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Household displacement and health risk behaviors among AIDS-affected children in rural China

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Abstract

When parents die of or are infected with HIV, children might have to leave their own household and be displaced to other living arrangement and some may even be displaced multiple times. The objective of this study is to examine the association between household displacement and health risk behaviors among AIDS orphans (children who have lost one or both of their parents to HIV/AIDS) and vulnerable children (children living with HIV-infected parents) in rural China.

The sample consisted of 1015 children (549 AIDS orphans, 466 vulnerable children) in family-based care. The children were assigned to three displacement groups according to the number of household displacement (i.e., none, once, at least twice) after their parents became ill or died of AIDS. Cigarette smoking, alcohol use, violence, public property destruction, suicidal ideation, and suicide attempt were used to assess the health risk behaviors of these children. Both bivariate and multivariate tests were used to assess the differences in health risk behaviors among displacement groups.

The findings indicated that children who were displaced at least twice were more likely to report a higher frequency of public property destruction and suicide ideation than those who were never displaced or displaced once. Multivariate analysis revealed that public property destruction, suicide ideation and suicide attempt were significantly associated with the household displacement among these children, controlling for gender, age, child status (AIDS orphans vs. vulnerable children) and the duration of household displacement.

Results in the current study suggest that a stable living environment was important for both AIDS orphans and vulnerable children in communities of high prevalence of HIV/AIDS. The government, community and other agencies need to make efforts to avoid frequent household displacement among these children after the HIV-related infection or death of their parents.

Keywords

HIV/AIDS; Health risk behaviors; Children; Household displacement; China

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Introduction

The United Nations estimates that by 2010 there will be at least 20 million AIDS orphans worldwide (Akukwe, 2007). The China Ministry of Health has estimated that there were at least 100,000 AIDS orphans in China by the end of 2004 (Zhao et al., 2007). The number of orphans and vulnerable children continues to grow with an estimated 20,000 AIDS-related death in China and an additional 700,000 people living with HIV/AIDS (UNAIDS, 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 96.66 million (Li et al., 2009). Some commercial blood stations/centers collected blood plasma in remote rural areas of Henan Province between the late 1980s and the middle 1990s. Because of poverty, many farmers sold their blood for quick cash. The blood collection centers used unhygienic blood collection procedures, resulting in a rapid spread of the HIV (Cohen, 2004). Many of the infected people have subsequently died, leaving their children behind (He & Ji, 2007; Zhao et al., 2007). Beyond the direct health problems suffered by those infected and died of AIDS, AIDS might negatively impact their family and children in many ways. One of the impacts might be that some children had to leave their own household and be displaced in other living arrangements to receive care when their parents fell sick or died from AIDS.

Previous studies showed that young people who were frequently relocated were at increased risk for numerous developmental and behavioral problems, including emotional/behavioral problems (DeWit, 1998; Wood, Halfon, Scarlata, Newacheck, & Nessim, 1993), poor academic achievement (Haveman, Wolf, & Spaulding, 1991; Humke & Schaefer, 1995; Simpson & Fowler, 1994; Wood et al., 1993), early initiation of illicit drugs and related problems (DeWit, 1998), sexual promiscuity and increased rate of teenage pregnancy (Jelleyman & Spencer, 2008; Stack, 1994), juvenile delinquency (Astone & McLanahan, 1994; Kósa, Lászik, Antal, & Szendrőnyi, 1993), and adolescent depression (Jelleyman & Spencer, 2008). However, one study conducted in the United States suggested an exception of children in military families whose geographic mobility may not be an important factor for their psychosocial adjustment (Kelley, Finkel, & Ashby, 2003).

There was limited literature about the association between frequent geographic relocation and negative outcomes of adolescents among AIDS-affected children (AIDS orphans and vulnerable children). Several studies conducted in South Africa found that parental mortality from all causes including AIDS increased the risk of a child household relocation (Ford & Hosegood, 2005; Hosegood & Ford, 2003). Although limited data were available regarding the effect of multiple relocations on mental health among children affected by HIV/AIDS, evidence from studies among refugee children (Tousignant et al., 1999) suggested that multiple relocations might be one risk factor to AIDS-affected children as the similar experience these children shared. Displaced children usually faced a range of difficulties, particularly with integrating into new families and communities, which resulted in additional burdens being placed on the AIDS-affected children (van Blerk & Ansell, 2006; Young & Ansell, 2003).

However, to our knowledge, no studies have been conducted to examine the impact of household displacement on the health risk behaviors among AIDS-affected children. These children have suffered from AIDS-related death and infection among their family members, and the unwilling relocation might exacerbate the health burdens they experienced. Accordingly, the current study, using data from rural China, was designed to assess the association between household displacement and health risk behaviors among AIDS orphans and vulnerable children.

Method

Study Site and Participants

The participants in the current study were a subsample of the baseline cohort of a longitudinal assessment of psychosocial needs of children affected by AIDS 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. Both counties had the highest prevalence of HIV-infection in the area. The participants in the current study included 549 AIDS orphans (including 90 double orphans and 459 single orphans) in extended family or kinship care, 466 vulnerable children (i.e., children who were living with HIV-infected, alive parents). Eleven children were excluded from the data analysis in the current study because of missing or invalid responses to the key variables (e.g., length of displacement). Children 6 to 18 years of age were eligible to participate in the study. Age eligibility was verified through the 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 and vulnerable children were recruited from the family or kinship care settings. We worked with the village leaders to generate lists of families caring for orphans or with confirmed diagnosis of parental HIV/AIDS. 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 and vulnerable children was achieved.

Consenting Procedure

Once 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 him/her to participate. Written assent was used for children between 13 and 18 years; and oral assent was used for children 6 to 12 years. 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. In situations that no parents or legal guardians were available to provide parental permission/consent, a "resource person" was identified for each of these children as a means of protection. The resource persons included community leaders, older siblings (≥ 16 years of age), or school teachers. Each resource person received an information sheet with a detailed description of the study design and potential benefits and risks (including confidentiality issues) in order to help the child in making the decision to participate or not in the research. 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 was administered an assessment inventory—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 interviewers were psychology and education graduate students and faculty

members from local universities. All interviewers received extensive training on research methodology, psychological assessment, and research ethics prior to the field data collection. The entire assessment inventory typically took about 75 to 90 minutes, depending on the age of the child. 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 at completion of the assessment as a token of appreciation.

Measures

Demographic characteristics—Children were asked to provide a number of individual characteristics during the survey. These characteristics included age, sex, and ethnicity. Children were also asked how many times they had been displaced and how long (in months) they had been displaced in each place. The children were assigned to three groups according to the number of displacement (i.e., never moved, moved once, moved at least twice). Total duration of placement in months was created by adding the length of each placement together.

Health risk behaviors—Following similar measures used for Chinese children and adolescents (Li et al., 2003), nine items were employed to assess the frequencies of health risk behaviors of the participating children engaged in the previous six months (i.e., cigarette smoking, drinking beer, drinking wine, drinking liquor, beating up someone, threatening to hurt someone, public property destruction, suicidal ideation, and suicide attempt). Sample items include “How often have you smoked a cigarette?”, “How often have you thought of committing suicide?” and “How often have you tried to commit suicide?” All the items have a 4-point scale response option ranging from “1=never”, “2=once”, “3=several times” to “4=often”. Because of similarity in content and relatively low frequencies of positive response to some of the items, three items related to alcohol use were combined into a single item (“alcohol use”). Likewise, items of “beating” and “threatening” were combined into a single item of “violence”.

Statistical Analysis

First, Chi-square test (for categorical variables) and ANOVA (for continuous variables) were employed to examine the difference of sample characteristics by three displacement groups (i.e., never moved, moved once, moved at least twice) among AIDS-affected children. The health risk behaviors were examined by sex (female vs. male), age group and child status (AIDS orphans vs. vulnerable children) using ANOVA. The age group was dichotomized using the median-split (≤ 13 vs. >13 years). Oneway ANOVA with post hoc multiple comparisons using the least significant difference criterion was employed to assess the pair-wise group differences of health risk behaviors among three displacement groups. Finally, general linear model (GLM) analysis controlling for age (continuous variable), sex, total duration of displacement (continuous variable), and child status was used to assess the multivariate significance of group differences by household displacement. All statistical analyses were performed using SPSS for Windows 11.5.

Results

Sample Characteristics

As shown in Table 1, the sample in the current study consisted of 495 boys (49.3%) and 509 girls (50.7%). About half (53.6%) of the sample was AIDS orphans, and half was vulnerable children. There were 691 children who never moved (68.8%), 199 (19.8%) moved once, and 114 (11.4%) moved at least twice. Almost the entire sample (98.3%) was Han ethnicity. The mean age of all participants was 12.91 (SD=1.21) years with 13.06 for the children who had never moved, 12.50 for the children who had moved once and 12.73 for the children who

had moved at least twice ($p < .01$). Younger children were more likely to be displaced with 12.7% of children ≤ 13 years old and 9.5% of children >13 years old moving at least twice ($p < .01$). The total duration of displacement also significantly differed by child status with means (SD) being 18.83 (43.49) months for AIDS orphans and 13.30 (34.39) months for vulnerable children ($p < .05$). Among the children who had ever been displaced, the average length of total displacement was 51.25 months. The total duration of displacement increased with the number of displacement (i.e., 39.01 months for moved once, 72.63 months for moved at least twice).

Health Risk Behaviors by Sex, Age and Child Status

As shown in Table 2, there was significant sex difference in smoking, alcohol use, violence and public property destruction among children. The male children reported higher scores than the female children in smoking ($p < .0001$), alcohol use ($p < .01$), violence ($p < .0001$), and public property destruction ($p < .01$). The younger children (≤ 13) reported higher scores than the older children (>13) in violence ($p < .001$). There was a significant difference between AIDS orphans and vulnerable children groups in two items of the health risk behaviors (i.e., alcohol use and suicidal ideation). The vulnerable children reported higher score of alcohol use ($p < .01$) and lower score of suicidal ideation ($p < .01$) than AIDS orphans.

Health Risk Behaviors by Displacement

Table 3 depicts the group differences of health risk behaviors by the displacement groups. The bivariate comparison showed that there were significant differences among the three groups (i.e., never moved, moved once, moved $\geq$ twice) in public property destruction ($p < .01$) and suicidal ideation ($p < .05$). The post hoc pair-wise comparison revealed that the children moved at least twice reported significant higher rates than the children who never moved in public property destruction ($p < .001$) and suicidal ideation ($p < .05$). Data not shown, none of the health risk behaviors were significantly associated with the duration of displacement in bivariate tests.

The General linear model (GLM) analysis (Table 4) revealed both multivariate and univariate significance ($p < .001$) with regard to the effect of displacement (i.e., never moved, moved once, moved ≥ 2 times) on public property destruction, suicidal ideation, and suicide attempt while controlling for age, sex, child status, and duration of displacement. GLM analysis confirmed the results of bivariate analysis with significant main effects of displacement ($F=2.21$, $p < .01$), sex ($F=6.12$, $p < .0001$), and child status ($F=3.75$, $p < .001$). In addition, age was a significant covariate for violence ($F=7.12$, $p < .01$) and public property destruction ($F=6.03$, $p < .05$). Duration of displacement was not a significant covariate in multivariate test, but was significant with suicide attempt in univariate test after controlling for other variable factors in the model. None of the interaction terms among factor variables was significant.

Discussion

Results of this investigation highlight the significant impact of frequent household displacement on the health risk behaviors among children affected by AIDS. These data are consistent with prior research from Western cultures demonstrating negative effects of frequent geographic mobility on child and adolescent health outcomes (Astone & McLanahan, 1994; DeWit, 1998; Jelleyman & Spencer, 2008). But, the situation might be more serious among AIDS-affected children, as the study indicated a positive relationship between frequent displacement and severe health risk behaviors (e.g., suicidal ideation and suicide attempt) even after adjusting for other potential confounding factors.

There might be several plausible explanations for these findings. First, AIDS-related infection or death in a family is always coupled with discrimination, psychosocial trauma and poverty, which might weaken children's ability to adapt to new places and develop essential social relationships necessary for integration into new family and community (e.g., school) when they were replaced in a new environment (van Blerk & Ansell, 2006). Second, the frequent household relocation might serve as an additional stressor for these already vulnerable children, which could intensify their traumatic memories (e.g., loss of parents to HIV/AIDS) and make integration more difficult (Ansell & Young, 2004). Third, when children had to leave their familiar living environment, separate from siblings and friends, change school, they might feel lonely, depressed and suffer from other psychological symptoms. Some children even faced discrimination from members in the new household or community (Ansell & Young, 2004; Cluver & Gardner, 2007). These children might feel that they were abandoned by the community/society and feel hopeless about the future, which eventually increased the risk of behavioral problems among them.

The finding that male children were more likely than female children to engage in some aspects of health risk behaviors (i.e., cigarette smoking, alcohol use, violence, public property destruction) was consistent with many previous studies in China (Li, Fang, Stanton, Su, & Wu, 2003; Unger, 2001; Xing, Ji, & Zhang, 2006). However, the finding that younger children were more likely to engage in violent behaviors were not consistent with one previous study among Chinese adolescents that found no age difference in aggressive behavior (Yu, Shi, Huang, & Wang, 2006). The plausible explanation for the age difference in violent behaviors of this study might be that children could have more control over their behaviors when they grew up. The results of this study suggested a significant association between child status (i.e., AIDS orphans and vulnerable children) and adolescent health risk behaviors (i.e., public property destruction and suicidal ideation). The AIDS orphans were more likely to think of committing suicide than vulnerable children, which might be because the AIDS orphans have experienced more stress than the vulnerable children after losing one or both of their parents to AIDS. Another possible reason is that AIDS orphans and vulnerable children might employ different maladaptive strategies in coping with stress in their lives. For example, vulnerable children reported a higher level of alcohol use than AIDS orphans. Alternatively, the higher alcohol use among vulnerable children might reflect the fact that these children still lived in their own home and might had more access to alcoholic beverages than AIDS orphans. Future study is needed to validate these speculations.

Conceptually, both the frequency of household displacement (number of time a child being displaced) and the quantity of household displacement (total duration of the displacement) could have effect on health risk behaviors among children affected by HIV/AIDS. However, the data in the current study did not suggest a significant association between the duration of displacement and health risk behaviors. One of the possible reasons for this non-significant finding might be the flooring effect of the measurement because almost 69% of the participants had never been displaced and were assigned a response of zero for the displacement duration in both bivariate and multivariate analyses. Future study is needed to further examine the effect of the quantity of displacement along with the frequency of the displacement.

There are several potential limitations in the current study. First, all the data were self-reported and some were retrospective, which were subject to underreporting bias because some topics are sensitive in Chinese culture (e.g., suicidal ideation, suicide attempt). Another limitation of this study is that information on some important factors that could affect the results was not available for analysis. For example, distance between new households and their original community, the economic status of new households, whether

or not the child had to quit or change schools, and whether the members of new households were kind to them. Future research is needed to examine potential effects of these factors on health risk behaviors among AIDS-affected children.

Despite these limitations, the current study provides preliminary evidence that frequent household relocation may increase the risk of behavior problems among AIDS-affected children in China. These findings have important implications for public policy makers and health care providers. The government, community and other agencies need to make efforts to avoid frequent household displacement and provide a stable living environment for these children after the HIV-related infection or death of their parents. In addition, it is important for new families, schools, and health care agencies working with these children to offer appropriate counseling for those affected children who were displaced frequently, and ultimately, to prevent health risk behaviors and lead to improvement in psychosocial well-beings among these children.

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Table 1

Demographic characteristics of participants in the study

	Number of household displacement			
	Total	Never	Once	≥2 times
N(%)	1004(100%)	691(68.8%)	199(19.8%)	114(11.4%)
Gender				
Boy	495(49.3%)	345(69.7%)	102(20.6%)	48(9.7%)
Girl	509(50.7%)	346(68.0%)	97(19.1%)	66(13.0%)
Ethnicity				
Han	925(98.3%)	643(69.5%)	180(19.5%)	102(11.0%)
Others	16(1.7%)	10(62.5%)	4(25.0%)	2(12.5%)
Age in years (Mean/SD)	12.91(2.21)	13.06(2.20)	12.50(2.15)	12.73(2.25)**
Child status				
AIDS orphans	538(53.6%)	372(69.1%)	106(19.7%)	60(11.2%)
Vulnerable children	466(46.4%)	319(68.5%)	93(20.0%)	54(11.6%)
Duration of displacement in months (Mean/SD)	51.25(56.34)	n/a	39.01(49.82)	72.63(60.74)****

**
p< .01***
p< .001****
p< .0001

Table 2
Comparison of health risk behaviors of participants by selected demographic characteristics

	Gender		Age		Child status	
	Boys	Girls	≤13	>13	AIDS orphans	Vulnerable children
N(%)	495(49%)	509(51%)	576(58%)	420(42%)	538(54%)	466(46%)
Cigarette smoking	1.11(0.43)	1.01(0.12) ****	1.06(0.34)	1.06(0.30)	1.05(0.28)	1.08(0.37)
Alcohol use	1.14(0.44)	1.07(0.37) **	1.12(0.46)	1.08(0.30)	1.07(0.34)	1.15(0.47) **
Violence	1.35(0.67)	1.12(0.44) ****	1.29(0.64)	1.17(0.47) ****	1.23(0.54)	1.25(0.62)
Public property destruction	1.09(0.41)	1.03(0.20) **	1.08(0.37)	1.04(0.25)	1.06(0.34)	1.06(0.30)
Suicidal ideation	1.05(0.32)	1.09(0.39)	1.06(0.34)	1.10(0.38)	1.10(0.43)	1.04(0.24) **
Suicide attempt	1.04(0.31)	1.03(0.25)	1.05(0.34)	1.02(0.18)	1.04(0.30)	1.03(0.25)

Note: mean (SD) were presented in the table unless noticed otherwise.

**
p< .01

p< .001

p< .0001

Table 3

Comparison of health risk behaviors by frequency of displacement

	Frequency of household displacement				Post hoc pair-wise comparison
	Overall	Never (0)	Once (1)	≥2 twice (2)	
Cigarette smoking	1.06(0.33)	1.08(0.36)	1.04(0.28)	1.02(0.14)	
Alcohol use	1.11(0.41)	1.10(0.40)	1.10(0.37)	1.15(0.52)	
Violence	1.24(0.58)	1.22(0.56)	1.26(0.59)	1.31(0.67)	
Public property destruction	1.06(0.32)	1.04(0.26)	1.08(0.38)	1.16(0.50)**	2>0***
Suicidal ideation	1.07(0.36)	1.06(0.30)	1.07(0.38)	1.16(0.56)*	2>0*
Suicide attempt	1.04(0.28)	1.02(0.21)	1.07(0.41)	1.07(0.35)	

*
p< .05**
p< .01***
p< .001

Table 4

GLM analysis of health risk behaviors by household displacement

	Main effect ¹			Covariates	
	Frequency of displacement	Child status ²	Gender	Age	Duration of displacement
Multivariate Test	2.21**	3.75***	6.12***	2.84**	<1
Cigarette smoking	<1	<1	4.14*	<1	<1
Alcohol use	<1	2.21	2.51	<1	<1
Violence	<1	1.65	28.13***	7.12**	<1
Public property destruction	4.85**	5.13*	12.82***	6.03*	<1
Suicidal ideation	5.53**	12.39***	<1	<1	2.19
Suicide attempt	5.31**	2.43	<1	1.41	4.43*

Note:

¹ The interaction terms among factor variables were excluded from this table because of absence of statistical significance..

² Child status (AIDS orphans vs. vulnerable children).

* p< .05
** p< .01
*** p< .001
**** p< .0001