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## REVIEW

### Psychological resilience among children affected by parental HIV/AIDS: a conceptual framework

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HIV-related parental illness and death have a profound and lasting impact on a child's psychosocial well-being, potentially compromising the child's future. In response to a paucity of theoretical and conceptual discussions regarding the development of resilience among children affected by parental HIV, we proposed a conceptual framework of psychological resilience among children affected by HIV, based on critical reviews of the existing theoretical and empirical literature. Three interactive social ecological factors were proposed to promote the resilience processes and attenuate the negative impact of parental HIV on children's psychological development. Internal assets, such as cognitive capacity, motivation to adapt, coping skills, religion/spirituality, and personality, promote resilience processes. Family resources and community resources are two critical contextual factors that facilitate resilience process. Family resources contain smooth transition, functional caregivers, attachment relationship, and parenting discipline. Community resources contain teacher support, peer support, adult mentors, and effective school. The implications of the conceptual framework for future research and interventions among children affected by parental HIV were discussed.

**Keywords:** resilience; children affected by HIV; conceptual framework; parental illness; development stages; psychosocial well-being

The HIV pandemic has resulted in a dramatic increase in the number of children who are affected by parental HIV worldwide. By the end of 2011, roughly 17.3 million children under the age of 18 years had lost one or both parents to HIV, and millions more face the potential of losing their parents to HIV (UNICEF, 2015). These children endure a greatly increased risk of poverty, homelessness, curtailed education, discrimination, and loss of life opportunities. Some of the adversities experienced by those children have been documented over the course of the last decade. Most of the existing studies conclude that losing a parent to HIV or living with a HIV-infected parent is a significant risk factor to child and adolescent development (Cluver, Orkin, Gardner, & Boyes, 2012; Fang et al., 2009; Makame, Ani, & Grantham-McGregor, 2002). However, although in a less volume, the existing literature also suggests that some of these children do not report clinically significant or elevated levels of mental health problems over time (Chi, Li, Barnett, Zhao, & Zhao, 2013; Pelton & Forehand, 2005; Rotheram-Borus, Weiss, Alber, & Lester, 2005). These

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later findings are not surprising as vast literature has documented the tremendous resilience that some children show in the face of adverse life conditions. Over the last half century, substantial literature has documented the significance of resilience in ameliorating a child’s response to a wide array of adversities, such as poverty, parental mental illness or physical illness, maltreatment, community violence, parental divorce, and disastrous life events (Anthony, 1974; Fraser & Pakenham, 2008; Garnezy & Streitman, 1974; Gewirtz & Edleson, 2007; Hipke, Wolchik, Sandler, & Braver, 2002; Kim & Cicchetti, 2006; Klingman, 2006; Lin, Sandler, Ayers, Wolchik, & Luecken, 2004; Rutter, 1979; Werner & Smith, 1982). Recently, there has been an emerging interest in resilience among children affected by parental HIV (Betancourt, Meyers-Ohki, Charrow, & Hansen, 2013). Although existing research explicitly recognize the resilience perspective as a promising guiding framework to guide the research and health promotion practice to mitigate the impact of parental HIV on children’s psychosocial well-being (Skovdal & Daniel, 2012), there is limited theoretical discussion in this aspect (Betancourt et al., 2013). In this article, we proposed a conceptual framework from developmental and socio-ecological perspectives centered on the resilience process of children affected by HIV (Figure 1). The major contribution of the proposed framework is the shift from a deficit perspective to strength perspective in this field. Also, we apply the broader child resilience theoretical frameworks into parental HIV context. The uniqueness of risk and protective factors related to parental HIV could enrich the theoretical discussion of child resilience.

The framework we proposed in the current conceptual paper is a logical extension of the developmental psychopathology framework (Li et al., 2008) by integrating the core principles of ecological model of human development (Bronfenbrenner, 1979) and resilience perspectives (Luthar, Cicchetti, & Becker, 2000; Masten, 2011; Ungar, Ghazinour, & Richter, 2013). Figure 1 presents the conceptual framework that depicts the mechanism of resilience process among children affected by parental HIV. The framework is consistent with the observation that children do not necessarily develop significant developmental problems as a reaction to parental HIV, but rather the relative balance of risk and protective factors in the context of their lives predicts the psychosocial outcomes in short and long terms. The framework focuses on the propensity of the disease course to generate multiple stressful life events and the dynamic process of resilience within the context of parental HIV. The framework explicitly emphasizes modifiable individual and contextual factors that may mitigate the potentially deteriorating and enduring

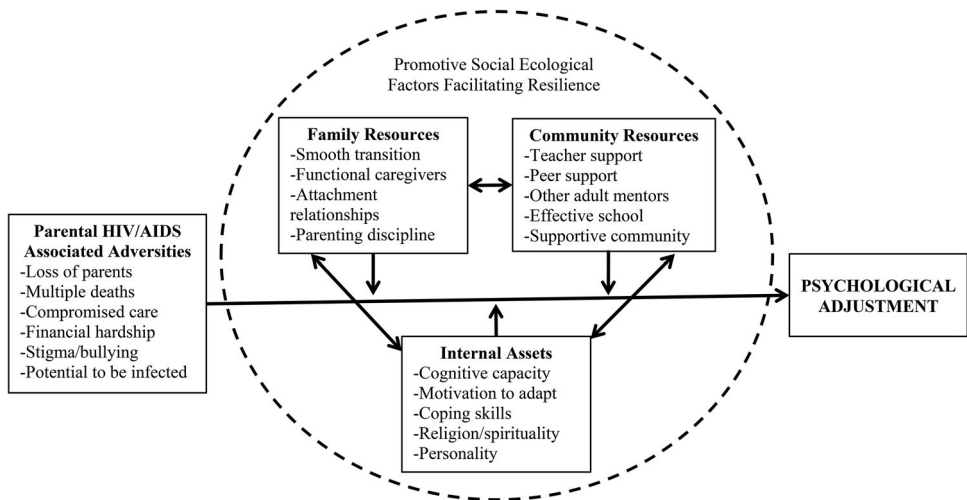


Figure 1. Conceptual framework of psychological resilience among children affected by HIV/AIDS.

effects of parental HIV on children's psychological outcomes. The qualities of support from family and community, two critical contextual factors in positive child development in the face of adversity, are expected to collectively foster the development of children's internal assets (e. g. self-esteem, self-efficacy, and positive future orientation). While biological factors, such as brain function and genes, do play a role in resilience development (as some internal assets may be genetic in origin), we did not include the biological factors in the current framework as they are less amenable in most modalities of psychosocial and behavioral interventions.

In the article, we began with a brief introduction on how parental HIV affects children's psychosocial well-being and development. We briefly summarized the impact of parental HIV on children based on our previous systematic review (Chi & Li, 2013) and others review efforts in the field (Betancourt et al., 2013; Sherr et al., 2014). Then we discussed the resilience process, which includes core constructs in the proposed framework, in the context of parental HIV. We borrowed broader literature on child development to illustrate our views because studies focusing on resilience of children affected by HIV are limited in the current time. We concluded with a discussion of the implications of the framework for future research and prevention interventions.

### **Impact of parental HIV**

Prior work has suggested that the death of a parent during childhood has a profound and potentially lasting impact on a child's psychosocial well-being (Dowdney, 2000). In addition to the obstacles to a successful resolution of grief normally faced by children who have lost their parents to other causes, children affected by HIV may face a number of unique psychological and social challenges, including stigmatization, the impending or actual death of the surviving parent, disruptions in subsequent care, sibling separation, reduced school attendance, potential HIV infection themselves, and financial hardship (Belsey & Sherr, 2011; Li et al., 2008). In our previous work, we have divided these psychological and social challenges into three clusters: traumatic life events, stigmatization, and financial hardships (Chi & Li, 2013). Recently studies also discussed the compromised caregiving as one of most challenging situations for children affected by HIV.

#### ***Traumatic life events***

For a great majority of children, parents are their most significant guardians and partners in achieving the critical developmental tasks. The loss of a parent is very traumatic for most children. Aspects of children's grief may include denial, delusions of reunion with the deceased parent, the absence of overt expression, and persistent feelings of anger and reproach (Pivnick & Villegas, 2000). Children affected by HIV may experience additional stress associated with the shame, secrecy, and fear of disclosure regarding the cause of parental illness and death. First, the stigma attached to the causes of parental illness and death may inhibit their expression of negative emotions, which can lead to psychological distress and heightened likelihood of unresolved grief (Lin et al., 2004; Pivnick & Villegas, 2000). Second, multiple losses are commonly experienced by affected children. The chance that both parents are infected is high because sex contact is one of the most common HIV transmission routes (Belsey & Sherr, 2011). In addition to parental loss, many children affected by HIV experience losses of other family members, including siblings, close relatives, stepparents, subsequent caregivers, or significant others (Dane, 2002; Demmer & Rothschild, 2011; Zhao et al., 2009). Third, children may also suffer prolonged anticipatory grief, an isolating and painful process during the period in which the parents become ill and ultimately disabled, often for a long period (Rotheram-Borus et al., 2005). The lives of children

whose parents died of AIDS are likely to have been stressful for many years prior to parental death; this is particularly true when the parent was involved in drug use, often intensifying the chaos within the family (Zayas & Romano, 1994). Longitudinal studies on children affected by HIV in both South Africa and the USA have showed that children's externalizing and internalizing problems were the worst at least one year before parental death (Cluver et al., 2012; Pelton & Forehand, 2005; Rotheram-Borus et al., 2005). Finally, children who lost both parents or children of parents in the terminal stage of their disease also face the transition of care arrangement. In many African and Asian countries, grandparents and extended family usually take the responsibility to take care of orphaned children (Kuo & Operario, 2011; Zhao et al., 2007). The challenges associated with this type of care arrangement cannot be ignored. Grandparents may be elder, less energetic, less economically secure, have to take care of multiple children, and are bereaved themselves over the premature loss of their adult children (Ice, Yogo, Heh, & Juma, 2010). Some orphaned children in low-resource regions are placed outside of the homes of nuclear or even extended families. The centralized or institutionalized care (e.g. orphanage, community-based group home) and sibling separation are universally assumed to be highly undesirable (Li et al., 2008).

### ***Stigma and bullying***

Despite substantial efforts across the globe to reduce stigma associated with HIV, such stigma and stigmatization remain prevalent. Prejudice, discounting, discrimination, and discrediting are directed both at the persons living with HIV, and at family members, groups, and communities with which they are associated (Parker & Aggleton, 2003). Stigma has negative effects on children's mental health because of social exclusion and rejection, increasing the likelihood of the child becoming a target of bullying (Cluver & Orkin, 2009; Zhao, Li, Zhao, Zhang, & Stanton, 2012). Nyamukapa and colleagues (2010) reported that AIDS-orphaned children in Zimbabwe were five times more likely to experience stigma than children from HIV-free families. In many studies, stigma was found to be a pervasive factor that negatively affected all the children living in HIV-affected communities. For example, in a Chinese HIV endemic area, Lin and colleagues (2010) found that AIDS-orphaned children, vulnerable children, and children from HIV-free families from the same community where HIV was prevalent experienced similar levels of stigma. Bullying, combined with poverty, was shown to increase the likelihood of psychological disorders from 12% to 76% (Cluver & Orkin, 2009).

### ***Financial hardship and compromised quality of care***

HIV infection is frequently accompanied by a financial burden on the family; this burden is especially problematic in settings with inadequate financial resources and/or limited social welfare support. Studies have showed that HIV infection can bring severe and long-lasting financial strains, including loss of incomes, increased healthcare expenses, and disruption of savings (Sherr et al., 2014). These factors may indirectly affect children's living condition and quality of care. For example, food insecurity, lack of necessary medical care, youth-headed households, child labor, and inadequate care were frequently reported among children affected by HIV in Sub-Saharan region (Cluver et al., 2012; Delva et al., 2009; Makame et al., 2002; Nyamukapa et al., 2008). With timely access to antiretroviral treatment, many parents with HIV are able to live longer with their children. HIV progression is highly contingent on access to antiretroviral treatment and treatment efficacy overtime. Timely and appropriate treatment may restore the functioning of the parents, enhance the stimulating environment for children, and restore capacity of the parents and family to provide quality childrearing. However, some of the challenges associated

with living with chronic illness might compromise the psychological adjustment of children. Parents living with HIV may have to cope with a multitude of stressors, such as complex medical treatments with substantial side-effects (Cook et al., 2002), mental health challenges as a result of HIV infection (Sherr, Clucas, Harding, Sibley, & Catalan, 2011), stigma related to HIV (Parker & Aggleton, 2003), and loss of support networks (Sikkema, Kochman, DiFranceisco, Kelly, & Hoffmann, 2003). These physical and emotional demands may compromise the parenting quality and disrupt family routines (Murphy & Marelich, 2008). Children may be required to take the adult responsibility to provide care to ill adults, perform household work, take care of younger siblings (Zhang et al., 2009), or even become the breadwinners in the family. These can increase the children's risk to poor health, school drop-out, and child labor (Xu, Wu, Duan, Han, & Rou, 2010). All of these create a challenging environment for children to thrive.

## Resilience process

### *Resilience is a longitudinal process negotiating adversities*

While there is no universally accepted definition, psychological resilience in the child development literature is typically defined as a dynamic process encompassing positive adjustment within the context of trauma, tragedy, threats, or other adversities (APA, 2012; Luthar et al., 2000). Evolving from the earlier focus on individual abilities of “resilient children”, researchers have increasingly recognized that resilience is an interactive process among three factors: internal assets of the children, supporting roles of their family, and supportive community (Luthar et al., 2000). Resilience occurs in the presence of one or more such internal and external protective factors. These protective factors are likely to develop protection against the overwhelming influence of risk factors when a child is exposed to risk or adversity. As suggested by previous conceptual discussion (Bonanno, 2004; Luthar et al., 2000), there is no single way of “retaining equilibrium” following highly adverse events, but rather there are multiple pathways to resilience. Also, resilience takes time to develop in children's life. Children build up their tenacity, hope, optimism, emotional regulation, and wisdom on their successful experiences in coping with challenging life events (Zautra, Hall, & Murray, & the Resilience Solutions Group, 2008). These characteristics or resilience required the researchers to examine the trajectories of resilience over a longitudinal process and from a multilevel perspective. In contrast to a “deficit model”, one of the distinctive features of resilience models is the focus on strengths and positive development, pointing to pathways for intervention. Without discounting the adversities, resilience frameworks emphasize promoting healthy functioning and development rather than focusing on psychopathological problems (Masten, 2011). This paradigm shift results in a transformative working approach to enhance resilience.

Resilience research has focused on the psychological development in age-appropriate tasks (Masten, 2011). There are common and unique characteristics in the biological, cognitive, and psychosocial processes of different stages of child development. The biological processes refer to the physiological and neurological changes in an individual's body, such as the brain development, height and weight, motor skills, and the hormonal levels. The cognitive processes involve the changes in an individual's intelligence, language, and information processing and reasoning ability. The psychosocial processes consist of an individual's relationships with other people (e.g. family members and peers), self-identity, social and moral development, and emotion. Major developmental tasks in middle and late childhood (aged from 6 to 11) include school adjustment such as attendance, appropriate conduct, learning to read and to perform arithmetic tasks, getting along with peers, and following the rules of society for moral behavior and prosocial conduct. For adolescents (aged 12 to 18), developmental tasks include learning skills needed for higher



education or work, establishing close relationships with individuals of the same and opposite gender, and forming a cohesive sense of self (Masten & Coatsworth, 1998). These normative developmental tasks vary somewhat between cultures. Thus, in studying the resilience of children affected by HIV, researchers should define positive development according to the target population and develop culturally and developmentally appropriate indicators or criteria of resilience.

### ***Resilience is nourished by family and community resources***

Informed by the principles of social ecological model (Bronfenbrenner, 1979), we proposed that resilience process occurred in the multilevel systematic interactions between individual and environment. Internal assets were nourished by the effective family and community resources. In turn, those internal assets also facilitate individuals to seek and make good use of the resources at the familial and community level. Our proposed framework suggests that promoting factors of resilience might exert effects in an interactive and accumulative way. The greater the stress, the greater the resources that are needed to promote psychological resilience (Luthar et al., 2000). Internal assets and external resources often interact to help children to successfully negotiate the environmental risks (Brody et al., 2013). The internal assets and external resources can interplay in multiple pathways. For example, a child with higher levels of self-esteem tends to communicate more with peers and family members about the deceased parent(s) and receives more emotional support, which in turn improve one's internal assets (Du, Li, Chi, Zhao, & Zhao, 2014). Likewise, if peers are more supportive or share a similar experience of loss, a child may be motivated to express his or her emotions, which will facilitate the normal grieving process (Larsen et al., 2012). In addition, given the reliance of young children on parents and environmental circumstances (i.e. limited autonomy), the resources in family and community may have an important effect on children's capacity to adapt to adversities (Zautra et al., 2008).

### ***Internal assets allow resilience to occur***

Our conceptual framework emphasizes the importance of adaptive coping by children affected by HIV, rather than seeing them as passive victims. The devastating effect of parental HIV requires the children to utilize existing coping strategies and skills as well as to develop new ones. Adaptive coping requires the ability to seek help, reconstruct the meaning of loss, manage stress, and effectively address new problems that inevitably will arise. These competences are developed in the socialization process by the continuous interactive dynamics of nature (inborn traits) and nurture (opportunities to learn). Masten (2001) identified ordinary human adaptive systems that help children to overcome adversities, including intelligence and cognitive abilities, emotional and behavioral regulation, motivation to adapt to environments, and specific personality traits. These internal assets have been described as arising from the "everyday magic of ordinary, normative human resources" (Masten, 2001, p. 235) rather than rare and extraordinary capacities. These basic adaptive systems can be nurtured by education, parenting, prevention, and intervention. Although theorists agree that internal assets are core to children's resilience, most of the existing studies among children affected by HIV have focused on risk factors (Skovdal & Daniel, 2012). The resilience research and also the global literature on psychosocial well-being of children affected by HIV have emphasized on the following internal assets.

#### ***Cognitive capacity***

Intelligence and related cognitive skills for solving problems are among the most frequently identified internal assets that promote children's resilience. Intelligence contributes to children's

resilience by allowing children to comprehend what is happening to them, to differentiate what is manageable from what is not, to choose appropriate ways of coping, and to identify and assimilate into more supportive environments (Condly, 2006). Given that intelligence is the comprehensive ability to reason, plan, understand, learn, reflect, and solve problems, the greater resilience to adverse situations among children with higher intelligence might result from their increased success in finding solutions to stressful circumstances (Huisman et al., 2010). On the other hand, intelligence can be augmented by education. It is possible that children affected by HIV have limited school-access, low-quality education, or cognitive challenges (Sherr, Mueller, & Varrall, 2009). Hence, the very agile thinking and problem-solving might be commodities that they have challenges with (Han, Li, Chi, Zhao, & Zhao, 2013).

### *Motivation to adapt*

Human beings are motivated by various reward systems to adapt to the environment, and people who had the belief that they will be successful tend to persist longer in the face of initial (and frequent) challenges (Bandura, 1977; Masten, 2011). Resilience of children may be partially attributed to mastery motivation systems that are known to play a role in responding to and dealing with stressful life events. Mastery competence is promoted by accumulative success in solving problems (Masten, 2011). A sense of control over the environment is important for resilience (Masten, 2011). Studies among children affected by HIV in China revealed that hopefulness, positive expectations about the future, and a sense of control over one's future are associated with increased resilience (Wang et al., 2012). Self-esteem, self-confidence, and coping self-efficacy were associated with increased resilience in a study conducted in Africa (Betancourt et al., 2011). Worldwide studies suggested that caregiving responsibilities among children affected by HIV may have some positive effect on personal growth and contribute to a child's positive competence in supporting their households (Campbell et al., 2012; Skovdal, 2010; Zhang et al., 2009).

### *Coping skills*

Adaptive response to adversity requires the capacity to regulate one's own attention, expression of emotions, impulses, thinking, planning, and actions (Masten, 2011). These skills are critical for success in life, and intervention programs to improve these skills with children from low-income families show promising effects (Diamond, Barnett, Thomas, & Munro, 2007). One such program was the "Teens and Adults Learning to Communicate" (TALC), a coping intervention for adolescents living with HIV-positive mothers developed in the USA by Rotheram-Borus, Lee, Lin, and Lester (2004). During a six-year follow-up, adolescents 11- to 18-years-old assigned to the TALC intervention reported significantly lower levels of emotional distress, conduct problems, and family-related stressors and higher levels of self-esteem than did control group children. This intervention program has also demonstrated promising effects in resource-limited regions (Fawzi et al., 2012).

### *Religion and spirituality*

Faith has been recognized as an important internal strength through almost the entire human history (Skovdal & Daniel, 2012). Religion can be understood as a child's faith or inner belief system. The belief system may guide children in various aspects of life. By offering ways in which children can make sense of their pain and suffering, they may construct a strong internal locus of control. Meanwhile, spiritual teachings, such as compassion and forgiving, advocate



resilience itself by allowing children to view adversity as an opportunity for personal growth and development (Pienaar, Swanepoel, van Rensburg, & Heunis, 2011). Religiosity and optimism have been found to be associated with positive perspectives when addressing traumatic memories of childhood sexual abuse in a sample of HIV-positive men (Tarakeshwar, Hansen, Kochman, Fox, & Sikkema, 2006). Children's appraisal or spiritual interpretation of the stressful events is important in predicting children's psychological outcome. Children who perceive negative events to be less threatening and feel more confident or have more control in coping with life stressors are more resilient to the loss of a parent (Lin et al., 2004).

### *Personality*

Some of children's personality traits are viewed as potential sources of resilience. The pioneering study of Werner (1993) indicated that temperaments such as being active, energetic, and/or easy-going allow children to more effectively engage with others and elicit more positive resources from caregivers and outside family. Children with such dispositions display more tolerance to frustration, impulse control, autonomy, and sociability. Resilience has also been found to be associated with higher scores on personality measures such as emotional stability, extroversion, agreeableness, openness, and conscientiousness (Friborg, Barlaug, Martinussen, Rosenvinge, & Hjemdal, 2005; Shiner & Masten, 2012). A few qualitative studies have suggested that some children who lost parents to AIDS experienced personal growth, emotional maturity, and sense of independence (Murphy, Roberts, & Herbeck, 2013). These findings are consistent with the phenomenon of post-traumatic growth, which refers to awareness of new possibilities, appreciation of life, and spiritual change (Little, Akin-Little, & Somerville, 2011). In a qualitative examination of long-term effects of parental cancer in childhood through retrospective interviews with adults, about 44% of participants spontaneously reported post-traumatic growth (Wong, Cavanaugh, MacLeamy, Sojourner-Nelson, & Koopman, 2009). Our recent work also support that children with resilience traits, the ability to adapt flexibly, persistently and resourcefully to stressful situations, may perceive less stigmatization and predict children's health-related biology (Chi et al., 2015). It is notable that personality traits are also context dependent. For example, a child growing up in a resilience-promoting environment is much more likely to be open, easy-going, and appreciative of life. Therefore, personality is an interactive rather than an innate trait.

### *Family resources facilitate resilience*

Family is one of the important contexts in which children accomplish their developmental tasks. As discussed by Masten (2011), the central importance of the family relationship for resilience has been corroborated by every review of the literature since the earliest days of resilience research. A stable and caring family context can provide children with emotional security, physical defense, and access to resources. Effective parenting and monitoring can protect children from the negative impact of risk environments. HIV infection in a family can disrupt or strain the family resources, such as parenting quality and economic stability. The resources available thus plays a major role to determine to what scope the children can be supported (Sherr et al., 2014). The global literature has highlighted the following four important family resources in the context of parental HIV (Betancourt et al., 2013; Hong et al., 2014).

### *Smooth transition*

The child bereavement literature suggests that bereaved children require a sense of continuity of family to cope with the disruption in the family system caused by parental death (Worden, 1996).

A smooth transition in care arrangement can provide children the sense of continuity. Care arrangement decisions prior to parental death, living with a close relative, moving to a family with better socioeconomic status, limited residential displacement and changes of caregiver, and living together with their siblings have all been demonstrated to stimulate resilience of children affected by HIV (Bhargava, 2005; Gong et al., 2009; Zhao et al., 2011).

### *Functional caregiving*

The functioning of family members, particularly the adaptive responses and behaviors of the current caregivers, may exert an influence on children's resilience. Caregivers may serve as a model of adaptive coping for their children, thereby influencing a child's interpretation of parental illness and death. Bereavement is a painful but natural and probably universal human experience. The healthy coping of the surviving parent and family members, such as positive meaning construction of the death, can teach the child to understand death and facilitate post-traumatic growth (Worden, 1996). In addition, the level of psychological functioning of the caregivers is important for child resilience. A longitudinal study in the USA among HIV-positive parents has suggested that it is the parental distress over their own symptoms, rather than the actual severity of parental HIV illness, that predicted increased somatic symptoms among their children (Lester, Stein, & Bursch, 2003). If the caregivers are optimistic, calm and easy with their health and functioning, and have timely access and a high level of adherence to necessary antiretroviral therapy, they may be more capable to take the responsibility of caregiving, more likely to exhibit better parenting skills such as better parent-child communication and consistent and effective parenting discipline (Betancourt et al., 2011; Murphy, Marelich, Armistead, Herbeck, & Payne, 2010).

### *Attachment with current caregivers*

Attachment, as a powerful biological and social system, was defined by Bowlby (1969) as the bonds between a caregiver and a child. The connection with a trusting caregiver can help children adapt to the adversities. Research based on attachment theory has provided strong and consistent evidence that children with secured attachment have an advantage on the language development, academic achievement, and psychosocial functioning (Thompson, 2008). When the primary caregiver of a child is lost, it is critical that someone else takes on the protecting roles of the primary attachment figure (Masten, 2011). HIV-affected children's resilience is more likely to occur when an adult reliably satisfies the child's physical and emotional needs (Worden, 1996). According to a study in rural China, a trusting relationship with the current caregiver is the most proximal protective factor for children affected by HIV (Wang et al., 2012). Rotheram-Borus, Stein, and Lester (2006) also reported that positive parental bonds reduced children's emotional distress three years later and increased children's positive future expectation six years later in an US urban sample.

### *Parenting discipline*

The ability of the primary caregiver to provide effective parenting is crucial to a child's adjustment to parental illness and death. After the death of a parent, the surviving parent's provision of warmth as well as discipline is significantly related to child resilience, especially for teenagers in high-risk environments (Lin et al., 2004). In an earlier qualitative study among children affected by parental HIV and drug abuse in New York city, children can "recover sufficiently to perform in school and resurrect lives infused with some pleasure and hope for future" in a loving family environment and with responsible and skillful caregivers (Pivnick & Villegas, 2000). Similarly, Dutra et al. (2000) suggested the importance of parenting in promoting

resilience of children affected by maternal HIV in the inner-city of New Orleans. A positive parent–child relationship, characterized by positive communications, mutual understanding, and reliable support, provided resources that enable a child to adapt well in the face of the stigmatizing maternal illness. They also found that a positive parent–child relationship promoted children’s resilience only within the context of high levels of parental monitoring (Dutra et al., 2000). As the authors discussed, in a high-risk neighborhood, parental monitoring is as important as parental support because it can set responsible restrictions which can limit the children to exposure to high-risk environments. Therefore, if a surviving parent or other primary caregiver is actively involved in effective parenting, their children may have more opportunities to be resilient against the parental loss.

### *Community resources facilitate resilience*

At the societal and community level, factors promoting child resilience included social support from peers, teachers, mentors and other community members; effective school; and supportive community (e.g. government policies, programs, and grants). The disastrous effects of parental illness and death often weakened the support to children affected by HIV from other family members. Thus, the supportive relationships with teachers, peers, and other non-family mentors might be critical for children’s resilience. A supportive and competent community can create a caring and enabling environment for child development (Chi & Li, 2013).

### *Teacher support*

Children affected by HIV may view teachers as resources from whom they can seek support (Ebersöhn & Ferreira, 2011). Teachers in the HIV-pandemic area inevitably confront HIV-related vulnerabilities among their students. Teachers may work with HIV-affected children in classrooms and on playgrounds, respond to grieving children who have lost their parents, and know children who take care of ailing parents. Teachers may meet caregivers and discuss not only the academic issues but also the parenting outside school. Sometimes, teachers themselves are infected with HIV or have lost loved ones to HIV. The routine and frequent teacher–student interactions in school allow teachers to provide social support for the orphaned or vulnerable children (Du et al., 2014). A few school-based interventions designed to empower teachers in high HIV-pandemic regions have demonstrated some promising effects (Ferreira & Ebersöhn, 2011; Wolmer, Hamiel, Barchas, Slone, & Laor, 2011; Wood, Ntaote, & Theron, 2012).

### *Peer support*

Peer relationship exerts an enormous influence on the lives of school-aged children. Sullivan (1953) argued that there was a dramatic increase in the psychological importance and intimacy of close friends during early adolescence. Friendship can fulfill a number of basic needs such as companionship, social acceptance, and intimacy, which are crucial for a child’s emotional well-being and sense of self-worth. In terms of developmental stages, adolescents, compared to younger children, depend more on friends than on parents to satisfy these psychosocial needs (Santrock, 2004). For HIV-affected children, studies have shown that a positive peer relationship can foster positive feelings of self through friendship and contribute to their psychological adjustment (Cluver & Orkin, 2009; Du et al., 2014). Through sharing experiences with others in similar situations and disclosure of mutual fears and insecurities, children can gain the sense of their “normality” and feel supported. A school-based peer-group intervention has significantly improved

the psychological well-being of AIDS-orphaned children in Uganda (Kumakech, Cantor-Graae, Maling, & Bajunirwe, 2009).

### *Other mentors*

Children affected by HIV are likely to experience strained parental caring and guidance. Other mentors such as local elders, formal and informal community leaders, neighbors, and extended family members may exert influences on children as surrogate-parents. Onuoha and Munakata (2010) found that AIDS-orphaned children in Uganda having such a natural mentor showed significantly decreased psychological distress compared to those without such a mentor. Non-family mentors are different from primary caregivers. In the relationship with non-family mentors, children might obtain or perceive assistance, guidance, modeling, and psychosocial support. In resource-limited settings of Zimbabwe and Kenya, protective factors included connectedness to a caring adult outside the family and a sense of community inclusion (Gilborn et al., 2006; Hutchinson & Thurman, 2009).

### *Effective school*

Effective schools have been commonly identified as being protective for high-risk children (Masten, 2011). Because school is charged with educational goals that enhance human development, it plays an important role in fostering the fundamentally protective internal assets such as self-regulation, intelligence, and self-efficacy. Health-promoting schools involve the family and community, provide safe and supportive physical and social environment, build good school-community relationships, provide HIV specific education and prevention, and increase access to health services. Considering stigma and discrimination associated with HIV, effective schools can provide caring spaces in which orphaned and vulnerable children may feel safe and have a sense of belonging (Ebersöhn & Ferreira, 2011). In addition, schooling gives children the hopes for their future and the resources to achieve their social goals (Betancourt et al., 2013).

### *Supportive community*

The living systems of children also include the neighborhood or other segments of the community where their families are located. It has been acknowledged internationally that a comprehensive approach to care for children affected by HIV must include a focus on strengthening the community (Cowan et al., 2008; Wu & Li, 2013). The sense of safety and stability of the local community is important for children during parental illness and after parental death. Research has shown that financial stability and community resources improve outcomes of grieving families (Pivnick & Villegas, 2000; Ssewamala, Han, & Neilands, 2009). In recent years, programs to assist children, families, and communities have proliferated through the areas affected by HIV as governments, international donors, NGOs, and community-based organizations have responded to the effect of HIV (Baptiste et al., 2005; Mueller, Alie, Jonas, Brown, & Sherr, 2011; Ssewamala et al., 2009).

## **Implications for research and intervention**

The application of a resilience process conceptual framework provides an alternative to a “deficit” paradigm of intervention and shifts our conceptualization from pathology to strength. The focus of most existing intervention research among children affected by HIV has been primarily to determine and intervene on risk factors with which children need to cope in life (Betancourt et al., 2013; Ungar et al., 2013). With the guidance of resilience theory, we focus on the strengths,

competencies, and capacities in children, families, and communities. Future intervention and policy-making efforts need to identify and develop strategies to enhance the strengths of children affected by HIV and their socio-ecological systems.

Application of our proposed framework requires clear conceptual operationalization of child outcomes, adversity, and protective mechanisms. Future research using a prospective longitudinal design will be needed to test potential pathways of resilience process. The multidimensional nature of resilience may require researchers to examine specific domains of resilience, such as educational resilience, emotional resilience, and behavioral resilience in future studies (Luthar et al., 2000). Developmentally appropriate tasks must be considered in operationalizing “psychological adjustment” for children of various ages or development stages. For example, for school-age children, academic success and positive relationship with peers and adults would be appropriate indicators of resilience (Masten, 2011). It is of great importance to identify the interactive process between internal assets and external resources that potentially buffer the negative effect of parental HIV on children’s psychosocial well-being and promote resilience.

Future research may employ both the person-focused and variable-oriented analytic approaches to identify amenable factors that can promote psychological resilience among children affected by HIV. Person-focused approaches (Bonanno, 2004) differentiate resilient and non-resilient children and compare the differences of internal assets and external resources between two groups of children. Person-focused approaches emphasize the group differences in the response to adversities. Individuals can be clustered into groups of specific developmental trajectories. In this approach, researchers need to be aware that the effect of parental HIV may vary as a function of the changes of children’s internal assets and external resources that occur over time following the parental illness or death. Researchers may also want to use variable-oriented approaches to test the associations among the variables of interest and reveal the specific factors and process that may help to predict better outcomes among children. Recent advances in multivariate statistics (e.g. latent growth curve modeling and growth mixture modeling) have made it possible to identify the longitudinal patterns of resilience (Bonanno, 2004) and to test hypotheses about potential contributors to resilience and underlying mechanism (Masten, 2011).

Rigorous intervention and evaluation design is needed in the field. Only a few known randomized controlled trials have been conducted to promote the well-being of children affected by HIV (Eloff et al., 2014; Keypour, Arman, & Maracy, 2011; Kulkarni, Kennedy, & Lewis, 2010; Kumakech et al., 2009; Li, Liang, Ji, Wu, & Xiao, 2014; Mueller et al., 2011; Murphy, Marelich, Graham, & Payne, 2015; Rotheram-Borus et al., 2006; Ssewamala et al., 2009). These studies were mainly conducted in the USA, China, or African countries. Most of the interventions adopted family-based intervention, which provide parallel or joint sessions for both children and their infected caregivers. Group intervention is the most common format applied by the available intervention studies. Most of interventions for children focused on coping skills training, self-advocacy, and economic empowerment. Interventions at family level included positive parenting and self-care. Joint sessions focused on parent–child communication, parental monitoring, and mutual support. Economic empowerment (Swendeman, Rotheram-Borus, Comulada, Weiss, & Ramos, 2006), peer psychosocial support (Kumakech et al., 2009), and teacher’s support (Ebersöhn & Ferreira, 2011) were only tapped by very few studies. To our best knowledge, there is no interventions study at structural or policy levels. Many more programs were designed to improve the psychosocial well-being of such children, but there were some important methodological limitations. These limitations include lack of rigorous design (e.g. no randomization or no valid comparison group), relatively small sample size (e.g. in the 200’s or fewer), a focus on a single system of child’s life (e.g. school), relatively short follow-up (e.g. less than one year), and limited data on implementation fidelity (King, De Silva, Stein, & Patel, 2009). In addition, many studies also focused on older children, yet parental HIV may disproportionately affect young children in low- and

middle-income countries (Engle et al., 2011). Resilience-focused intervention program should be designed to be responsive to the characteristics of children in different developmental stages. To target different components of social ecological systems, multilevel intervention could also be employed, such as child intervention, family-level intervention, school-level intervention, community-level intervention, or some combinations of these approaches.

Child interventions might focus on the nurturing of coping skills (cognitive skills, emotional skills, communication skills, and problem-solving skills), the strengthening of the internal assets (self-esteem, tenacity, positive future orientation, academic competence, and optimism), and increasing the awareness of the existence of external resources and support. Family-level interventions may focus on the effective parenting, including parent–child relationship, safe and engaging environment, assertive discipline, realistic expectations, and parental self-care. Good planning for smooth transitions and cognitive support may be important. School-level interventions may focus on the capacity-building of both individual teachers and entire school system and improvement of school environment, such as mobilizing the resource, capacity, and assets available in school communities, and bridging the resources in communities to support children and caregivers in need. The primary goals of community interventions should be creating a comprehensive supportive and enabling environment in the community for the children and their caregivers, identifying the resources and strengths in the community as well as in the government, non-governmental organizations, and business sectors that can support children and their families, establishing a local support network among children and their caregivers, and raising community awareness of the needs of children and their families in order to increase social support and decrease stigma.

Our conceptual framework also has some limitations. First, the framework may not be generalized to children living with HIV, which is a group facing substantially different adversities and requiring different resources. Second, the framework is very comprehensive and difficult to be tested as whole model. However, researchers could select the concepts and pathways that are important and relevant to their research question to investigate. Third, we suggest that future studies should clearly operationalize their study variables in the resilience process and outcome. But, it is challenging to find appropriate resilience measures with strong psychometric properties and being developmentally and culturally appropriate in the HIV context.

Despite these limitations, this conceptual framework makes important advances in the shift from pathological perspective to resilience and strengths perspective in research and prevention intervention science among children affected by parental HIV. The unique concepts in the HIV context (e.g. smooth transition, effective school, and supportive community) broaden the current individual and family-centered views of resilience process in child development literature. It also provides some insights and major components to design prevention and intervention programs for children affected by HIV.

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