

Care arrangements of AIDS orphans and their relationship with children's psychosocial well-being in rural China

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There is an estimated 100 000 children orphaned by AIDS in China, but data on the care arrangement of these orphans are limited. In this study, we examine the relationship between AIDS orphans' care arrangement and their psychosocial well-being among a sample of AIDS orphans in rural China. A total of 296 children who lost both parents to AIDS participated in the study, including 176 in orphanages, 90 in kinship care and 30 in community-based group homes. All participants completed a cross-sectional survey assessing their traumatic symptoms, physical health and schooling. Data reveal that the AIDS orphans in group homes reported the best outcomes in three domains of psychosocial well-being, followed by those in the orphanages and then the kinship care. The differences in psychosocial well-being among the three groups of children persist after controlling for key demographic characteristics. The findings suggest that the appropriate care arrangement for AIDS orphans should be evaluated within the specific social and cultural context where the orphans live. In resource-poor regions or areas stricken hardest by the AIDS epidemic, kinship care may not sufficiently serve the needs of AIDS orphans. Community-based care models, with appropriate government and community support preserving the family style and low child-to-caregiver ratio may constitute an effective and sustainable care model for the best interest of the AIDS orphans in developing countries.

Keywords AIDS orphans, care arrangement, psychosocial well-being, China, resource-poor regions

KEY MESSAGES

- With more than 100 000 AIDS orphans in China, the care arrangements of this vulnerable group deserve more attention.
- In the rural areas of central China, children in community-based group homes were found to have the best psychosocial well-being, followed by those in the orphanages and then the kinship care group.
- In resource-poor regions or areas stricken hardest by the AIDS epidemic, kinship care may not sufficiently serve the needs of AIDS orphans. We need to draw necessary resources and create an appropriate care arrangement model that fits the needs of AIDS orphans and the local social and cultural context.

Introduction

In 2003, the number of children orphaned by AIDS worldwide was estimated at 15 million, an increase of 30% from 11.5 million in 2001. If this trend continues, the number could reach 25 million by 2010 and 40 million by 2020 (UNICEF *et al.* 2004). More than 80% of AIDS orphans live in sub-Saharan Africa. The loss of parents during childhood has far-reaching and lasting consequences on the development and well-being of AIDS orphans. Orphans are more likely to face malnutrition, have poor physical and mental health, experience educational disadvantages, be exploited for child labour, and suffer from stigma and social exclusion (Sherr *et al.* 2008). Within the global crisis of AIDS orphans, appropriate care arrangement for AIDS orphans remains an urgent and important issue, particularly in resource-poor countries and regions.

Because of the strong stigma associated with HIV/AIDS and the large number of children orphaned by AIDS in many regions, legal adoption of AIDS orphans by non-family members is limited. Currently, three main models of care arrangement for AIDS orphans are practised in most developing countries.

The first model is kinship care. Most of the orphans are cared for by extended family members. Studies of extended family care of AIDS orphans provide two different views. One is that extended family fostering care is culturally acceptable and assumed to be sustainable throughout a child's development. In most cases, children could find stability, love and emotional support in relatives' homes (Foster and Williamson 2000; Deinger *et al.* 2003; Madhavan 2004). Some researchers have suggested that the flexibility and strength of informal childcare practice, if provided with appropriate support, could still accommodate a large number of orphans (Foster *et al.* 1997; Madhavan 2004). Other researchers, however, have argued that with the progression of the AIDS epidemic, kinship care might not adequately serve the needs of AIDS orphans. In kinship care, AIDS orphans were more likely to live in households with less favourable dependency ratios and greater experiences of financial hardship (Nyambedha *et al.* 2003; Monasch and Boerma 2004; Safman 2004; Oleke *et al.* 2005; Howard *et al.* 2006). More and more empirical data suggest that many extended family members of AIDS orphans have difficulty meeting the orphan's essential care-giving needs (Boris *et al.* 2008). Increasing numbers of AIDS orphans live in households headed by widows, the elderly or youths (Oleke *et al.* 2005; Howard *et al.* 2006; Oleke *et al.* 2007; Boris *et al.* 2008). The health conditions and financial hardship experienced in these households might be steadily deteriorating (Miller *et al.* 2006; Boris *et al.* 2008; Richter and Desmond 2008; Thurman *et al.* 2008; Ssengonzi 2009).

Institutional care, or orphanages, the second model, has been viewed by most as the least favourable of all possible options. Researchers have argued that such a centralized care model may lack the capacity to meet children's emotional needs (UNICEF and UNAIDS 1999; UNICEF 2003). Several studies that compared orphanage and foster care in the sub-Saharan regions reported that children in family-based foster care had better health outcomes than their counterparts in orphanages (Ahmad *et al.* 2005; Ford *et al.* 2007). In addition, orphanages are often perceived as expensive to operate. However, some

people counter-argue that because foster care cannot meet the needs of increasing numbers of children, orphanages with a good source of government or community support and external donations may be a viable option for AIDS orphan care in many epicentres (Kidman *et al.* 2007).

In community-based orphan care, the third model, orphans remain in their communities and receive family-based support provided by the local government and communities. Social workers or volunteers also provide adult supervision, care and assistance to the children. This model allows orphans to remain more integrated in their community. By delivering services through existing structures, these programmes reduce costs, serve a greater number of children and scale up more rapidly. Given the scale of the AIDS orphan crisis, this model has been increasingly advocated because it provides better care for orphans at a lower cost compared with orphanages. Reliance on existing structures also means, however, that they have less control over the quality of services and who ultimately benefits (Kidman *et al.* 2007).

The limited literature regarding care arrangement for AIDS orphans and the inconclusive argument about the appropriateness of care models point to the significance and urgency of empirical studies that compare the three care-arrangement models. This study aims to fill the gap in the literature by examining the psychosocial well-being of AIDS orphans in the three care-arrangement models: orphanage, community-based care and kinship care.

Almost all the existing research on care arrangements of AIDS orphans has been conducted in Africa, with limited data from other regions such as Asia, where the number of AIDS orphans is increasing rapidly, particularly in China. In 2007, an estimated 700 000 people were living with HIV in China, with 22 000 deaths documented as resulting from AIDS (UNAIDS 2007). The Chinese government has estimated that there were 100 000 AIDS orphans at the end of 2004, and that this will rise to 260 000 by 2010 (He and Ji 2007; Zhao *et al.* 2007). The limited data on AIDS orphans in China suggest that most of them live in a stressful environment and many of them struggle with unmet basic needs, such as food, shelter, education and medical care, and have poorer psychosocial well-being compared with other children (He and Ji 2007; Ji *et al.* 2007; Fang *et al.* 2009). One study, however, reported no significant differences in nutritional status between AIDS orphans and other children because both groups studied lived in poor-resource rural areas (He and Ji 2007).

Many Chinese AIDS orphans live in Henan Province, an agricultural province in central China with a population of 97 million. From the late 1980s to the middle 1990s, some governmental and commercial blood stations started collecting blood from poor farmers in rural areas of central China. The unhygienic blood and plasma collection has resulted in a large number of people being infected with HIV and other blood-borne diseases. Such practices were banned in the late 1990s, but many HIV-infected individuals progressed to AIDS and subsequently died, leaving their children orphaned (Ji *et al.* 2007; Zhao *et al.* 2007).

As in many other countries, there are three primary models of care arrangement for AIDS orphans in China: kinship care, orphanages and community-based small group homes. Because

of the stigma and fear associated with HIV/AIDS, few non-family households adopt AIDS orphans in China (Zhao *et al.* 2009). For quite a long time, extended family members have taken care of nearly all AIDS orphans in China. Not until 2004 did the government initiate some emergency responses to the growing number of AIDS orphans. These initiatives included building AIDS orphanages, establishing community-based small group homes and providing assistance to families caring for AIDS orphans (Zhao *et al.* 2007). With funding from both central and local governments, a number of AIDS orphanages ('Sunshine Houses') have been built in the areas hit hardest by AIDS in central China. The operation of orphanages has been mainly funded by local government or non-governmental organizations (NGOs). Approximately 160 Yuan (equivalent to US\$23 with the current exchange rate) was allocated to each child per month. The number of children in each orphanage ranged from 20 to 150 (Wang 2003). The AIDS orphanages accepted only double orphans without an extended family member who could take care of them. All single orphans and some double orphans remain in kinship care.

To promote kinship care, the government has promised financial subsidies for families caring for AIDS orphans. For example, each family caring for an AIDS orphan is entitled to a 130-Yuan (equivalent to US\$19 with the 2009 exchange rate) living subsidy per child each month. However, this programme has not been fully implemented by the local government. In addition, because of the overwhelming poverty in local communities, the government subsidy and assistance from other sources (e.g. private donation) have not always been used for AIDS orphans (Gao 2004).

To accommodate the increasing number of double orphans in the area, community-based small group homes were created. Group homes are usually managed by local residents who serve as house-parents for a small number of orphans (four to six) in a family style (e.g. the orphans would call house-parents 'father and mother' and call each other 'brother or sister'). According to the local government's guidelines for AIDS relief, these group homes received financial assistance based on the number of children being taken care of (e.g. 160 Yuan per child per month). Certain criteria were also set for the house-parents. For example, they must be legally married and healthy couples (i.e. without infectious diseases and physically able to take care of children). At least one of them must have completed middle school, and they must be willing to foster AIDS orphans (Du and Wang 2007).

To date, studies that evaluate the different care arrangements of orphans are limited, particularly pertaining to the psychosocial well-being of AIDS orphans in those settings. Such data are particularly scarce in China, where the number of AIDS orphans is increasing rapidly. The limited data on AIDS orphans in China suggest that children living in small group homes had a higher level of life satisfaction and a lower level of depression than orphans in other care settings (Fang *et al.* 2009; Zhao *et al.* 2009). However, these existing studies are limited in the scope of outcome measures. Building upon previous studies, the current study was designed to compare the three care arrangements for AIDS orphans by evaluating multiple domains of orphans' psychosocial well-being. The primary research

question of the current study is whether the AIDS orphans' psychosocial well-being (i.e. traumatic symptoms, physical health and schooling) differs by care arrangement (i.e. orphanages, community-based small group homes and kinship care).

Methods

Study site

The current study is embedded in a larger study that longitudinally assesses the psychosocial needs of children affected by AIDS in China (Fang *et al.* 2009). The sampling and recruitment procedure of the larger study have been described in detail elsewhere (Fang *et al.* 2009; Li *et al.* 2009). Briefly, the baseline assessment was conducted in 2006–07 in two rural counties of Henan Province, where a large number of rural residents (mostly farmers) were infected with HIV from unhygienic blood and plasma collection between the late 1980s and mid-1990s. Although accurate epidemiological data are lacking, both counties are generally believed to have the highest prevalence of HIV infection in central China. The two counties had similar demographic and economic profiles (e.g. both were designated by the central government as 'National Poverty Counties'). We obtained village-level HIV surveillance data from each county's anti-epidemic station to identify the villages with the highest number of HIV-infected individuals or HIV-related deaths. The participants for the larger assessment study were recruited mainly from five administrative villages (rural administrative units under the county) that had jurisdiction over 111 natural villages.

Participants

The sample in the current study consisted of 296 children (6–18 years of age) who had lost both of their parents to AIDS (i.e. double orphans). Participants in the study included 176 double orphans from four government-funded AIDS orphanages in two counties (two orphanages in each county), 90 double orphans in extended family or kinship care and 30 double orphans in eight community-based group homes.

Of the four orphanages participating in the study, a total of 244 AIDS orphans were enrolled at the time of survey, and 176 (72%) participated in the survey. Eight group homes in one of the two participating counties had enrolled a total of 43 double orphans and 30 (70%) participated in the survey. For orphans from kinship care, we worked with village leaders to generate a list of the families caring for double orphans. We approached the families on the list and recruited one orphan in each household who was available to participate in the assessment.

When an eligible child was identified, local research team staff accompanied by local community members visited the child at the AIDS orphanage, home or school, and provided the child and caregiver with a detailed description of the study procedure and potential benefits and risks as well as confidentiality issues. Written consent was used for children 13–18 years of age; oral consent was used for children 6–12 years of age. Written or oral consent (in case of illiteracy) was obtained from caregivers who were available to give permission for the

children to participate. In cases of oral consent/assent, community members accompanying the interviewers served as witnesses for the consenting procedure. In situations where no legal guardians were available to provide permission, a resource person was identified for the child as a means of protection. Resource persons included legal representatives of the orphanages, community leaders, other caregivers, older siblings (16 years or older) and school teachers. The research protocol of the study 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 participating in the study completed an assessment survey including measures used in the current study. For children with 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 battery took about 75–90 minutes, depending on the age of the child. Younger children (8 years old or younger) were offered a 10–15 minute break after every 30 minutes of assessment. Each child received a gift at completion of the assessment as a token of appreciation.

Measures

Demographic characteristics

Children were asked to provide information on their age, gender, perceived health status (very good, good, fair and poor), parental education (no schooling, elementary school, middle school, high school or more) and parental occupation. A composite score was created to estimate children's family socio-economic status (SES) by indexing those children whose parents (father and mother) had more than elementary school education and were engaged in non-farming occupations. The SES score ranged from 0 to 4 with a higher score indicating a better family SES.

Traumatic symptoms

The children's trauma symptoms were measured using the Trauma Symptom Checklist for Children Chinese version (TSCC-CV) (Li *et al.* 2009). TSCC is a self-report measure of post-traumatic distress and related psychological symptomatology among children and adolescents (Briere 1996). The full version TSCC consists of 54 items that produce six clinical scales: Anxiety (ANX), Depression (DEP), Anger (ANG), Post-traumatic Stress (PTS), Dissociation (DIS) and Sexual Concerns (SC). Each TSCC item presents a statement and children are asked to indicate how often (never, sometimes, lots of times, almost all of the time) the statement is true of their own thoughts, feelings or behaviours. The TSCC-CV has demonstrated adequate reliability and validity among AIDS orphans and children living with HIV-infected parents in China (Li *et al.* 2009). The raw scores of TSCC-CV scales were converted into T scores (i.e. mean of 50 and standard deviation of 10) among the sample in the larger study with the same measurement metrics as the standard TSCC scores available in the United States (Briere 1996). The Cronbach's alpha for the

six TSCC clinical scales ranged from 0.80 to 0.85 for double orphans in the current study.

Physical health

Children's physical health was measured using two variables. The first was *perceived health status* (very good=4, good=3, fair=2 and poor=1). The second was the *number of illnesses or health complaints in the past month*. The children were asked to report whether they had any of seven discomforts or illnesses in the past month, i.e. running nose, coughing, fever, earache, purulence in the ears, diarrhoea and vomiting. The responses were dichotomized into 'at least two illnesses' and 'fewer than two illnesses'.

Schooling

Children's schooling was evaluated using two variables. The first is *school performance in terms of academic grades* ('mostly $\geq 90'$ =5, 'mostly 80–89'=4, 'mostly 70–79'=3, 'mostly 60–69'=2 and 'mostly $< 60'$ =1). The second variable was *educational expectation* in terms of the highest level of education they expect themselves to attain (i.e. middle school=1, high school or vocational school=2, three-year college=3, four-year university=4, master's degree=5 and doctoral degree=6).

Analytic procedure

Statistical analysis was carried out in the following steps. First, analysis of variance (ANOVA) for continuous variables or Chi-square test for categorical variables was performed to examine the demographic differences among children in three care arrangements. The group differences by care arrangement in terms of the three domains of psychosocial well-being (traumatic symptoms, physical health and schooling) were further analysed using ANOVA. Post-hoc comparisons using the least significant differences were conducted to assess the pairwise differences. Finally, general linear model (GLM) analysis controlling for gender, age and family SES were used to assess the multivariate differences among three care arrangements. Both care arrangement and child's gender were employed as between-subject factors in GLM analysis, and age and family SES (both as continuous variables) were employed as covariates in GLM analysis. All statistical analyses were performed using SPSS for Windows 15.

Results

Sample characteristics

As shown in Table 1, the participants in the current study consisted of 165 boys (55.7%) and 131 girls (44.3%). The orphanage sample had a higher percentage of boys (61.4%) than either the group-home sample (53.3%) or the kinship care sample (45.6%). The mean age of the entire sample was 12.7 years, with 12.4 for the orphanage sample, 13.2 for the group-home sample and 13.1 for the kinship care sample. The children's age ranged from 6 to 17 years with >95% being 9 years of age or older. More than 50% of the children reported their father or mother had no more than middle school education. About one-third of the children did not know the

Table 1 Demographic characteristics of participants

	Overall	Orphanage	Group home	Kinship care
<i>N</i> (%)	296 (100)	176 (100)	30 (100)	90 (100)
Boys, <i>N</i> (%)	165 (55.7)	108 (61.4)	16 (53.3)	41 (45.6)*
Girls, <i>N</i> (%)	131 (44.3)	68 (38.6)	14 (46.7)	49 (54.4)
Mean age in years (SD)	12.71 (2.37)	12.42 (2.56)	13.20 (1.16)	13.12 (2.22)*
Health, <i>N</i> (%)				
Very good	108 (37.8)	71 (41.3)	16 (59.3)	21 (24.1)****
Good	98 (34.3)	62 (36.0)	8 (29.6)	28 (32.2)
Fair	70 (24.5)	35 (20.3)	0 (0)	35 (40.2)
Poor	10 (3.5)	4 (2.3)	3 (11.1)	3 (3.4)
Father's education, <i>N</i> (%)				
No school	13 (4.5)	9 (5.1)	0 (0)	4 (4.6)****
Elementary school	71 (24.7)	38 (21.7)	2 (8.0)	31 (35.6)
Middle school	88 (30.7)	63 (36.0)	4 (16.0)	21 (24.1)
≥High school	19 (6.6)	8 (4.6)	7 (28.0)	4 (4.6)
Don't know	96 (33.4)	57 (32.6)	12 (48.0)	27 (31.0)
Mother's education, <i>N</i> (%)				
No school	23 (8.2)	15 (8.9)	0 (0)	8 (9.6)
Elementary school	73 (26.2)	41 (24.3)	5 (18.5)	27 (32.5)
Middle school	58 (20.8)	40 (23.7)	6 (22.2)	12 (14.5)
≥ High school	15 (5.4)	9 (5.3)	3 (11.1)	3 (3.6)
Don't know	110 (39.4)	64 (37.9)	13 (48.1)	33 (39.8)
Father's occupation, <i>N</i> (%)				
Farmer	182 (65.2)	105 (63.3)	23 (79.3)	54 (64.3)
Local merchant	23 (8.2)	14 (8.4)	1 (3.4)	8 (9.5)
Migrant	44 (15.8)	23 (13.9)	2 (6.9)	19 (22.6)
Other	30 (10.8)	24 (14.5)	3 (10.3)	3 (3.6)
Mother's occupation, <i>N</i> (%)				
Farmer	196 (72.1)	114 (67.9)	23 (79.3)	59 (78.7)
Local merchant	22 (8.1)	14 (8.3)	3 (10.3)	5 (6.7)
Migrant	24 (8.8)	15 (8.9)	1 (3.4)	8 (10.7)
Other	30 (11.0)	25 (14.9)	2 (6.9)	3 (4.0)
Family SES composite score	2.11 (1.19)	2.16 (1.24)	2.23 (0.94)	1.97 (1.18)

* $P < 0.05$; **** $P < 0.0001$.

education level of their parents. Compared with children in the orphanages and kinship care, the children in group homes reported a higher level of parental education, but only the difference regarding paternal education reached statistical significance ($P < 0.001$). Family SES composite scores were similar across the three groups of children.

Psychosocial well-being of orphans in the three care arrangements

Table 2 depicts the differences in psychosocial well-being among children in the three care arrangements. Children in group homes scored the best in almost all variables in the three domains of outcome measures, followed by the children in the orphanages. Children in kinship care reported the lowest levels in almost all measures. In six traumatic symptoms scales, children in group homes reported the lowest level of anxiety, depression, anger, post-traumatic symptoms,

disassociation and sexual concerns, although anger and sexual concerns did not achieve statistical significance at $P < 0.05$. In terms of physical health, children in group homes perceived the best physical health with a mean score of 3.37, compared with 3.16 for those in orphanages and 2.77 for the kinship care group ($P < 0.0001$). Children in group homes also reported fewer illnesses (on average 1.08) in the past month, compared with those in orphanages (1.11) and those in kinship care (1.49). In schooling, children in group homes had the best school grades with a mean of 3.68, compared with 3.06 for the orphanage group and 3.02 for kinship care ($P < 0.05$). Group-home children also had higher educational expectations, with 96% aspiring to go to college, whereas 77% of children in orphanages and 68% in kinship care had such a goal.

The GLM analysis (Table 3) showed both multivariate and univariate significance ($P < 0.05$) with regard to the effect of

Table 2 Traumatic symptoms, physical health and schooling of AIDS orphans in three care arrangements

	Overall	Orphanage (1)	Group home (2)	Kinship care (3)	Post-hoc comparison
Trauma symptoms					
Anxiety	50.53 (10.49)	50.69 (10.73)	45.89 (7.53)	51.70 (10.54)*	(1>2) (2<3)
Depression	50.29 (10.12)	50.00 (9.58)	45.45 (8.85)	52.31 (11.02)**	(1>2) (2<3)
Anger	51.00 (10.86)	51.37 (11.11)	48.64 (10.18)	51.06 (10.59)	
Post-traumatic symptoms	50.78 (10.56)	51.10 (10.82)	45.62 (6.74)	51.88 (10.70)*	(1>2) (2<3)
Disassociation	50.92 (10.64)	51.26 (10.87)	45.65 (7.47)	52.00 (10.68)*	(1>2) (2<3)
Sexual concerns	50.14 (9.77)	50.39 (10.30)	46.15 (7.07)	50.92 (9.24)	
Physical health					
Perceived health ¹	3.06 (0.87)	3.16 (0.83)	3.37 (0.97)	2.77 (0.86)****	(1>3) (2>3)
No. of illnesses in past month	1.22 (1.40)	1.11 (1.35)	1.08 (1.35)	1.49 (1.49)	
Schooling					
School performance ²	3.10 (1.17)	3.06 (1.20)	3.68 (0.90)	3.02 (1.14)*	(1<2) (2>3)
Educational expectation ³	4.43 (1.48)	4.42 (1.45)	5.46 (1.03)	4.14 (1.53)****	(1>2) (2>3)

Notes:

(1) Response option: 1 = poor; 2 = fair; 3 = good; 4 = very good.

(2) Response option: 1 = mostly < 60; 2 = mostly 60–69; 3 = mostly 70–79; 4 = mostly 80–89; 5 = mostly > 90;

(3) Response option: 1 = middle school; 2 = high school; 3 = junior college; 4 = college; 5 = master's degree; 6 = doctoral degree.

* $P < 0.05$; ** $P < 0.01$; **** $P < 0.0001$.**Table 3** General linear model (GLM) on the effect of care arrangement on AIDS orphans' psychosocial well-being

	Care arrangement	Gender	CXG	Age	SES
Multivariate F	2.62****	<1	<1	4.36****	<1
Anxiety	1.88	<1	<1	<1	<1
Depression	3.92*	1.20	<1	<1	<1
Anger	<1	<1	<1	5.39*	<1
Post-traumatic symptoms	2.98	<1	<1	<1	<1
Disassociation	1.74	<1	<1	<1	<1
Sexual concerns	1.74	<1	<1	12.82****	<1
Physical health	7.90****	1.32	1.64	7.26**	<1
Frequency of illness	4.17*	1.16	<1	2.35	<1
School performance	1.86	<1	<1	<1	<1
Education expectation	7.63***	<1	<1	2.62	<1

* $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$; **** $P < 0.0001$.

care arrangement in most of the outcome measures (i.e. depression, perceived health, frequency of illness and educational expectation). GLM analysis confirmed the results of bivariate analysis in the significant main effects of care arrangement ($F=4.6$, $P < 0.0001$) and age ($F=5.0$, $P < 0.0001$). Children in group homes had the highest level of psychosocial well-being even after controlling for age, gender and family SES. No significant effect emerged with gender and its interaction with care arrangement in either multivariate tests or univariate tests. Family SES was significant in neither multivariate nor univariate tests.

Discussion

Our data reveal that double orphans in community-based group homes generally reported better psychosocial well-being with

higher levels of mental health, physical health and school performance than their counterparts in orphanages and kinship care. Orphans in kinship care reported the lowest level of psychosocial well-being. These findings were consistent with our previous study that examined the perceived life improvement and life satisfaction among double orphans (Zhao *et al.* 2009). The findings were also similar to other studies conducted in sub-Saharan Africa, where community-based orphan care was shown to be better than institutional care for AIDS orphans (Drew *et al.* 1998; Miller *et al.* 2006). However, the differences in AIDS orphans' psychosocial well-being across three care arrangements need to be interpreted within the specific social and cultural context in which the study was conducted.

Despite a strong preference for kinship care (or extended family care) over institutional care (or orphanage) and evidence of inferior health outcomes for children in orphanages than their counterparts in foster care in other cultural settings

(Ahmad *et al.* 2005; Ford *et al.* 2007), our findings suggest that kinship care may not be the best option for orphans in resource-poor settings. In poverty-stricken areas, households caring for orphans may have to struggle with the dilemma of generating income and caring for orphans. Government-supported orphanages and group homes may better serve AIDS orphans' basic needs than kinship families.

Participants in this study were from economically poor rural areas in central China. Most of the children lost their parents to AIDS because of the extreme poverty (i.e. parents sold their blood to supplement the family's income). Most of these families had exhausted all their limited financial means for medical care after parents (or other adults in the family) were infected with HIV or passed away. Their extended family members in the same areas might also struggle to make ends meet, and taking care of extra children might exacerbate their financial constraints. The limited financial and emotional resources as well as social networks in these rural families are further eroded by the out-migration of young people to the cities, as commonly observed in rural areas of China. Although children in kinship care were also entitled to financial support from local government, such support might not be used directly for the orphans (Wu 2003; China Development Brief 2005). By contrast, with financial support from the local government, the material living conditions in orphanages and group homes were often better than those in extended families or kinship households (He and Ji 2007).

Children in the community-based group homes reported a higher level of psychosocial well-being than children in orphanages, even though orphanages had received the most financial support from local government. In group homes, children lived in small groups with 'parents' and 'siblings' in an atmosphere of a family in their own community. By contrast, the orphanage's centralized care model and the separation of children from their original communities might cause social isolation or distress (West and Wedgewood 2006). The children also might have experienced stigmatization or discrimination from others in the community because they were placed in a separate location and identified or labelled as AIDS orphans by living in an orphanage (West and Wedgewood 2006). The low child-to-caregiver ratio in group homes, compared with that in orphanages, might be another reason contributing to the better psychosocial well-being among children in group homes.

Limitations

The current study has the following limitations. First, the study was conducted in Henan Province of China. Most of the HIV infection in this area was due to unhygienic blood/plasma collection. The AIDS orphans in this area may not be representative of AIDS orphans in other regions where the HIV virus has been transmitted mainly via intravenous drug use or unprotected sex. Second, the results of the current study may be confounded by other factors not measured in the current study design. For instance, AIDS orphanages and group homes accepted only orphans without known HIV infection. It is possible that some of the orphans in kinship care were infected with HIV, which would affect their psychosocial well-being. Third, we used convenience sampling in the current study. Such a sampling approach might bring bias into the data.

For example, the kinship care households recruited for the current study may not represent all the other households providing kinship care in the area. Finally, the sample size for the orphans in group homes ($n=30$) was relatively small, which may limit the statistical power for data analysis. However, even with limited statistical power, the data showed significant differences between group homes and other care arrangements in most of the variables, suggesting a potentially stronger effect of care arrangement on children's psychosocial well-being.

Policy implications

Our data have important implications for the care of AIDS orphans in China and other developing countries. First, the appropriate care arrangement for AIDS orphans should be evaluated within the specific social and cultural context where the orphans live. Our data suggest that arbitrarily identifying kinship care as the best care model for AIDS orphans without appropriate evaluation of the local situation may place the vulnerable children in an inferior situation. More studies are needed to explore what components of each care model work and what needs to be improved. For example, our study found that orphans in community-based group homes had better psychosocial well-being than their counterparts in other care arrangements.

The care model of group homes represents the following characteristics: (a) it is community based so that orphans do not need to leave the communities they are familiar with; (b) it mimics family life and provides an appropriate caregiver-to-child ratio and a closer relationship between caregiver and children; (c) it receives good government and community support so that the children and their caregivers are not stressed by basic needs; and (d) it creates a positive living environment where stigma against children of parents with HIV/AIDS is limited. These group-home advantages can be built into other care models. In addition, the care arrangements of AIDS orphans need to take into consideration the local cultural and economic conditions. The age-specific needs of the children, the existing resources available in the community, the degree of urbanization and other community characteristics will dictate not only the care model that best suits the local context but also the feasibility of scale-up.

The second implication of the current findings is that care of AIDS orphans lies on a continuum, and a sustainable safety net should be built (Abebe and Aase 2007). Community-based care has been gradually recognized as the best care arrangement for AIDS orphans (Kidman *et al.* 2007). The backbone of care for vulnerable children like AIDS orphans is economic and organizational capacity building in the local community (Thurman *et al.* 2008). Poverty is a primary stressor for communities with a large number of AIDS orphans. As the World Bank argues, for most economic assistance programmes, poverty is a better targeting criterion than orphanhood (Ainsworth *et al.* 2002). On the one hand, assistance is urgently needed for households to meet the basic needs of food, shelter, clothing, schooling and medical care. On the other hand, the focus of assistance should be fostering the resilience in families and communities to cope with the negative effects of HIV/AIDS, rather than implementing short-term resource-intensive approaches for a limited

number of beneficiary orphans (Abebe and Aase 2007). Furthermore, the capacity building for AIDS orphan care should not simply focus on economic capacity. For children who suffer the bereavement of parents resulting from AIDS, emotional capacity and social capacity are equally important (Abebe and Aase 2007). For example, services can be provided to help individuals cope with psychological distress, establish healthy caregiver-child relationships and promote positive social environments. Government, NGOs and communities should establish partnerships for the care of AIDS orphans. Interventions should not focus on short-term outputs of direct services; instead, interventions should be designed to increase community mobilization. Such a strategy may initially increase the programme cost per beneficiary but will result in long-term savings because an engaged community is likely to sustain support to orphans and other vulnerable youths (Thurman *et al.* 2008).

To summarize, this study provides new data for the ongoing debate regarding the appropriate care model for AIDS orphans in developing countries. Our data indicate that children in community-based group homes reported the best psychosocial well-being whereas children in kinship care reported the worst and those in orphanages were in the middle. The appropriate care arrangement of AIDS orphans must build upon existing structures and be developmentally appropriate. Assistance is urgently needed in households where AIDS orphans are cared for, but interventions should be designed for capacity building in the local community.

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