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Social ecological factors associated with future orientation of children affected by parental HIV infection and AIDS

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Abstract

From a social ecological perspective, this study examined the effects of stigma (societal level), trusting relationships with current caregivers (familial level), and self-esteem (individual level) on future orientation of children affected by HIV infection and AIDS. Comparing self-report data from 1221 children affected by parental HIV infection and AIDS and 404 unaffected children, affected children reported greater stigma and lower future orientation, trusting relationships, and self-esteem. Based on structural equation modeling, stigma experiences, trusting relationships, and self-esteem had direct effects on future orientation, with self-esteem and trusting relationships partially mediating the effect of stigma experiences on children's future orientation. Implications are discussed.

Keywords

children affected by HIV infection and AIDS; future orientation; stigma experiences; trusting relationships; self-esteem

With the number of people living with HIV infection and AIDS on the rise, the number of children orphaned or affected by parental HIV is increasing (Wang et al., 2012). In 2010, the number of children orphaned by AIDS increased to 25 million, with worldwide total

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predicted to reach 40 million by 2020 (UNICEF, 2009). In China, Hong et al. (2011) estimated that 100,000 children were orphaned by AIDS.

Previous studies indicated that children affected by HIV infection and AIDS struggled with internalizing and externalizing psychological problems, such as anxiety, depression, and aggressive behavior (Atwine et al., 2005; Makame et al., 2002), as well as loneliness, social withdrawal, suicidal ideation, and resentment against society (Zhao et al., 2007). Existing research has primarily explored the negative effects of parental death on children's mental health. Recently, the emergence of positive psychology has opened new avenues for investigating resilience among children affected by parental death (Snyder and Lopez, 2005).

One element of resilience is future orientation, which can positively influence children's resilience and personal competence (Herrenkohl et al., 2005). Future orientation is defined as "an individual's thoughts, plans, motivations, and feelings about his or her future" (McCabe and Barnett, 2000: 491). Future orientation is extremely important for coping life adversities and individual's mental health. Positive expectations were associated with higher levels of confidence. People with positive expectations about the future more easily overcome difficulties in life (Snyder and Lopez, 2005). Perceived control over the future also has been found to be positively associated with an individual's long-term mental health (Haine et al., 2003). In regard to development, future orientation helps children set clear goals, build confidence, maintain hope, and inspires them to work toward their identified goals (Snyder et al., 2000). Therefore, it is important to study future orientation and its contributing factors among children affected by HIV infection and AIDS.

The psychological well-being of children affected by HIV infection and AIDS is not only influenced by parent HIV infection and subsequent death due to AIDS but also by social stigma, poverty, relationships with caregivers, individual coping skills, and self-esteem (Li et al., 2008). According to Bronfenbrenner's (1986, 1989) social ecological model, the nature of these risk factors can be organized into three levels of influence: social, familial, and individual levels. Additionally, these risk factors and levels of influence are interrelated. This study chose three prominent factors at various levels in which children affected by HIV infection and AIDS live and examined the association of these risk factors with future orientation. The three factors selected for investigation include children's experience of social stigma, trusting relationships with caregiver, and personal self-esteem.

Previous studies have indicated that children affected by HIV infection and AIDS encountered stigmatization from their extended families and neighbors and that this stigma might negatively affect later psychological functioning (Cluver and Orkin, 2009). These children also reported being rejected by schools and healthcare centers, which limited their access to educational opportunities and healthcare needs (Bauman et al., 2002). As an adverse life event, stigma is well-documented as a risk factor for subsequent psychological dysfunction among children (Tiet et al., 1998). However, Boardman et al. (2011) pointed out that stigmatized individuals might also experience posttraumatic growth and ultimately develop a stronger social support network. Protective factors against social stigma have been identified at an individual level (e.g. positive emotion) and familial level (e.g. strong family relationships, warm accepting caregivers; Tiet et al., 1998).

In particular, family support protects children from the negative risk factors associated with HIV infection and AIDS. Informed by attachment theory (Bowlby, 1969), secure and trusting relationships with caregivers are crucial to children's development and socialization. The quality of the parent-child relationship was a decisive factor in predicting children's psychological functioning (Armistead et al., 2002). Although the majority of children affected by HIV infection and AIDS live within their own families, after a parent's death many AIDS orphans are relocated to live with relatives or trained caregivers in orphanages (Lin, 2007). The change in primary caregivers requires children to rebuild trusting relationships with new caregivers (Caldwell, 1993; Zhao et al., 2011). From a resilience perspective, children's long-term positive relationships with non-parental caregivers provided protection against future adversities (Masten, 2006). Thus, we hypothesized that trusting relationships with caregivers would ameliorate the negative effect of stigma on future orientation among children affected by HIV infection and AIDS.

Individual resources are also very important in protecting children against the negative effects of parental HIV infection and AIDS. In fact, O'Keefe (1993) found that a strong self-esteem was the strongest predictor of hopefulness among children with cancer (Richie, 2001). Additionally, after an individual experienced adversity, a higher sense of self-esteem was identified as one of personal characteristics contributing to resilient psychosocial outcomes (Du et al., 2014; Rutter, 1990). On the other hand, low self-esteem might be a risk factor contributing to negative psychological outcomes (Sowislo and Orth, 2013). Therefore, after considering these research findings, we hypothesized that self-esteem would likely amend the negative effects of stigma on children's future orientation.

Taken together, guided by the social ecological model and a resilience perspective, we proposed the conceptual model for this study. We hypothesized that stigma experiences would have a negative and direct effect on future orientation, while self-esteem and trusting relationships would mediate the relationship between stigma experiences and future orientation.

Methods

Study site and participants

This study was conducted in 2006–2007 in two rural counties in central China where many residents are infected with HIV due to unhygienic blood collection. Both counties have similar percentages of rural residents and similar demographic and economic profiles, and also the highest prevalence rates of HIV infection.

The participants included 296 double orphans (i.e. children who lost both their parents to AIDS), 459 single orphans (i.e. children who lost one of their parents to AIDS), 466 vulnerable children (i.e. one or both parents infected HIV), and 404 unaffected children (i.e. children from HIV-free families). The double orphans included 176 orphans living in orphanages and 120 orphans under family care. Children from 6 to 18 years of age were eligible to participate in the study.

Sampling procedure

The orphanage sample was recruited from four orphanages. Other participants were approached from the local communities. Researchers worked with village leaders to generate lists of families caring for orphans, vulnerable children, and unaffected children. Using the lists, researchers approached the identified families to recruit potential participants.

Consent procedure

Once the eligibility of a child was confirmed, the researchers explained the project and obtained his or her written or oral informed consent and also obtained children's caregivers' written or oral permission.

Survey procedure

Each participating child was administered an assessment inventory. For children with limited reading abilities, researchers read each question aloud and recorded the child's responses. Each child received a gift after completing the assessment.

Measures

Demographic characteristics.—Basic demographic information was collected from participating children. Children were asked to report on individual and family characteristics.

Future orientation.—Future orientation is a multidimensional concept that includes three dimensions: future expectation, hopefulness, and perceived control over future. Children's future orientation was assessed by three modified scales: children's future expectation scale (Bryan et al., 2005), the hopefulness about future scale (Whitaker et al., 2000), and the perceived control over future scale (Whitaker et al., 2000). The children's future expectation scale included six items (e.g. How sure are you in handling problems in life?) with responses on a 5-point scale ranging from 1 (*completely not sure*) to 5 (*extremely sure*). The hopefulness about future scale consisted of four items (e.g. How likely you will graduate from high school some day?) with responses on a 4-point scale ranging from 1 (*definitely not*) to 4 (*definitely yes*). The perceived control over future scale contained seven items (e.g. What happens to me in the future mostly depends on me) with a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). In this study, Cronbach's alphas for the three scales were 0.84, 0.78, and 0.64, respectively. Higher scores indicate greater expectations for the future.

Stigma experiences.—The *Stigma Against Children Affected by HIV/AIDS Scale* (Zhao et al., 2010) was used to assess children's stigma experiences. This scale included 14 items (e.g. I have been beaten by other children) with responses on a 5-point scale ranging from 1 (*never*) to 5 (*always*), with higher scores indicating more stigmatized experiences. Three subscales (being hurt, being rejected, and being isolated) were determined using principal component analysis with oblique rotation. Cronbach's alpha was 0.88 for this study's sample.

Trusting relationship.—The *Trusting Relationship Questionnaire* (Mustillo et al., 2005) was used to assess children's trusting relationships with their current caregivers (e.g. Do you like to stay with the caregivers?). This scale included 15 items with responses on a 5-point scale ranging from 1 (*never*) to 5 (*always*). Higher scores indicated better trusting relationships with caregivers. Three subscales (caring, mutual trust, and sharing feeling) were determined with principal component analysis with oblique rotation. With this study's participants, Cronbach's alpha was 0.88.

Self-esteem.—The *Self-Esteem Scale* (Rosenberg, 1965) was used to assess overall self-worth and self-acceptance. The scale included 10 items (e.g. I certainly feel useless at times) with response options ranging from 1 (*very much consistent*) to 4 (*totally inconsistent*). Higher scores indicated higher self-esteem. Cronbach's alpha was 0.63 for this study's sample.

Statistical analysis

First, descriptive statistics were calculated for demographic variables. The differences of demographic variables among groups were examined using analysis of variance (ANOVA) and chi-square test. Second, one-way ANOVA with post hoc multiple comparisons using the least significant difference criterion was performed to examine all variables across gender, age group, and group identity. Third, Pearson correlation analysis was calculated to assess associations among all variables. Fourth, structural equation modeling (SEM) was performed to examine the hypothesized mediation model of the relationship among variables. In SEM, gender and age were added as covariates. In correlation and SEM analyses, only 1221 participants were included because unaffected children had no HIV-related stigma score. The SEM analysis was conducted using LISREL 8.7, and other statistical analyses were performed using SPSS15.0.

Results

Characteristics of sample

As shown in Table 1, the sample consisted of 826 boys (50.83%) and 799 girls (49.17%). Children's ages ranged from 6 to 18 years with the mean age of 12.85 years (standard deviation (*SD*) = 2.21 years). More than half of the participants (56.6%) were older than 13 years. Age differed significantly between the five groups of children ($p < 0.001$). In total, 99 percent of children were of Han ethnicity. The number of siblings ranged from 0 to 10 with a mean of 1.61 ($SD = 1.32$), and there was a significant difference among groups, $F(4, 1571) = 2.46, p < 0.05$.

Associations of future orientation and predicting factors with demographic variables

As seen in Table 2, there were significant gender, age, and group identity differences in future expectation. Girls scored significantly higher than boys in hopefulness. Children who were older than 13 years scored significantly higher on all future orientation variables than younger children. Children from orphanages had the highest scores on the future expectation, whereas the unaffected children scored the highest on the hopefulness and perceived control scales.

Stigma experiences did not significantly differ by gender but did by age group and group identity. Specifically, younger children experienced more stigma experiences than older children. Double orphans scored significantly higher than single orphans and vulnerable children. Scores indicating trusting relationships differed significantly by gender, age group, and group identity. Girls' trusting relationships were significantly better than those of boys. Similarly, older children had significantly better relationships than younger children, and the unaffected children had significantly better relationships than the other four groups. Considering self-esteem, girls reported higher self-esteem than boys; and older children had significantly higher self-esteem than younger children. Furthermore, the unaffected children had significantly higher self-esteem than the other four groups.

Correlations of future orientation and predictive factors

As shown in Table 3, each variable was significantly correlated (either positively or negatively) with all other variables ($p < 0.001$), except for gender. Gender was only significantly correlated with trusting relationships.

SEM

This study's data fit nicely into the proposed model, $\chi^2/\text{degree of freedom } (df) = 6.583$, goodness of fit index (GFI) = 0.962, normed fit index (NFI) = 0.938, comparative fit index (CFI) = 0.947, root mean square error of approximation ($RMSEA$) = 0.068, 90 percent confidence interval (CI) (0.06, 0.07), and standardized root mean square error ($SRMR$) = 0.049. In Figure 1, the results from SEM analyses are presented in standardized coefficients for each interpretation. After controlling for gender and age, all loadings of observed variables on latent variables of stigma experiences, trusting relationships, and future orientation were significant ($p < 0.001$). Stigma experiences had significant direct negative effects on future orientation, with increased stigma experiences resulting in decreased future orientation. Trusting relationships and self-esteem had significant direct positive effects on future orientation, with increased trusting relationships and self-esteem resulting in increased future orientation. In addition, stigma experiences had significant indirect effects on future orientation through trusting relationships and self-esteem; trusting relationships also had significant indirect effects on future orientation through self-esteem. Among the covariates, gender did not affect future orientation; however, age did. An increase in age was associated with less stigma experiences, higher trusting relationships, and greater future orientation. The R^2 of the total structure model was 0.30.

The Sobel test of mediation effects indicated that self-esteem partially mediated the relationship between stigma experiences and future orientation trusting ($z = 4.148$, $p < 0.001$). Trusting relationships partially mediated the relationship between stigma experiences and future orientation ($z = 3.030$, $p < 0.01$). Also, self-esteem partially mediated the relationship between trusting relationships and future orientation ($z = 11.514$, $p < 0.001$).

Discussion

For children affected by HIV infection and AIDS, a series of stigma experiences severely influenced their future orientation. The SEM results revealed that three social ecological

factors—stigma experiences, trusting relationships, and self-esteem—significantly influenced children’s future orientation. In particular, stigma experiences had a direct and negative impact on future orientation, whereas trusting relationships and self-esteem had a significant and positive impact on it.

These findings further clarified the relationship in Li and colleagues’ (2008) theoretical model. Trusting relationships and self-esteem played a mediating role and could effectively predict children’s future orientation. Moreover, improving the trusting relationships between children and their caregivers appeared to enhance children’s self-esteem and increased self-confidence in their future. This finding demonstrated that good trusting relationships between children and caregivers might encourage children to more optimistically focus on their future development. Higher self-esteem helped children to cope stigma experiences and had hope for future.

When considering children’s resilience in the context of coping with their parents’ HIV infection and AIDS, our findings demonstrated the reciprocal nature of factors at societal, familial, and individual levels. Societal factors, such as social stigma, may be deleterious to children’s future orientation and resilience (Chi et al., 2014). Because of experiences such as rejection and unfair treatment in social life, children may have difficulty maintaining a positive perspective regarding their future life. However, a positive and supportive family environment may protect children from the negative effects associated with stigma experiences. A trusted caregiver provides children with a warm family atmosphere and supportive resources for growth and development.

Furthermore, the contribution of an individual’s characteristics cannot be ignored in one’s social ecological system. Children are never passive victims of a noxious environment; rather, they seek to make sense and negotiate the adversities in their life (Shih, 2004). Our findings corroborated this assumption. A child’s self-confidence and sense of capability ameliorated the negative effects of stigma. Notably, we found that self-esteem also mediated the relationship between trusting relationships and future orientation. This may suggest that secure relationships with caring adults serve as an important source for strengthening self-esteem (Du et al., 2014). Taken together, these findings have implications for future stigma-reducing and resilience-promoting programs which propose to address the needs of children impacted by HIV infection and AIDS.

Another finding showed that as children grew older, they reported less stigma experiences than younger children. Additionally, with increasing age, children reported stronger trusting relationships and future orientation. As children matured, particularly those raised in an orphanage, they were taught how to deal with adverse, develop relationships and make plans for the future (Lin, 2007). With maturation, children affected by HIV infection and AIDS developed their own skills to live a better life. Therefore, children developed competencies to deal with adversities and to create a plan for their future development. Although age was not associated with increased self-esteem, having high-quality trusting relationships with caregivers provided the most immediate psychological support for children, which most likely enabled children to rationally evaluate stigma and to have confidence in their future (Wang et al., 2012).

This study was subject to some limitations. First, in this study, the parents of participants died from HIV infection which was acquired from participating in paid plasma donations. Therefore, the generalizability of our findings is somewhat limited and may be less applicable to children whose parents contracted HIV via other means. Second, children who were orphaned by other means were not included in the unaffected group, so the difference between children affected by parental illness and death due to AIDS and those affected by parental illness and death due to other causes was not clarified. Third, this is a cross-sectional study. Although the model may help explain relationships between factors, our data are not able to definitively explain the causal effects.

Despite these limitations, this study provided a theoretical basis for follow-up studies investigating factors influencing the future orientation and resilience of children affected by HIV infection and AIDS. Overtime, the cultivation of children's future orientation may help to reduce societal, familial, and individual risk factors and positively increase protective factors. To increase the future orientation and decrease the effect of stigma experiences of children affected by HIV infection and AIDS, clinical practice should include training to strengthen children's self-esteem and to improve their trusting relationships with caregivers.

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Figure 1.

Final structural model of stigma experiences, trusting relationships, self-esteem, and future orientation of children affected by HIV infection and AIDS.

The model was controlled for gender and age. ** $p < 0.01$, *** $p < 0.001$.

Table 1.

Individual characteristics of study sample.

	Overall	Double orphans in orphanages	Double orphans in families	Single orphans	Vulnerable children	Unaffected children	F or χ^2
N (%) ^a	1625	176 (10.8)	120 (7.4)	459 (28.2)	466 (28.7)	404 (24.9)	
Boys	826 (50.83)	108 (61.4)	57 (47.5)	238 (51.9)	219 (47.0)	204 (50.5)	0.45
Girls	799 (49.17)	68 (38.6)	63 (52.5)	221 (48.1)	247 (53.0)	200 (49.5)	
Mean age (SD), years	12.85 (2.21)	12.42 (2.56)	13.14 (2.00)	13.45 (2.04)	12.36 (2.24)	12.83 (2.11)	*** $F(4, 1609) = 16.90$ $3 > 1, 4, 5; 2, 5 > 1, 4$
12	694 (42.7)	89 (51.1)	44 (36.7)	139 (30.3)	249 (54.2)	173 (42.9)	31.64***
13	920 (56.6)	85 (48.9)	76 (63.3)	319 (69.7)	210 (45.8)	230 (57.1)	
Han ethnicity (%)	1529 (98.7)	173 (98.3)	113 (98.3)	432 (99.1)	419 (97.7)	392 (99.7)	$F(4, 1544) = 1.97$
Number of siblings	1.61 (1.32)	1.85 (1.92)	1.43 (1.32)	1.52 (1.29)	1.67 (1.36)	1.59 (1.04)	$F(4, 1571) = 2.46^*$ $1 > 2, 3, 5$

SD: standard deviation.

1 = double orphans in orphanage; 2 = double orphans in family; 3 = single orphans; 4 = vulnerable children; 5 = unaffected children.

^aNumbers in some variables do not add up to the total sample size ($n = 1625$) because of missing values.

* $p < 0.05$

*** $p < 0.001$.

Table 2.

Variance analysis results of future orientation, stigma experiences, trusting relationships, and self-esteem.

	Gender		Age, years		Group identity					Post hoc
	Boy, <i>M</i> (<i>SD</i>)	Girl, <i>M</i> (<i>SD</i>)	12, <i>M</i> (<i>SD</i>)	13, <i>M</i> (<i>SD</i>)	Double orphans in orphanage, <i>M</i> (<i>SD</i>)	Double orphans in family, <i>M</i> (<i>SD</i>)	Single orphans, <i>M</i> (<i>SD</i>)	Vulnerable children, <i>M</i> (<i>SD</i>)	Unaffected children, <i>M</i> (<i>SD</i>)	
Future expectation	18.51 (5.67)	18.11 (5.17)	17.85 (6.09)	18.63 (4.90) **	19.37 (5.71)	17.67 (5.22)	18.09 (5.07)	17.60 (5.73)	19.02 (5.21) ***	1, 5 > 2, 3, 4
Hopefulness	11.56 (2.98)	11.31 (2.67) *	11.21 (3.15)	11.60 (2.56)	11.51 (3.23)	10.80 (2.96)	11.37 (2.86)	11.05 (2.90)	12.09 (2.28) ***	5 > 1 > 2
Future control	20.82 (3.40)	20.97 (3.29)	19.94 (3.46)	21.59 (3.08) ***	20.84 (3.41)	20.20 (3.18)	20.88 (3.35)	20.45 (3.39)	21.57 (3.19) ***	5 > 1, 2, 3, 4
Stigma experiences	1.64 (0.62)	1.59 (0.59)	1.73 (0.67)	1.52 (0.53) **	1.74 (0.64)	1.64 (0.58)	1.58 (0.56)	1.58 (0.63) **	–	1 > 3, 4
Trusting relationships	45.52 (13.39)	47.80 (12.07) **	44.94 (12.99)	47.68 (12.58) ***	44.50 (11.58)	46.45 (13.10)	45.30 (13.30)	46.17 (13.37)	50.32 (11.32) ***	5 > 1, 2, 3, 4
Self-esteem	2.86 (0.96)	2.97 (0.88) *	2.81 (1.03)	3.00 (0.83) ***	2.78 (0.96)	2.79 (0.90)	2.95 (0.93)	2.79 (0.95)	3.12 (0.84) ***	5 > 1, 2, 3, 4
										3 > 2, 4

SD: standard deviation.

1 = double orphans in orphanage; 2 = double orphans in family; 3 = single orphans; 4 = vulnerable children; 5 = unaffected children.

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$.

Table 3.
Correlation analysis of future expectation, hopefulness, and perceived control with influencing factors.

	Gender	Age	Future expectation	Future hopefulness	Future control	Stigma experiences	Trusting relationships
Gender	1						
Age	0.022	1					
Future expectation	0.037	0.122***	1				
Future hopefulness	0.043	0.106***	0.437***	1			
Future control	0.023	0.281***	0.434***	0.484***	1		
Stigma experiences	0.035	-0.177***	-0.110***	-0.094***	-0.238***	1	
Trusting relationships	0.089**	0.136***	0.272***	0.250***	0.256***	0.136***	1
Self-esteem	0.015	0.120***	0.328***	0.287***	0.339***	-0.135***	0.186***

**
 $p < 0.01$

 $p < 0.001$.