]

Li X, Fang X, Stanton B, Zhao G, Lin X, Zhao J, … Chen X. Psychometric evaluation of the trauma symptoms checklist (TSCC) among children affected by HIV/AIDS in China. AIDS Care 2009;21:261–270.10.1080/09540120802195119 [PubMed: 19280403]

Mangoma J, Chimbari M, Dhlomo E. An enumeration of orphans and analysis of the problems and wishes of orphans: The case of Kariba, Zimbabwe. Journal of Social Aspects of HIV/AIDS Research Alliance 2008;5(3):120–128. [PubMed: 18979045]

Makame V, Ani C, Grantham-McGregor S. Psychological well-being of orphans in Dar El Salaam, Tanzania. Acta Paediatrica 2002;91(4):459–465.10.1111/j.1651-2227.2002.tb01671.x [PubMed: 12061364]

Monasch R, Boerma JT. Orphanhood and childcare patterns in Sub-Saharan Africa: An analysis of national surveys from 40 countries. AIDS 2004;18(Suppl 2):S55–S65. [PubMed: 15319744]

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;14(4):577–590.10.1007/s10826-005-7189-8

Nyamukapa CA, Foster G, Gregson S. Orphans' household circumstances and access to education in a maturing HIV epidemic in eastern Zimbabwe. Journal of Social Development in Africa 2003;18:7–32.

Nyamukapa C, Gregson S. Extended family's and women's roles in safeguarding orphans' education in AIDS-afflicted rural Zimbabwe. Social Science & Medicine 2005;60(10):2155–2167.10.1016/j.socscimed.2004.10.005 [PubMed: 15748665]

Parikh A, DeSilva MB, Cakwe M, Quinlan T, Simon JL, Skalicky A, Zhuwau T. Exploring the Cinderella myth: Intrahousehold differences in child well-being between orphans and non-orphans in Amajuba District, South Africa. AIDS 2007;21:S95–S103.10.1097/01.aids.0000300540.12849.86 [PubMed: 18040170]

Sengando J, Nambi J. The psychological effect of orphanhood: A study of orphans in Rakai District. Health Transition Review 1997;10(Suppl):105–124.

Shek DTL. Perceived parental control and parent–child relational qualities in Chinese adolescents in Hong Kong. Sex Roles 2005;53:635–646.10.1007/s11199-005-7730-7

Shek DTL. A longitudinal study of perceived differences in parental control and parent-child relational qualities in Chinese adolescents in Hong Kong. Journal of Adolescent Research 2007;22:156–188.10.1177/0743558406297509

Timaeus IM, Boler T. Father figures: The progress at school of orphans in South Africa. AIDS 2007;21(Suppl 7):S83–S93.10.1097/01.aids.0000300539.35720.a0 [PubMed: 18040169]

Tu X, Li X, Fang X, Zhao G, Lv Y, Lin X, Stanton B. School performance and behavior of children orphaned by AIDS in China. Vulnerable Children & Youth Studies 2009;4(3):199–209. [PubMed: 20107622]

United Nations Children's Fund/Joint United Nations Programme on HIV/AIDS & World Health Organization. 2006 Children and AIDS: A Stocktaking Report. Geneva: United Nations; 2006.

Wang, X. Rating scales for mental health (Chinese Journal of Mental Health Supplement). Beijing, China: Chinese Association of Mental Health; 1993.

Yamano T, Jayne TS. Measuring the impact of working-age adult mortality on small-scale farm households in Kenya. World Development 2004;32(1):91–119.

Zhao G, Li X, Fang X, Zhao J, Yang H, Stanton B. Care arrangements, grief and psychological problems among children orphaned by AIDS in China. AIDS Care 2007;19(9):1075–1082.10.1016/j.worlddev.2003.07.004 [PubMed: 18058390]

Zimet GD, Dahlem NW, Zimet SG, Farley GK. The multidimensional scale of perceived social support. Journal of Personality Assessment 1988;52:30–41.

Zimet GD, Powell SS, Farley GK, Werkman S, Berkoff KA. Psychometric characteristics of the multidimensional scale of perceived social support. Journal of Personality Assessment 1990;55:610–617. [PubMed: 2280326]

Table 1

Demographic Characteristics of Study Sample

	Type of orphans		
Variables	**Overall**	**Paternal**	**Maternal**
Gender			
Male *n* (%)	229 (52.2%)	117 (51.1%)	112 (48.9%)
Female *n* (%)	210 (47.8%)	108 (51.4%)	102 (48.6%)
Ethnicity			
Han *n* (%)	413 (99.3%)	214 (99.1%)	199 (99.5%)
Others *n* (%)	3 (0.7%)	2 (0.9%)	1 (0.5%)
Mean Age (*SD*)	13.46 (2.04)	13.44 (1.99)	13.48 (2.10)
Age Group (year)			
≤13 *n* (%)	199 (45.4%)	102 (45.5%)	97 (45.3%)
>13 *n* (%)	239 (54.6%)	122 (54.5%)	117 (54.7%)
Living with surviving parent			
Yes *n* (%)	389 (89.0%)	204 (91.1%)	185 (86.9%)
No *n* (%)	48 (11.0%)	20 (8.9%)	28 (13.1%)
Surviving parent health status			
Healthy *n* (%)	117 (26.7%)	62 (27.6%)	55 (25.7%)
Infected with HIV *n* (%)	146 (33.3%)	76 (33.8%)	70 (32.7 %)
With other illness *n* (%)	43 (9.8%)	20 (8.9%)	23 (10.7%)
Not sure *n* (%)	133 (30.3%)	67 (29.8%)	66 (30.8%)
Mean of family SES (SD)	1.80 (1.13)	1.73 (1.15)	1.87 (1.11)
Total *N* (%)	439 (100%)	225 (51.3%)	214 (48.7%)

Note. SD = standard deviation

Table 2

Child Psychosocial Well-Being by Age and Surviving Parent's Health Status

	Age		Surviving parent health status	
Variables	**≤13 *M* (*SD*)**	**>13 *M* (*SD*)**	**Healthy *M* (*SD*)**	**HIV/other illness/not sure *M* (*SD*)**
Academic marks	3.06 (1.12)	3.22 (1.15)	2.99 (1.13)	3.20 (1.14)
Education expectation	4.22 (1.70)	3.96 (1.48)	4.24 (1.65)	4.00 (1.57)
Trust relationship with caregivers	2.24 (0.69)	2.70 (0.71)****	2.50 (0.79)	2.49 (0.72)
Child health status	2.12 (0.89)	2.44 (0.79)****	2.17 (0.97)	2.35 (0.80)
Depression	18.53 (7.82)	22.30 (9.07)****	18.68 (8.27)	21.30 (8.77)**
Loneliness	2.49 (0.72)	2.40 (0.63)	2.29 (0.74)	2.50 (0.64)**
Posttraumatic stress	48.47 (9.56)	51.66 (8.79)****	48.41(8.44)	50.86 (9.64)*
Social support	2.96 (0.87)	3.24 (0.79)***	3.26 (0.86)	3.06 (0.82)*

Note. SD = standard deviation

* $p < .05$;

** $p < .01$;

*** $p < .001$;

**** $p < .0001$

Table 3

Psychosocial Well-Being Differences Between Paternal and Maternal Orphans

	Type of AIDS orphans		
Variables	**Total *M* (*SD*)**	**Paternal *M* (*SD*)**	**Maternal *M* (*SD*)**
Academic marks	3.14 (1.14)	3.05 (1.15)	3.24 (1.12)
Education expectation	4.07 (1.59)	3.99 (1.64)	4.15 (1.54)
Trust relationship with caregivers	2.49 (0.74)	2.60 (0.76)	2.37 (0.70)***
Child health status	2.30 (0.85)	2.29 (0.82)	2.31 (0.87)
Depression	20.60 (8.71)	20.58 (8.77)	20.62 (8.67)
Loneliness	2.44 (0.67)	2.43 (0.69)	2.46 (0.66)
Posttraumatic stress	50.20 (9.27)	50.19 (9.05)	50.21 (9.51)
Social support	3.11 (0.84)	3.13 (0.86)	3.09 (0.81)

Note. SD = standard deviation

*** $p < .001$

Table 4

General Linear Model Analysis of Psychosocial Well-Being by HIV Orphan Status

	Main effect			Covariates	
	Orphan status [a]	**Parent Health status** [b]	**Gender**	**SES**	**Age**
Multivariate Analysis	1.27	2.25*	1.77	1.19	8.62****
Academic marks	3.94*	1.67	< 1	< 1	6.04*
Education expectation	< 1	2.39	1.09	1.34	2.69
Trust relationship with caregivers	5.13*	1.25	7.19**	< 1	31.75****
Child health status	< 1	1.53	1.03	1.10	9.95**
Depression	< 1	7.03**	< 1	2.36	6.51*
Loneliness	< 1	9.51**	5.45	< 1	2.20
Posttraumatic stress	< 1	2.99	< 1	6.36*	3.46
Social support	< 1	7.93**	1.16	< 1	11.18***

Note. The interaction terms among factor variables were excluded from this table because of absence of statistical significance. SES = socioeconomic status

[a] Child status (paternal AIDS orphans vs. maternal AIDS orphans)

[b] Parent Health status is the surviving parent health status (Healthy vs. HIV/other illness/not sure)

* $p < .05$;

** $p < .01$;

*** $p < .001$;

**** $p < .0001$