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RESILIENCE AS A MEDIATOR BETWEEN SOCIAL SUPPORT AND MENTAL HEALTH AMONG CHILDREN AFFECTED BY HIV/AIDS IN CHINA

by

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THESIS

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of Wayne State University,

Detroit, Michigan

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Approved By:

_____

Advisor Date

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Chapter 1

Introduction

Since the first case was reported in in 1981, HIV/AIDS became the most serious health issue across the world (Abdu, 2015). According to the World Health Organization (WHO), there were about 36.9 million people worldwide living with HIV/AIDS at the end of 2014, of which 2.6 million were children. It is also estimated that at least 34 million people have died from AIDS so far, including 1.2 million in 2014. Even today, although the prevention and treatment of HIV/AIDS is greatly advanced, many people living with or being affected by HIV find timely or effective prevention, care, and treatment inaccessible (Abdu, 2015).

By the end of 2014, it was reported that approximately 501,000 people living with HIV/AIDS (296,000 people who are living with HIV and 205,000 AIDS patients) and about 159,000 deaths were reported around mainland China (China Ministry of Health, 2014). There are four major characteristics of the AIDS epidemic in mainland China: (1) Although the national epidemic remains at a relatively low-prevalence level, it is more highly prevalent in some groups and areas than others; (2) The total number of people living with HIV/AIDS is increasing yearly, with HIV/AIDS being unevenly distributed among different groups; (3) The total number of AIDS patients has been rising rapidly, along with deaths caused by HIV/AIDS; and (4) Sexual transmission is still the fundamental or primary route of transmission with male-to-male spread increasing dramatically (China Ministry of Health,2014).

Henan province, located in central eastern China, is one of the worst affected provinces in terms of HIV/AIDS (Li, 2010). This crisis was mainly caused by the unsanitary commercial

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plasma donation in the rural area of Henan province from 1990 to 1994. During that period, the provincial health council determined to establish blood collection networks among impoverished rural communities or villages, and villagers were encouraged to sell their blood to supplement their income. In order to avoid the Anemia symptom among donors, most plasma with the red blood cells removed was pumped back into their veins again. Frequently repeated usage of tubing from donors during collection and the subsequent re-infusion of mixed red blood cells, led to the rapid spread of the HIV virus among thousands of donors in these areas. According to official estimation from the Population Reference Bureau, the total number of HIV/AIDS patients was at least 35,000 in the Henan province.

HIV infection impacts not only the patients but also their children. Children affected by HIV/AIDS include two categories: children who have lost at least one of their parents to HIV-related illness, or children who are living with one or both HIV infected parents (Li, X., 2009). According to the UNICEF Data, approximately 20.2 million children were living with HIV worldwide in 2014. The plight of children affected by HIV/AIDS increasingly received attention from mass media, scholars, government, nongovernmental organizations and service providers (Chi, 2013). These children may be challenged by the premature role of caring for their sick or deceased parents, or shouldering their adult duties in the family. In addition, it was shown they might suffer from different sources of stressors including, economic difficulties, inadequate medical treatment, disrupted schooling, family displacement, sibling dispersion, stigma, and social isolation (Nampanya-Serpell, 2000; Stein, 2014).

Researchers tend to agree parental HIV/AIDS stressors could erode or undermine

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children's mental health (Chi, 2013; Cluver, 2007). Mental health is a definition based on the description of a wide variety of patterns of adaptation to the biological, psychological, and social challenges of adolescence (Powers, 1989). In terms of children affected by HIV/AIDS, mental health is ''a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community (Chi, 2013).

In order to understand how and to what extent parental HIV/AIDS affects mental health of children, many empirical studies were conducted to explore the mental health issues and grief reactions of children affected by HIV/AIDS. Investigations in Africa revealed that children affected by HIV/AIDS were experiencing more internalizing problems, such as depression and anxiety, than externalizing problems. However, It was reported in other studies more externalizing problems, lower social competence, and lower sense of control among children affected by HIV/AIDS in comparison with the children from HIV-free families (Chi, 2013). In China, a consistent finding in empirical studies concerning HIV/AIDS was children whose parents were infected with or died of HIV/AIDS, suffered from psychological problems including depression, anxiety, anger, and posttraumatic stress symptoms (Li, 2009; Wang, 2012).

In order to implement early prevention or better manage risks caused by HIV, the protective resources for mediating the impact of HIV/AIDS on children and communities have been explored intensively. It was suggested based on previous studies on the protective factors among people living with HIV/AIDS that social support and resilience could play as a buffer to

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a life-threatening illness, such as AIDS, and may aid in mental health. For instance, Li (2009) found the social support was negatively associated with depression and stigma among people living with HIV/AIDS in Thailand. Murphy (2008) found resilient children had lower levels of depressive symptoms and higher levels of satisfaction with coping self-efficacy. Similar findings were reached in other studies in China where social support and psychological resilience played as protective resources on the mental health of people living with HIV/AIDS.

Although the importance of social support and resiliene in mental health was well examined by researches and clinicians, very few studies have investigated the mechanisms of how social support impacts people mental health. Clinical studies have shown that low social support could enhace the stress reacitivity and reduce the individual resilience (Stansfeld, 1997). It was also shown in study on Alzheimer's caregivers that the social support played as the protective force of resilience, and could enhance health by directly and positively influencing resilience and/or buffering deleterious effects of stress (risk) on resilience (Wilks, 2008).

Purpose of the Study

Therefore, the current study aimed to reach two purposes: The first one was to examine the internal factor structure of the modified CD-RISC scale by using the exploratory factor analysis. The second one was to test whether resilience could mediate the relationship between social support and mental health of children affected by HIV/AIDS.

Significance of the Study

The 25-item CD-RISC has been widely used in general adult populations as well as among

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clinical patients with PTSD or clinical patients who have attempted suicide. Most studies revealed a 3 or 5 factor-structure, with good internal consistency and acceptable concurrent validity. However, the psychometric properties of this instrument must be updated, given that little revisions have been made and administrated to a new population.

Previous research of social support and resilience mainly resulted from people living without HIV/AIDS in western countries. Since different sociocultural contexts and health conditions could influence how people cope with stress and what social support they could receive, the results and implications found in western countries may not be applicaple in other regions. Thus, it is necessary to analyze the mechanism of social support on mental health among children affected by HIV/AIDS in rural China.

Assumptions

The first assumption was that perceived social support reported by children affected by HIV/AIDS was positively correlated with self-esteem and negatively correlated with loneliness; the second assumption was that the resilience fully mediated the impact of perceived social support on children'mental health.

Limitations

The sample of current study is only limited to two rural counties in central China, where parental HIV/AIDS were caused by unhygienic blood collection. The second limitation is the indicators of mental health just include self-esteem and loneliness.

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Chapter 2

Literature Review

Social Support and Mental Health

Social support could be defined according to different perspectives. Albrecht & Adelman (1987) proposed three key features of social support, which include "communication, uncertainty reduction and enhanced control" (p. 10). Thus, social support is defined as any communication aimed to diminish people's feeling of uncertainty towards a situation, and that enhances people's sense of control over their environment. For example, knowing that a patient is very nervous or afraid of a blood test, a nurse provides detailed information about how much blood will be drawn and what preparation the patient needs to do before doing this test. This communication could be regarded as a social support provided by the nurse to the patients, because it helps to relieve the uncertainty that the patient has to the blood test, and increases the feeling of control over the test.However, this kind of definition approach is somehow limited, since it emphasizes that the support must reduce the feeling of uncertainty. This might rule out other supportive communication without necessarily reducing the uncertainty feeling.

The National Cancer Institution defined social support as "a network of family, friends, neighbors, and community members that is available in times of need to give psychological, physical, and financial help" (http://www.cancer.gov/).This definition not only punctuates the network of people available for providing support but also delineates what type of assistance this network could supply. One striking advantage of this definition is the

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clarification of multiple types of support provided.

Dissimilar to former definitions, However, Shumaker (1984) defined it as "an exchange of resources between at least two individuals perceived by the provider or recipient to be intended to enhance the wellbeing of the recipient" (p. 13). This definition emphasizes social support as an exchange or reciprocal process, involving at least two individuals (providers and recipient). Furthermore, the effects of social support could be negative, positive, and neutral, based on the potential costs and benefits relative to both of the participants. According to Shumaker (1984), there are two potential limitations for this definitional model. (1) Individuals' desire or motivation to seek or receive assistance when offered may decline if they feel that they will be unable to return a benefit, and (2) if reciprocity is prohibited, then the mutual relationship may become weaker between supporters and recipients.

Although all the previous definitions stated different characteristics of social support, none of them integrate all the necessary aspects considered as the construct of social support. Extracting the main components from the above definitions, social support may be defined as exchanging a communicative process between providers and recipients, either in verbal or nonverbal approach, which aims to enhance an individual's sense of control, feeling of coping, competence, belonging and self-esteem.

It is also necessary to distinguish between received social support and perceived social support. Received support refers to the actually occurring helping behaviors that are being provided, whereas perceived support refers to the belief that such helping behaviors would be provided when needed (Norris, 1996). In other words, received support refers to the specific

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supportive behavior that did happen, and perceived social support is the supporting behavior that might help. In addition to their content difference, it is also very worth noting that the ways in which perceived and received social support affect mental health may be different. It was found in related studies that only perceived support has been shown to be consistently linked to mental health across patients with different chronic diseases (Serovich, 2001; McDowell, 2007).

The role played by perceived social support on mental health has been well examined in the literature and many studies have suggested that perceived social support could buffer stress and improve individual mental health. In a study on bullying, Rigby (2000) found frequent peer victimization and low social support contributed significantly and independently to relatively poor mental health among 845 adolescent schoolchildren attending coeducational secondary schools in South Australia. It was found in a clinical study by Coker (2002) that abused women with higher social support were associated with a significantly reduced risk of poor perceived mental health such as depression, anxiety, suicidal ideation and actions. Among AIDS patients and people affected by HIV/AIDS, many studies have confirmed the association between perceived social support and mental health outcomes, revealing a consistent buffering function played by social support.

Resilience and Mental Health

The term resilience stems from the Latin verb resilire, meaning "able to withstand or recover quickly from difficult situations" (Oxford Dictionary of English, p. 1498). Across the decades, a plethora of definitions for resilience have been given in the psychology research.

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For example, it has been defined in relation to success in academic achievement; positive behavioral adjustment; enhanced cognitive functioning; or the absence of psychopathology (Harvey, 2004). Despite the variations in the definition of resilience, most resilience studies agree with the assumption that most people cannot avoid suffering from adversity and stressors, and there are many factors impacting how people perceive and cope with these negative experiences. In other words, when faced with ongoing stressors or negative disruptions, whether individuals could be resilient is determined by the interplay of factors beneficial or inimical to their wellbeing (Harvey, 2004).

Nature versus nurture is another issue related to resilience research. A consensus gained from earlier adult studies was that a portion of young people appeared to be invulnerable to life adversity, and seemed capable of sustaining normal development no matter what their circumstances. Thus some researchers proposed that resilience was largely determined by innate factors, and was therefore relatively unaffected by development or by interactions with the environment (Harvey, 2004). When resilience has been considered as a personal quality or trait, it represents a collection of characteristics that enable individuals to bounce back or recover from adversity. This notion was first mentioned by Block and Block (1980) as the term "ego-resilience" (p. 18) to depict a set of traits reflecting general resourcefulness, strength of character, and flexibility of function in response to varying environmental demands. According to their study, individuals with high ego resilience tended to show high a level of energy, curiosity, and the ability to detach and conceptualize problems (Block & Block, 1980). These characteristics have been referred to as protective factors, which were defined as influences

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that modify, ameliorate, or alter a person's response to some environmental hazard that predisposes them to a maladaptive outcome (Rutter, 1985). The main point is resilience is a relatively stable set of personal traits and is immune to the influence of exterior stressors.

With the further investigation of resilience, the emphasis moved from away from identifying the potential factors associated with resilience to understanding its underlying mechanisms. In this context, resilience was defined by Luthar (2000) as a dynamic process encompassing positive adaptation within the context of significant adversity. For example, Dishion (2006) investigated 999 adolescents aged between eleven and nineteen using the attention network task, Child Behavior Questionnaire and Composite International Diagnostic Interview. Based on the findings, it was suggested resilience in adolescence could indeed be studied as a process by using measurement and statistical techniques that emphasize continuous distributions.

Hegney (2007) aimed to identify vulnerable as well as resilient elements in individuals and the community in rural Australia recognized that not all members of the community were resilient, and clearly there were more and less resilient groups within this community. It was acknowledged based on the findings that resilience is not a steady state within an individual, and an individual's level of resilience could vary over their life time.

In contrast to the confusion around its definition (trait versus process), the studies on the relationship between resilience and mental health across different populations have reached an almost perfectly consistent conclusion. Resilience works as a protective or defense mechanism which directly and indirectly modifies the individual's response towards adaptive outcomes

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under stressful or risk situations, and buffers the negative effects of adverse events and conditions on both mental and physical health. For example, Schure (2013) studied the physical and mental health issues among older American Indians aged over 55 years in the rural Southeast. Information was gathered on functional ability, mental and physical health, personal assistance needs, health care use, and psychosocial resources through interviewer-administered surveys, and the age-stratified random sample method was applied to enroll all the participants.

Min (2013) investigated the emotional distress among one hundred fifty-two cancer patients who were consecutively hospitalized for their scheduled treatments at a hospital, and found that psychological resilience levels were negatively associated with emotional distress after controlling for relevant covariates. Murphy (2008) investigated resilience among children six to eleven years of age (N=111) whose mothers are living with AIDS or are HIV symptomatic. It was suggested form their findings that resilient children had lower levels of depressive symptoms, and resilient children also reported higher levels of satisfaction with coping self-efficacy.

Social Support, Resilience and Mental Health

Although it was suggested in previous studies that social support act as key resources or mechanisms to buffer the influence of negative or traumatic events on people's mental health such as loneliness, depression and self-esteem, few studies have been conducted to explain the mechanisms of how social support impacts people mental health. Clinical studies have indicated that low social support led to physiological and neuroendocrine indices of heightened

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stress reactivity, including increased heart rate and blood pressure. It therefore reduces individual resilience by exaggerating cardiovascular and neuroendocrine responses to external stressors (Stansfeld, 1997). The further aging studies indicated that high social support can enhance resilience to stress among older adults (Lamond, 2008).

With accumulated evidence pointing to the interrelationships of social support and resilience, some researchers argued that social support buffers or mitigate the risk for developing mental illness via enhancing individual resilience. Pietrzak (2010) examined the associations between resilience, unit support, post-deployment social support, traumatic stress and depressive symptoms, and psychosocial functioning among OEF/OIF veterans. They suggested that resilience fully mediated the association between unit support and PTSD and depressive symptoms.

Mo (2014) examined the relationship between social support, resilience, posttraumatic growth (PTG), hopelessness, and depression among 195 children of HIV-infected parents in mainland China. The results showed that the resilience mediated the influence of social support on the hopefulness, which indirectly impacted on the depression symptom. Taken together, the above evidences implied that resilience may act as a mediator between social support and psychological wellbeing.

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Chapter 3

Methodology

This thesis contains two separate studies. The goal of the first study is to explore the factor structure of CD-RISC scale among children affected by HIV/AIDS. The second study is designed to investigate the mediation effect of resilience on the relationship between social support and mental health.

Research Design

Study Site and Participants

The data were embedded in a larger study, which was collected in 2006-2007 in two rural counties in Henan, an agricultural province in central China with a population of 97 million, where a large number of residents were infected HIV due to unhygienic blood collection in the late 1980s and early 1990s. Although the accuracy of data was unknown, both counties were generally believed to be most affected by HIV/AIDS in central China (Agence France Presse, 2004). Both counties had similar demographic and economic profiles because of the title "national poverty county" designed by central government. Village-level HIV surveillance data from both counties' anti epidemic stations were colllected to identify the villages with the highest proportion of HIV infected people or related deaths.

The participants included 144 AIDS orphans who lost one or both parents due to HIV infection and 446 vulnerable children (i.e., those who are living with HIV-infected parents). Children who were 6 to17 and living in family or extended family settings were eligible to

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participant in this study. Age eligibility was verified through the local community leaders, school records, or caregivers. Children with HIV infection were eligible to participate, although the number of such children was estimated to be very small and no HIV-test was conducted in the current study (Hong, 2010).

Survey Procedure

Each participant completed a confidential assessment inventory including detailed demographic information and several psychological scales in Chinese. For children who were too young or with limited literacy, interviewers coming from psychology department in local university read the questions to them. They provided oral responses to interviewers who recorded the responses timely in the survey instrument. During the survey, prompt instruction or clarification were provided by the interviewers when needed. The assessment procedure lasted about 75-90 minutes, depending on how old was the child. Younger children less than 8 years old were allowed a 10-15 minutes break after every 30 minutes of assessment. Each child was given a gift as a token of appreciation after competing the assessment.

Instruments

Instruments were translated into Chinese by the team investigators proficient in both Chinese and English. To make sure these translations were culturally and developmentally suitable for these children, all the Chinese translations were reviewed by the investigators in Henan Province, China. Based on the feedback of the Chinese team members, the Chinese version of scales were finalized and then separately translated back into English to assess whether there were some items of which meaning had been changed or lost in the translation

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process. Items found to have changed in meaning were then adjusted until they could match the research team's intentions. The scales were pilot-tested before the field data collection in order to examine the reactions and understanding of Chinese children. The results of pilot testing indicated well understanding among Chinese Children.

Demographic Characteristics

Children were asked to provide information on gender, age, orphan status and parents' education (either orphaned by AIDS or children living with HIV infected parents). They were also asked to report how many siblings they had at home and their perceived health about status which includes four levels (very good, good, fair, and poor).

Perceived Social Support

The perceived social support was measured by using an existing scale which had been validated among children affected by HIV in China (Hong, 2010). This scale extended the former Multi-dimensional Scale of Perceived Social Support by adding a parallel support subscale of teachers using same number of responses as the other three subscales. It consists of 16 items measuring the perceived social support from 4 sources (friends, family, teachers, or significant others) with response option ranging from 1 = "Very strongly disagree'' to 5 = ''strongly agree''. The sample questions include "My friends really try to help me", "I can talk about my problems with my friends", "I need from my family", "my family is willing to help me make decision", "there is a special person who is around when I am in need", "There is a special person who cares about my feelings". The Cronbach alphas for the four subscales were 0.66, 0.64, 0.75 and 0.67 respectively.

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Resilience

In order to measure the resilience of children affected by HIV, the modified version of Connor and Davidson's Resilience Scale (CD-RISC) whose reliability and validity have been well proved among Chinese participants (Yu, 2007). The original scale consisted of 25 items with alpha value of 0.89 among American participants. Its factor structure for Chinese participants was first investigated by Yu (2007) who applied confirmatory and exploratory factor analysis among people from Guangdong province. Inconsistent with 5-factor structure obtained among American participants, Yu's (2007) study resulted in a 3-factor structure (Tenacity, Strength and Optimism). The Cronbach alpha value was 0.91 and it was correlated with measure of self-esteem, life satisfaction and NEO Five-Factor Inventory (NEO-EFI), which indicated a high validity.

Items such as "have to act on a hunch", "things happen for a reason" and "sometimes fate and God can help" were removed from the original 25 items because student had some difficulty to understand them. After the removal, the scale was reduced to 22 items. All responses were ranged from 1 (disagree) to 4(agree a lot).

Responses to the 22 items were first subjected to the exploratory factor analysis. The principal component with varimax rotation was performed to explore the factorial structure of CD-RISC with children affected by HIV/AIDS in China. Different models (2-, 3-, 4-factor solutions) were explored and compared in turn, and the 2- and 4-factor solutions were removed for dual and unclear loading. The 3-factor solution seemed to be most proper structure. The obtained Cronbach alphas were 0.85, 0.79 and 0.78 respectively.

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Mental Health

Two scales were employed to measure children's mental health: The self-esteem scale (Rosenberg, 1965) and the Children's Loneliness Scale. The self-esteem Scale was first designed by Rosenberg (1965) to measure people's global feelings of self-worth or self-acceptance. It later became the most widely used measurement in psychology and was translated into different language all over the word. The Self-Esteem Scale with a 4-point response option ranging from 1 = "strongly disagree" to 4 = "strongly agree" was introduced into China more than a decade ago (Wang, 1993). Sample items include "I feel that I'm a person of worth", "I take a positive attitude toward myself" and "On the whole, I am satisfied with myself". The mean score of all the items was measured to obtain the scoring of the scale (items reversed when appropriate) with higher scores reflecting high level of self-esteem. The Cronbach's alpha of the current study sample was 0.61.

The Children's Loneliness Scale was employed to assess the perceived loneliness among Children affected by HIV. The 24-item questionnaire was first developed by Asher (1984) to assess children's feelings of loneliness and social dissatisfaction. According to Asher (1984), the scale consists of 16 items aimed to assess the feelings of loneliness (e.g., "I' am lonely"), feelings of social adequacy versus inadequacy (e.g., "I'm good at working with other children"), or subjective estimations of peer status (e.g., "I have lots of friends") and 8 filter items focusing on hobbies or preferred activities (e.g., "I like to paint and draw", "I watch TV a lot"). The function of filter items was to facilitate the response process by making children feel more open and relaxed. Participants were asked to respond to every item by indicating along a

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five-point scale how much degree each statement was a true of your current feeling. The sample of items included “It’s easy for me to make new friends at school”, “I’m good at working with other children” and “I can find a friend when I need one”. In the current study, the Cronbach’s alpha of the 16 loneliness items was 0.79.

Statistical Analysis

Descriptive statistics were employed using SPSS 22.0 to create a demographic profile including gender, age, type of children, and parental education in the study sample. Inferential statistics, including the Independent sample t test (for continuous measures) or chi-square test (for categorical measures), were applied to explore the differences of sample characteristics between AIDS orphans and vulnerable children.

Responses to the items of resilience were subjected to an explorative factor analysis. The principal components analysis with a varimax rotation method was employed to explore the potential structure of resilience scale with children affected by HIV in China.

A structural equation modeling (SEM) with maximum likelihood estimation was conducted with AMOS 17.0 to assess the mediation effects. SEM evaluates whether the hypothesized mediation model would fit into the data already collected. The process of this analysis involved two steps. First, the confirmatory factor analysis was used in the first step to examine the measurement model indicating the relationship between the latent constructs (variables) and their indicators, where factor loadings determined to what extent the latent variables can be measured by their observed indicators. Second, the structure model hypothesizing the relationships between all the latent variables was set to be examined, where

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the regression analysis was used to determine the associations among latent constructs (variables).

Before the mediation hypothesis was tested, the normality assumption was checked, along with an examination of potential outliers. Cases containing missing values, 1.2% of the data set, were list-wise deleted. Then, zero-order correlations were calculated. SEM was used as a confirmatory factory analysis of the three latent variables perceived social support, resilience and mental health.

According to Baron (1986), two models were used to examine the potential mediation effects. The first model examined whether social support (independent variable) has a direct effect on the mental health (dependent variable). The Second model hypothesizes a reduced significant or nonsignificant link between social support and mental health (i.e., direct effect) and significant associations of resilience with perceived social support as well as mental health (i.e., indirect effect). However, this approach was criticized due to its low power in testing the medicating variable effects or indirect effect. Therefore, it seems necessary to detect the significance of the indirect effect itself. The path coefficient of the indirect effect indicates the changes in mental health for every unite change in social support that is mediated through resilience. A bootstrap approximation with 2000 iterations generated a percentile-based confidence interval. If zero is not in the interval, then one can be confident that the indirect effect is different from zero and that the mediation is present (Schmidt, 2011).

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A series of commonly used indices were employed to evaluate the goodness of fit of the model: (1) the ratio of χ^2 to degrees of freedom (CMIN/DF); (2) Comparative Fit Index (CFI); (3) Goodness of Fit (GFI); (3) Root Mean Square of Approximation (RMSEA). The requirement of the acceptable fit between the hypothetic model and the collected data includes: (1) the value of CMIN/DF is between 1 and 3. A ratio of equal to or less than 1 indicates the hypothetical model is overfitted and a ratio of 2 to 1 or 3 to 1 shows an acceptable hypothetical model (Min, 2004);(2) GFI value is greater than 0.9 which represents a strong fit. GFI represents the degree to which the actual or observed covariance matrix is predicted by the estimated model and its range is from 0.0 (poor fit) to 1.0 (perfect fit) (Hairs, J., 1998). (3)The CFI is equal or greater than 0.9. (4) The RMSEA value is less than 0.08. RMSEA represents the square root of the ratio of the rescaled noncentrality index (i.e., the population discrepancy function) to the model's degrees of freedom, which is relatively insensitive to sample size (Hairs, 1998).

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Chapter 4

Result

Characteristics of Study Sample

Shown in Table 1 are the characteristics of the study sample. The size was N= 590, with 144 AIDS orphans (24.4%) and 446 vulnerable children (75.6%). There were 288 boys (48.8%) and 302 girls (51.2%). The Chi-Square analysis revealed gender distribution across two types of children (Orphan vs. Vulnerable) was very similar, meaning that the number of boys and girls could be treated equal with each type of children ($\chi^2 = 1.95$, df = 1, p = 0.162). The mean age of these children was 10.67 ($\sigma = 2.60$) and the one sample t-test was not statistically signiticant between boys and girls ($\bar{X} = 10.52$, $\sigma = 2.61$ for males; $\bar{X} = 10.82$, $\sigma = 2.59$ for females; t = -1.39, p = 1.64). However, the AIDS orphans was found significantly older than the vulnerable children ($\bar{X} = 11.76$, $\sigma = 2.50$ for AIDS orphans; $\bar{X} = 10.32$, $\sigma = 2.55$ for vulnerable children; t = 5.92, p = 0.00). There were 299 children (38.8%) aged 5-9, 199 children (33.7%) aged 10-12 and 162 children (27.5%) aged 13-17.

The mean number of siblings reported by the children were 1.50. The number of siblings among AIDS children ($\bar{X} = 1.31$, $\sigma = 1.25$) did not statistically significantly differ from that of siblings among Vulnerable children ($\bar{X} = 1.56$, $\sigma = 1.31$; t = 1.93, p = 0.06). The proportion of children that perceived health status as “good”, “fair” and “poor” was similar between AIDS orphans and vulnerable children($\chi^2 = 5.25$, p = 0.072). For both types of children, the ranking from most to least proportion of health status was “good”, “fair” and “poor”. For parents education, children response showed a significantly different distribution

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between mother and father (χ^2 = 12.32, p = 0.006). The proportion of children who responded their mother's occupation as "unknown" was significantly higher than the unknown response to their father (χ^2 = 10.57, p = 0.001). Mother's education and father's education were found to have no significant correlation with the type of children, meaning that vulnerable and AIDS children responded in a similar way to their parents 'education (χ^2 = 1.19, p = 0.95 for father; χ^2 = 5.98, p = 0.309 for mother).

Table1

Individual Characteristic of Participants

	Overall	AIDS Orphans	Vulnerable Children	t or χ^2
N (%)	590(100%)	144(24.4%)	446 (75.6%)	
Boys	288(48.8%)	63(43.7%)	225(50.4%)	
Girls	302(51.2)	81(56.3%)	221(49.6%)	1.95
Age(yrs) Mean(σ)[a]	10.67(11.7)	11.76(8.5%)	10.32(13.6%)	5.92**
5-9	229(38.8%)	33(22.9%)	196(43.9%)	
10-12	199(33.7%)	49(34.0%)	150(33.7%)	
13-17	162(27.5%)	62(43.1)	100(22.4%)	
Siblings Mean(σ)[a]	1.50(1.30)	1.31(1.2)	1.56(1.31)	1.93
Health Status				
Very Good	200(33.9%)	38(26.4%)	162(36.3%)	5.25
Good	184(31.2%)	54(37.5%)	130(29.1%)	
Fair	104(17.6%)	32(22.2%)	72(16.1%)	
Poor	34(5.8%)	4(2.8%)	30(6.7%)	
Father' Education				1.19
No School	21(3.6%)	6(4.3%)	15(3.4%)	10.57**
Elementary School	169(29.3%)	37(26.6%)	132(30.2%)	
Middle School	181(31.5%)	45(32.4%)	136(31.2%)	
≥High School	86(14.9%)	20(14.4%)	66(15.1%)	
Unknown	119(20.7%)	31(22.3%)	88(20.1%)	
Mother's Education				5.98
No School	48(8.6%)	10(7.5%)	38(8.9%)	

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Elementary School	166(29.6%)	43(32.1%)	123(28.9%)	
Middle School	145(25.9%)	26(19.4%)	119(27.9%)	
≥High School	70(12.5%)	16(11.9%)	54(12.7%)	
Unknown	131(23.4%)	39(29.1%)	92(21.6%)	12.32**

Note. σ = standard deviation, **p<0.01, [a]=student t test.

Exploratory Factor Analysis of CD-RISC

An exploratory factor analysis was used to explore the most suitable structure of the modified version of CR-RISC scale. The principal component method with varimax rotation was employed to extract factors. Three different models with 2-, 3- or 4- factor solutions were compared to obtain the best suitable structure of current scale. The factors whose eigenvalue was greater than 1.0 would be extracted and factor loadings below |.4| would be suppressed.

Assessing whether the data in the current sample is suitable for factor analysis should be done prior to the factor extraction. Commonly, both Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity were used to test the suitability of the sample. KMO index measures whether the partial correlations are small, with range from 0 to 1. Studies suggested that KMO value should be greater than 0.8 (Williams, 2012). Bartlett's Test of Sphericity measures whether the original correlation matrix is an identity matrix and studies suggested that the test be significant in order to make the factor analysis appropriate (Williams, B, 2012).

The Two-Factor Model

As shown in Table 2, the KMO value is 0.95, which is much greater than 0.8 and the Bartlett's test is highly significant (χ^2 = 3829.62, p = 0.000). Therefore, the data are suitable for factor analysis.

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Table 2

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.95
Bartlett's Test of Sphericity.	Approx. Chi-Square	3829.62
	df	231
	Sig.	.000

As shown in Table 3, the first factor explains 25.66% of total variance and the two-factor solution explains 45.03% of total variance.

Table 3

Total Variance Explained

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.58	38.99	38.99	5.65	25.66	25.66
2	1.33	6.04	45.03	4.26	19.38	45.03
3	1.08	4.90	49.93			
4	.94	4.26	54.19			
5	.82	3.75	57.94			
6	.77	3.49	61.43			
7	.74	3.36	64.79			
8	.70	3.19	67.97			
9	.69	3.12	71.09			
10	.66	2.98	74.08			
11	.64	2.92	76.99			
12	.59	2.70	79.70			
13	.57	2.58	82.30			
14	.55	2.50	84.77			
15	.51	2.30	87.08			
16	.49	2.24	89.32			
17	.47	2.12	91.44			
18	.42	1.92	93.35			
19	.41	1.85	95.20			
20	.37	1.68	96.88			
21	.35	1.61	98.48			
22	.33	1.52	100.00			

As shown in Table 4, factor loadings below 0.4 were not displayed, because they were

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suppressed due to being below the threshold of |.4|. Item12, 13, 15 and 21 were crossing loading items which may be caused by poorly written words or misleading sentence structure.

Table 4

Rotated Component Matrix

	Component	
	1	2
G1	.573	
G2	.729	
G3	.632	
G4	.681	
G5	.641	
G6	.572	
G7	.579	
G8	.702	
G9	.678	
G10	.584	
G11		.519
G12	.411	.414
G13	.501	.466
G14	.538	
G15	.485	.487
G16		.505
G17		.619
G18		.682
G19		.750
G20		.565
G21	.425	.535
G23		.577

Note. Rotation converged in 3 iterations.

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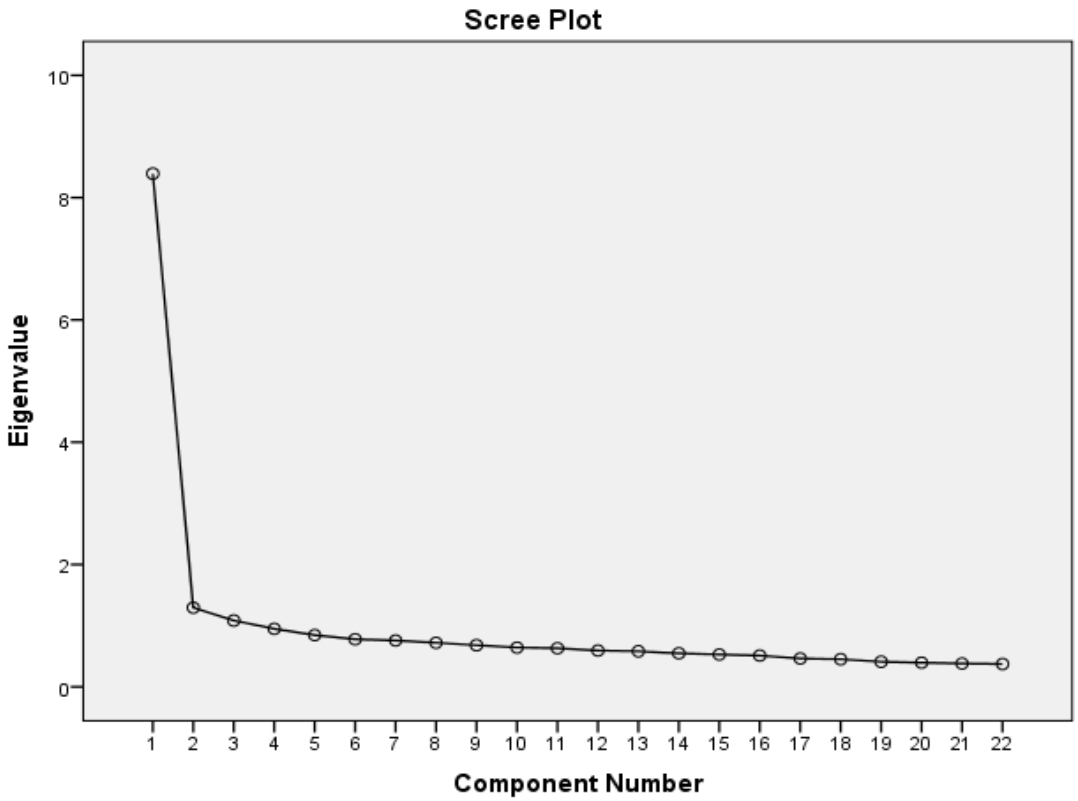

Figure 1 Scree plot

The scree plot is visual exploration of a graphical representation of the eigenvalues for breaks or discontinuities and the number of data points above the break (not including the point at which the break occurs) is the number of factors to retain (Williams, 2012).The above scree plot supports 2 factors, although there is another drop coming after number 3 or 4, which indicates they are also potentional factor structures. Therefore, different factor solutions were run and compared to make the most suitable option for current study.

The Three-Factor Model

As shown in Table 5, only three factors with eigenvalues values greater than 1 were extracted from the raw data because they perfectly met our cut off criterion. The total variance accounted by component 1 is 18.71 %. The total variance accounted by component 2 is

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15.69 %. The total variability explained by the sum of three components is 49.93 %.

Table 5

Total Variance Explained

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.57	38.99	38.99	4.12	18.71	18.71
2	1.32	6.04	45.03	3.45	15.69	34.41
3	1.07	4.90	49.93	3.42	15.53	49.93
4	.93	4.26	54.19			
5	.82	3.75	57.95			
6	.76	3.49	61.43			
7	.73	3.36	64.79			
8	.70	3.19	67.97			
9	.68	3.12	71.10			
10	.65	2.98	74.08			
11	.64	2.92	76.99			
12	.59	2.70	79.69			
13	.56	2.57	82.28			
14	.55	2.50	84.78			
15	.50	2.30	87.08			
16	.49	2.24	89.32			
17	.46	2.12	91.44			
18	.42	1.91	93.35			
19	.40	1.85	95.20			
20	.36	1.68	96.88			
21	.35	1.61	98.48			
22	.33	1.52	100.00			

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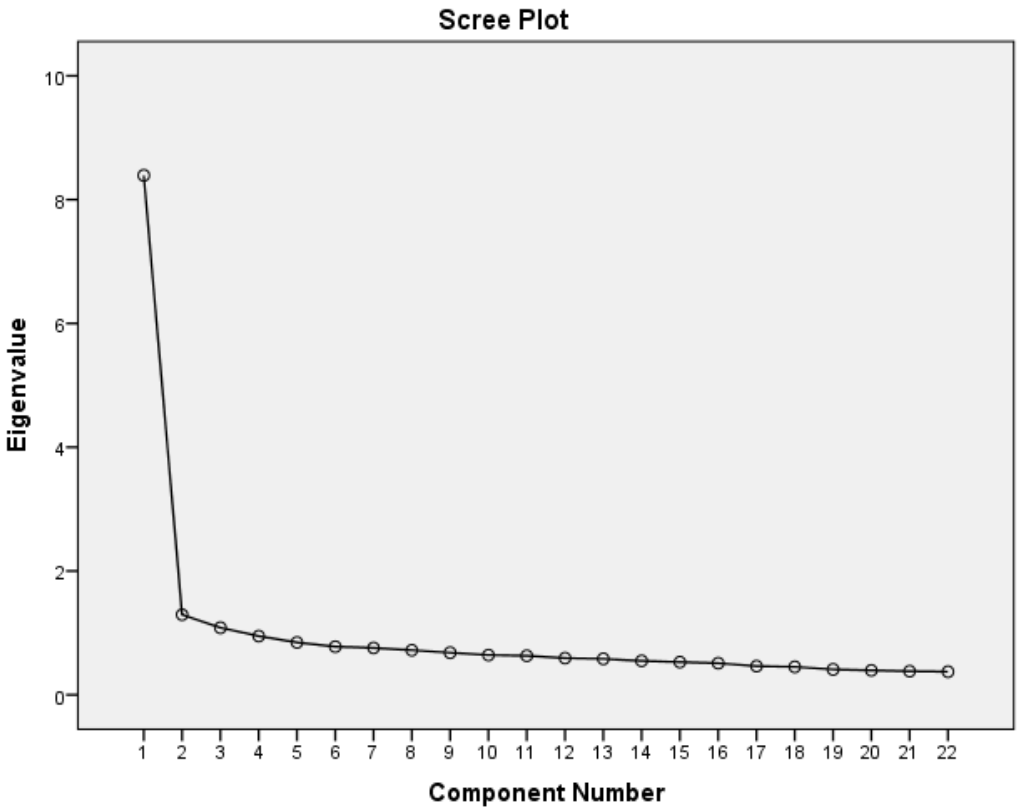

Fig.2 Scree plot

The above figure visually supports the existence of three factors, because the dots after the third point tend to be more horizontally positioned.

Factor loading for each item was shown in Table 6. Item 7 was almost equally loading at factor 1 and factor 3 simultaneously, which could be considered as a poorly written or flawed item. Item 4 was loading more strongly at factor 3.

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Table 6

Rotated Component Matrix

	Component		
	1	2	3
G1			.643
G2			.646
G3			.724
G4	.473		.523
G5			.648
G6			.611
G7	.456		.405
G8	.678		
G9	.682		
G10	.757		
G11	.415	.447	
G12	.536		
G13	.473		
G14	.639		
G15	.580		
G16		.480	
G17		.572	
G18		.636	
G19		.775	
G20		.582	
G21		.493	
G23		.543	

Note. Rotation Converged in 6 Iterations.

The Four-Factor Model

As shown in Table 7, four factors were extracted from the current data. Respectively, factors 1 to 4 explained 18.03%, 14.57%, 11.33% and 10.26% total variance. The cumulative variance explained by the sum of four factors is 54.19 %.

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Table 7

Total Variance Explained

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.58	38.99	38.99	3.97	18.03	18.03
2	1.33	6.04	45.03	3.21	14.57	32.60
3	1.08	4.89	49.93	2.49	11.33	43.93
4	.94	4.26	54.19	2.26	10.26	54.19
5	.82	3.75	57.94			
6	.77	3.49	61.43			
7	.74	3.36	64.79			
8	.70	3.19	67.97			
9	.69	3.12	71.09			
10	.66	2.98	74.08			
11	.64	2.92	77.00			
12	.60	2.70	79.70			
13	.57	2.58	82.28			
14	.55	2.50	84.78			
15	.51	2.30	87.07			
16	.49	2.24	89.32			
17	.47	2.12	91.44			
18	.42	1.92	93.35			
19	.41	1.85	95.20			
20	.37	1.68	96.88			
21	.35	1.61	98.48			
22	.33	1.52	100.00			

The factor loading matrix for each item on the extracted four common factors was shown in Table 8. In this matrix table, factor loadings below 0.4 have not been displayed because these loadings were required to be suppressed in the SPSS. Item 4 and 13 were cross loading items, which may be caused by poorly written words or misleading structure. The factor 4 only consisted of 3 items with the coefficient of internal consistency 0.68, which is too fewer to reach a good internal reliability.

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Table 8

Rotated Component Matrix

	Component			
	1	2	3	4
G1		.637		
G2		.640		
G3		.708		
G4	.463	.513		
G5		.637		
G6		.591		
G7	.450			
G8	.675			
G9	.684			
G10	.748			
G11	.403			
G12	.525			
G13	.457		.425	
G14	.625			
G15	.573			
G16			.636	
G17			.500	
G18			.554	
G19				.775
G20			.606	
G21				.609
G23				.613

Note. Rotation Converged in 8 Iterations.

The total variance accounted for by two-factor model (45.03%) is far less than the variance explained by the three-factor model (49.93%). Also, compared to the three-factor model, two-factor model has more cross loading items. Therefore, the three-factor model should be more appropriate for current study compared to the two-factor model. The four-factor model just has two cross loading items, which is less than the three factor model. However, the Cronbach's Alpha of fourth subscale including only three items is just 0.68,

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which is far from the criterion to be a good subscale (Williams, 2012). In summary, accoriding to the analysis, the three-factor model was used instead of the two-factor and four-factor model.

In the three factor structure, there are some cross loading items (4, 7 and 11) which are difficult to be interpreted within each factor.

As shown in Table 9, the result of KMO and Bartlett test demonstrate our sample is suitable for the exploratory factor analysis because both value satisfy the criterion.

Table 9

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.95
Bartlett's Test of Sphericity.	Approx. Chi-Square	3230.89
	df	171
	Sig.	.000

The total variance accounted for by the new three-factor model, which removed item 4, 7 and 11 from the original model, was shown in Table 10. The eigenvalues of these three factors were, respectively, 7.45, 1.27, and 1.06. The total variance explained by the sum of three factors was 51.46% which is higher than the original one (49.93 %).

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Table 10

Total Variance Explained

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.45	39.20	39.20	3.72	19.59	19.59
2	1.27	6.69	45.89	3.12	16.41	36.00
3	1.06	5.56	51.46	2.94	15.46	51.46
4	.94	4.94	56.40			
5	.79	4.14	60.54			
6	.73	3.84	64.38			
7	.67	3.51	67.89			
8	.66	3.48	71.37			
9	.64	3.38	74.75			
10	.62	3.25	78.00			
11	.59	3.08	81.08			
12	.53	2.81	83.89			
13	.53	2.80	86.69			
14	.51	2.71	89.40			
15	.47	2.45	91.86			
16	.42	2.20	94.05			
17	.41	2.15	96.20			
18	.37	1.96	98.16			
19	.35	1.84	100.000			

Factor loading matrix for each item on the revised three factors was shown in Table 11. Item 1, 2, 3, 5, and 6 were loading on factor 3 which relates to positive coping, positive acceptance of change and secure relationship. Factor 3 was named as positive adaptability. Item 8,9,10,12,13,14 and 15 were loading on factor 1 which relates to personal competence, tenacity and high standards. Therefore factor 1 was named as tenacity. Item 16, 17, 18, 19, 20, 21, and 23 were loading on the factor 2 which relates to tolerance of negative affect, self-control and sense of purpose. Thus factor 2 was labeled as self-control.

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Table 11

Rotated Component Matrix

	Component		
	1	2	3
G1			.646
G2			.643
G3			.741
G5			.654
G6			.610
G8	.693		
G9	.699		
G10	.759		
G12	.543		
G13	.484		
G14	.634		
G15	.610		
G16		.459	
G17		.562	
G18		.634	
G19		.775	
G20		.621	
G21		.512	
G23		.538	

Note. Rotation Converged in 6 Iterations.

The reliability coefficient of the current resilience scale was 0.91. The internal consistency alpha value of factor 1 was 0.85, the consistency alpha value of factor 2 was 0.79 and the alpha value of factor 3 is 0.78. All the factors were considered as good internal reliability.

As shown in Table 12, Cronbach alpha value of PSS scale was 0.88 and the values of the subscales ranged from 0.66 to 0.67. Meanwhile, it was also evident to see the Cronbach alpha value of different sex and type groups among different subgroups. A mean score was calculated as the composite scores for the whole scale and each of the subscales, with higher

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scores indicating higher level of perceived social support. The mean value of the whole PSS scale was 2.58, and there were no significant gender and type differences in the mean score of PSS.

Table 12

The Cronbach Alpha and Mean of PSS Scale

PSS scale	Item	Entire Sample	Sex		Type of Children	
			Boys	Girls	AIDS Orphans	Vulnerable Children
Cronbach Alpha						
PSS Scale	16	0.88	0.89	0.87	0.86	0.89
Family	4	0.66	0.69	0.63	0.60	0.68
Friends	4	0.64	0.65	0.61	0.55	0.66
Teachers	4	0.75	0.76	0.74	0.72	0.76
Others	4	0.67	0.69	0.65	0.58	0.69
Mean(σ)						
PSS Scale	16	2.58	2.56(0.68)	2.59(0.62)	2.62(0.57)	2.56(0.67)
Family	4	2.67	2.64(0.83)	2.68(0.77)	2.72(0.70)	2.64(0.83)
Friends	4	2.58	2.56(0.77)	2.61(0.74)	2.57(0.65)	2.58(0.78)
Teachers	4	2.52	2.55(0.87)	2.49(0.81)	2.55(0.76)	2.51(0.86)
Others	4	2.55	2.50(0.80)	2.59(0.76)	2.65(0.69)	2.52(0.81)

The bivariate correlation for the indicators of measures are shown in Table 13. First, the four subscales of perceived social support were significantly correlated with each other. Second, the subscales of resilience were significantly correlated with each other and had strong association with all the subscales of perceived social support at the $p < 0.001$ level. Finally, both subscales of social support and resilience had significant association with mental health indicators.

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Table13

Correlation Coefficients among Study Measures

Measure	1	2	3	4	5	6	7	8	9
Perceived Social Support									
1.Family	1								
2.Frineds	0.61[a]	1							
3.Teachers	0.53[a]	0.55[a]	1						
4.Others	0.62[a]	0.61[a]	0.49[a]	1					
Resilience									
5.Positive Adaptability	0.26[a]	0.26[a]	0.21[a]	0.24[a]	1				
6.Tenacity	0.33[a]	0.31[a]	0.26[a]	0.33[a]	0.65[a]	1			
7.Self-control	0.31[a]	0.31[a]	0.28[a]	0.31[a]	0.58[a]	0.68[a]	1		
Mental Health									
8.Loneliness	-0.15[a]	-0.18[a]	-0.08[a]	-0.20[a]	-0.18[a]	-0.34[a]	-0.20[a]	1	
9.Self-Esteem	0.25[a]	0.19[a]	0.18[a]	0.19[a]	0.29[a]	0.42[a]	0.32[a]	-0.49[a]	1
Mean	2.66	2.58	2.52	2.55	2.35	2.63	2.47	2.50	2.71
Standard Deviation	0.80	0.75	0.84	0.78	0.77	0.78	0.71	0.65	0.47

Note. a<0.001

Structure Equation Modeling

Measurement Model

The measurement model consisted of 3 latent constructs and 9 indicator variables Confirmatory factor analysis was employed to test whether each measurement model could properly fit the current sample. For perceived social support: χ^2 = 5.366, p = 0.068; CMIN/DF = 2.683; RMSEA = 0.053; CFI = 0.996, and NFI = 0.994. All factor loadings were significant at p = 0.001 level, ranging from 0.67 to 0.79. For resilience: χ^2 = 0.596, p =

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0.440; CMIN/DF = 0.596; CFI = 0.998 and NFI = 0.999. Factor loadings for tenacity, positive adaptation, and self-control were 0.875, 0.735 and 0.789 and they were statistically significant at p = 0.001 level.

Structure Model and Bootstrap Test

The first step was to test the direct effect of perceived social support (predictor) on the mental health (dependent variable) in the absence of resilience (mediator). This path from perceived social support to mental health was statistically significant (the standardized path coefficient $\beta = -0.23$ $p < 0.01$). The overall good-of-fit of the basic model was satisfactory as all the indices suggested an acceptable fit: CMIN/CF = 2.561; CFI = 0.989; GFI = 0.989 and RMSEA = 0.051. According to Baron and Kenny (1986), the above results satisfied the first step of testing the mediation effect (see figure 3).

The second step was to test the mediation effect played by resilience on the relationship between perceived social support and mental health among children affected by HIV/AIDS. The direct path from perceived social support to mental health was no longer significant when the resilience (mediator) was entered into the basic model ($\beta = -0.07$, $p = 0.07$). Instead, the resilience including tenacity, positive adaptability and self-control was significantly associated with perceived social support ($\beta = 0.55$, $p < 0.01$) and was predictive of mental health ($\beta = -0.28$, $p < 0.01$). All the fit indices of mediation model showed that the model was well accepted: CMIN/CF = 1.924; CFI = 0.989; GFI = 0.983 and RMSEA = 0.04. Finally, the mediating effect of resilience between perceived social support and mental health was estimated by using the bootstrap estimation procedure in AMOS (a bootstrap iteration of 2,000

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was specified). The estimate indicated a significant indirect effect (β = -0.10, 95%CI = -0.31 to -0.15, p < 0.01), which were in congruent with a complete mediation effect through resilience.

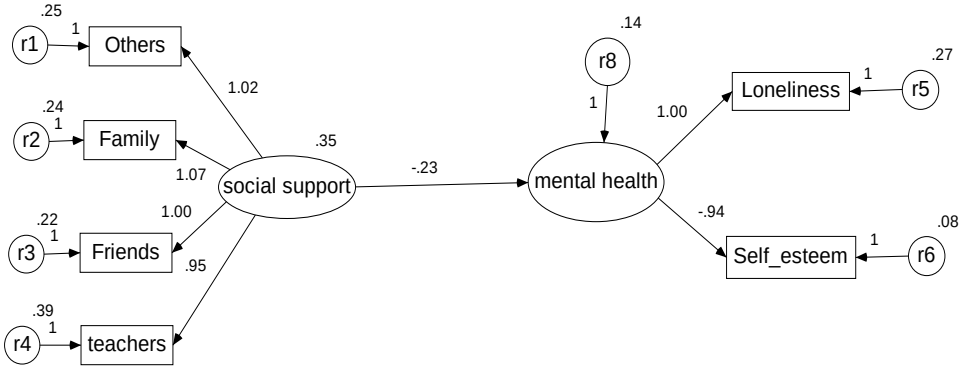

Fig.3 Basic Model

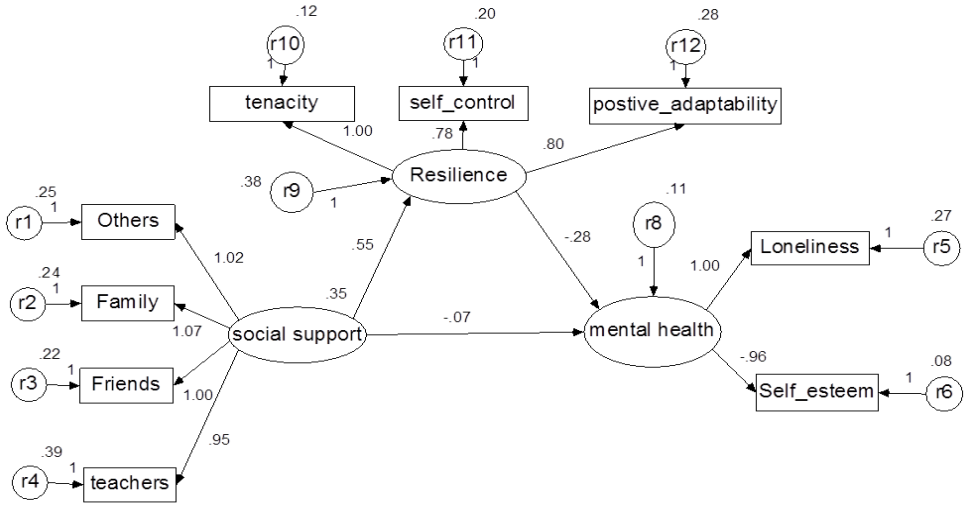

Fig. 4 Mediation Model

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Chapter 5

Discussion

The purpose of the current study to highlight the role of resilience in mediating the effects of perceived social support on mental health, using the sample of Children affected by HIV/AIDS in rural China. Similar to the results from other related studies (Hong, 2010; Zhang, 2009), the current student revealed that perceived social support play some positive or protective effects on mental health among Children affected by HIV/AIDS in rural China. The higher level of perceived social support was associated with higher level of self-esteem and lower level of loneliness among Children affected by HIV/AIDS.

Two theories were proposed to explain why perceived social support is so beneficial to mental health among various populations. The initial approach is called stress-buffering theory which dominated social support research for decades. The essence of this view emphasized: First, social support is a relative stable resource that buffer stress, primarily by influencing people's appraisal and coping with the tress events: Second, social support is effective in buffering stress when the support specifically meets the demands of the stressor (Lakey, 2011).However, this theory was later criticized by its inconsistent observations among different studies.

The later approach, which is called the relational regulation theory, emphasizes the affectively consequential social interaction for interpreting the relationship between perceived social support and mental health. It states that support receivers regulate their action, emotion or thought mainly through social interaction which is relational to personal taste.

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The construct of current modified CD-RISC scale consisted of three independent factors which is similar to the three-factor structure confirmed by Yu (2007) among Chinese adult. However, the items loading onto each factor were little different from these indicated by Yu (2007). One possible reason may be the age discrepancy since 90% participants in Yu's study were age above 20 and were identified from various occupations in Guangdong Province, with much better health and economic condition than our sample children. So far, studies assessing the models of resilience are mainly under conditions of loss, bereavement, depression and pain, where most results have confirmed the positive and protective influence of resilience in the successful opposition and growth adaptation with stressful conditions that had been referred (Haddadi, 2010). In consistent with results in other populations, the current study extended the previous finding to children affected by HIV/AIDS that the resilience was positively correlated with self-esteem and negatively correlated with loneliness

In the health and social study, self-esteem could be connoted as an essential symbol of mental health in that negative self-esteem negative self-esteem could significantly foster the development of a battery of mental disorders and social problems, such as depression, anxiety, violence, high-risk behaviors and substance use (Mann, 2004). Studies across various risky populations had confirmed that resilient people tended to have higher self-esteem and were less likely to reveal internal or external problems compared to their less resilience peers because resilience could work as a defense mechanism which enables people to thrive in the face of adversity (Veselska, 2009). The other measure for mental health in current study was loneliness since people affected by HIV/AIDS have been found to experience greater levels of loneliness

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in comparison with the general population (VANCE, 2006). It was hypothesized that individual' feeling of loneliness should be inversely associated with resilience scores in that resilience, as internal resource, may support the ability to self-manage negative emotion caused by adversity or tragedy in more successfully approach. The current results confirmed the hypothesis that resilience could work as a protective factor against people' loneliness.

The hypothetic mediation structure model was fully supported in the current study, indicating the important role played by resilience in explaining the influential mechanism of perceived social support on individual's mental health. People reporting high level of social support leads to increased perception on their resilience ability, which leds to the higher level of self-esteem and lower level of loneliness among children affected by HIV/AIDS.

The interaction effects of social support and resilience on mental health does not enjoy a consensus across different populations. For example, Ai (2014) found that the psychological resilience moderated the association between social support and loneliness among left-behind children in China. He proposed that the potential energy of resilience acting as a protective factor is activated when children face stressful events and can alleviate negative impacts of insufficient social support on mental health. However, research among older adults and children of HIV-infected parents confirmed the mediation role played by resilience on the association between social support and mental health (Mo, 2014; Li, 2015). Findings from current study supported the latter conclusion and extended this hypothesis to children affected by HIV/AIDS.

The full mediation model suggested that the perceived social support impact on mental

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health completely through the medium variable "resilience". This may happen in the following ways: First, social support may enhance resilience by promoting feelings of personal control and self-efficacy, which may foster the development of active coping styles and increased ability to reappraise stressful situations (Pietrzak, 2010). Second, social support may also bolster resilience by promoting meaning-making in the face of stressful experiences, which in turn protect the sense of self-esteem and reduce the feeling of loneliness (Cole, 2006). Third, children reporting higher level of social support may be more likely to believe that others could provide sufficient resources to solve problems when they encounter stressful life events, which may help reappraise the potential trauma or harm caused by parents' HIV diagnosis and strength their perceived ability to cope with demands, contributing to higher level of resilience (Mo, 2014). In summary, as suggested by Li (2015), the perception of sufficient social support could bolster confidence and sense of control when facing stressful life situations. An increased sense of control and higher confidence would strengthen one's own resilience, which in turn leads to active coping strategies to overcome the stressors and reduce depression and loneliness.

Several potential limitation of current study must be noted. First, the sample was recruited from two rural counties in central China, where most cases of parental HIV/AIDS were caused by unhygienic blood collection. Thus, the ability to generalize the current finding to other children whose parents gained HIV/AIDS through other modes of transmission is limited. Second, the indicators of mental health just included the self-esteem and loneliness because they are most representative of the dimension of mental health. Further study could consider

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adding more mental health related indicators such as depression, optimism, and hopefulness to expand the current findings. Third, the test-retest reliability of modified resilience scale was unavailable because of the cross-sectional data used in our study. A scale should be developted that is culturally and developmentally appropriate for children affected by HIV/AIDS in China.

The findings of current study have theoretical and practical implication. First, this study represents an initial effort to understand the influential mechanism of perceived social support on mental health of children affected by HIV/AIDS in China. It expands the role of perceived social support from direct influence on mental health, to the potential indirect impact on mental health through the medium "resilience", which deepens the picture of how perceived social support acts on mental health among children affected by HIV/AIDS. That is, the more social support one could receive, the higher or greater resilience one may develop, and it further decreases the chance of being in low self-esteem and high loneliness. Second, the confirmed mediation model provides an integrated view to resilience and social support in designing the psychological intervention for mental health of children affected by HIV/AIDS in rural China. Researchers should carefully consider both resilience and social support issues when they try to design either resilience or social support intervention.

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APPENDIX A

Perceived Social support scale

	Very Disagreement	Little Disagreement	Little Agreement	Very Agreement
1. There is a special person who is around when I am in need	1	2	3	4
2. there is a special person with whom I can share my joys and sorrows	1	2	3	4
3. My family really tries to help me	1	2	3	4
4. I get the emotional help and support from my family	1	2	3	4
5. I have a special person who is real source of comfort to me	1	2	3	4
6. My friends really try to help me	1	2	3	4
7. I can count on my friends when things go wrong	1	2	3	4
8. I can talk about my problems with my family	1	2	3	4
9. I have friends with whom I can share my joys and sorrows	1	2	3	4
10. There is a special person who cares about my feeling	1	2	3	4
11. My family is willing to help me make decisions	1	2	3	4
12. I can talk about my problems with my friends	1	2	3	4
13. My teachers are trying to help me	1	2	3	4
14. I can count on my teachers when things go wrong	1	2	3	4
15. I can share my sorrows and joys with my teachers	1	2	3	4
16. I can talk about my problems with my friends	1	2	3	4

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APPENDIX B

Modified CD-RISC scale

	Very Disagreement	Little Disagreement	Little Agreement	Very Agreement
1. Able to adapt to change	1	2	3	4
2. Close and secure relationships	1	2	3	4
3. Can deal with whatever comes	1	2	3	4
4. Past success gives confidence for new challenge	1	2	3	4
5. See the humorous side of things	1	2	3	4
6. Coping with stress strengthens	1	2	3	4
7. Best effort no matter what happens	1	2	3	4
8. You can achieve your goals	1	2	3	4
9. When things look hopeless, I don't give up	1	2	3	4
10. Under pressure, I can focus and think clearly	1	2	3	4
11. Prefer to take the lead in problem solving	1	2	3	4
12. Not easily discouraged by failure	1	2	3	4
13. Think of self as strong person	1	2	3	4
14. Make unpopular or difficult decisions	1	2	3	4
15. Can handle unpleasant feelings	1	2	3	4
16. Strong sense of purpose	1	2	3	4
17. In control of your life	1	2	3	4
18. I like challenges	1	2	3	4
19. You work to attain your goals	1	2	3	4
20. Pride in your achievements	1	2	3	4

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APPENDIX C

Children's loneliness scale

	Not True At All	Hardly Ever True	Sometimes True	True Most of The Time	Always True
1. It's easy for me to make new friends at school	1	2	3	4	5
2. I like to read.	1	2	3	4	5
3. I have nobody to talk to	1	2	3	4	5
4. I'm good at working with other children.	1	2	3	4	5
5. I watch TV a lot.	1	2	3	4	5
6. It's hard for me to make friends	1	2	3	4	5
7. I like school.	1	2	3	4	5
8. I have lots of friends.	1	2	3	4	5
9. I feel alone	1	2	3	4	5
10. I can find a friend when I need one	1	2	3	4	5
11. I play sports a lo	1	2	3	4	5
12. It's hard to get other kids to like me	1	2	3	4	5
13. I like science.	1	2	3	4	5
14. I don't have anyone to play with.a	1	2	3	4	5
15. I like music.	1	2	3	4	5
16. I get along with other kids.	1	2	3	4	5
17. I feel left out of things.	1	2	3	4	5
18. There's nobody I can go to when I need help	1	2	3	4	5
19. I like to paint and draw.	1	2	3	4	5
20. I don't get along with other children	1	2	3	4	5
21. I'm lonely.	1	2	3	4	5
22. I am well-liked by the kids in my class	1	2	3	4	5
23. I like playing board games a lot.	1	2	3	4	5
24. I don't have any friends.	1	2	3	4	5

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APPENDIX D

Rosenberg Self-Esteem Scale

	Strongly Disagree	Disagree	Agree	Strongly Agree
1. On the whole, I am satisfied with myself.	1	2	3	4
2. At times I think I am no good at all.	1	2	3	4
3. I feel that I have a number of good qualities.	1	2	3	4
4. I am able to do things as well as most other people	1	2	3	4
5. I feel 1do not have much to be proud of.	1	2	3	4
6. I certainly feel useless at times.	1	2	3	4
7. I feel that I'm a person of worth.	1	2	3	4
8. I wish I could have more respect for myself.	1	2	3	4
9. All in all, I am inclined to think that I am a failure.	1	2	3	4
10. I take a positive attitude toward myself	1	2	3	4

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REFERENCES

Abdu, M., Umar, A., Faisal, B. H. I., Tajuddin, S. H. S., Suria, B. I., & Yakasai, M. G. (2015). *HIV & AIDS Review*.

Agence France Presse. (2004). China agrees to 1st official orphanage for aids.children. Retrieved from http://www.aegis.com/NEWS/AFP/2004/AF040661.html.

Ai, H., & Hu, J. (2014). Psychological resilience moderates the impact of social support on loneliness of "left-behind" children. *Journal of health psychology*, 1359105314544992.

Albrecht, T. L., & Adelman, M. B. (1987). *Communicating Social Support*. Newbury Park, Calif: Sage Publications.

Asher, S. R., Hymel, S., & Renshaw, P. D. (1984). Loneliness in children. *Child development*, 1456-1464.

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*,51(6), 1173.

Block, J. H., & Block, J. (1980). The role of ego-control and ego-resiliency in the organization of behavior in development of cognition, affect, and social relations: *The Minnesota Symposia on Child Psychology* (Vol. 13, Pp. 39-101).

Chi, P., & Li, X. (2013). Impact of parental hiv/aids on children's psychological well-being: A systematic review of global literature.*AIDS and Behavior,*17(7), 2554-2574.

China Ministry of Health. (2014). China Country Progress Report.

www.manaraa.com

http://www.unaids.org/sites/default/files/documents/CHN_narrative_report_2014.pdf.

Cluver, L., & Gardner, F. (2007). The mental health of children orphaned by aids: A review of international and southern african research. *Journal of child and adolescent Mental Health,* 19(1), 1-17.

Coker, A. L., Smith, P. H., Thompson, M. P., McKeown, R. E., Bethea, L., & Davis, K. E. (2002). Social support protects against the negative effects of partner violence on mental health. *Journal of Women's Health* & *Gender-Based Medicine*,11(5), 465-476.

Cole, M. S., Bruch, H., & Vogel, B. (2004, August). Emotions as mediators of perceived supervisor support and psychological hardiness on cynicism. *In Academy of Management Proceedings* (Vol. 2004, No. 1, pp. Q1-Q6). Academy of Management.

Dishion, T. J., & Connell, A. (2006). Adolescents' resilience as a self‐regulatory process. *Annals of The New York Academy of Sciences*,1094(1), 125-138.

Haddadi, P., & Besharat, M. A. (2010). Resilience, Vulnerability and Mental Health. *Procedia-Social and Behavioral Sciences*,5, 639-642.

Hairs, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). *Multivariate Data Analysis*.

Harvey, J., & Delfabbro, P. H. (2004). Psychological resilience in disadvantaged youth: A critical overview. *Australian Psychologist*, 39(1), 3-13.

Hegney, D. G., Buikstra, E., Baker, P., Rogers-Clark, C., Pearce, S., Ross, H., ... & Watson-Luke, A. (2007). Individual resilience in rural people: A queensland study, Australia.*Rural and Remote Health*, 7(14), 1-13.

Hong, Y., Li, X., Fang, X., Zhao, G., Lin, X., Zhang, J., ... & Zhang, L. (2010). Perceived social

www.manaraa.com

support and psychosocial distress among children affected by AIDS in China. *Community Mental Health Journal*,46(1), 33-43.

Lakey, B., & Orehek, E. (2011). Relational regulation theory: A new approach to explain the link between perceived social support and mental health. *Psychological Review,*118(3), 482.

Lamond, A. J., Depp, C. A., Allison, M., Langer, R., Reichstadt, J., Moore, D. J., ... & Jeste, D. V. (2008). Measurement and predictors of resilience among community-dwelling older women. *Journal of Psychiatric Research,*43(2), 148-154.

Li, J., Theng, Y. L., & Foo, S. (2015). Does psychological resilience mediate the impact of social support on geriatric depression? An exploratory study among chinese older adults in singapore. *Asian Journal Of Psychiatry*, 14, 22-27.

Li, L., Lee, S. J., Thammawijaya, P., Jiraphongsa, C., & Rotheram-Borus, M. J. (2009). Stigma, social support, and depression among people living with HIV in Thailand. *AIDS Care*,21 (8), 1007-1013.

Li, N., Wang, Z., Sun, D., Zhu, Q., Sun, G., Yang, W., ... & Wu, Z. (2010). HIV among plasma donors and other high-risk groups in Henan, China. *Journal Of Acquired Immune Deficiency Syndromes* (1999), 53(Suppl 1), S41.

Li, X., Fang, X., Stanton, B., Zhao, G., Lin, X., Zhao, J., ... & Chen, X. (2009). Psychometric evaluation of the Trauma Symptoms Checklist for Children (TSCC) among children affected by HIV/AIDS in China. *AIDS Care*,21(3), 261-270.

Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical

www.manaraa.com

evaluation and guidelines for future work. *Child Development,*71(3), 543-562.

Mann, M. M., Hosman, C. M., Schaalma, H. P., & de Vries, N. K. (2004). Self-esteem in a broad-spectrum approach for mental health promotion. *Health Education Research,* 19(4), 357-372.

McDowell, T. L., & Serovich, J. M. (2007). The effect of perceived and actual social support on the mental health of HIV-positive persons. *AIDS Care,* 19(10), 1223-1229.

Min, J. A., Yoon, S., Lee, C. U., Chae, J. H., Lee, C., Song, K. Y., & Kim, T. S. (2013). Psychological resilience contributes to low emotional distress in cancer patients. *Supportive Care In Cancer,* 21 (9), 2469-2476.

Min, S., & Mentzer, J. T. (2004). Developing and measuring supply chain management concepts. *Journal of Business Logistics*, 25(1), 63-99.

Mo, P. K. H., Lau, J. T. F., Yu, X., & Gu, J. (2014). The role of social support on resilience, posttraumatic growth, hopelessness, and depression among children of HIV-infected parents in mainland China. *AIDS Care,* 26(12), 1526-1533.

Murphy, D. A., & Marelich, W. D. (2008). Resiliency in young children whose mothers are living with HIV/AIDS. *AIDS Care,* 20(3), 284-291.

Nampanya-Serpell, N. (2000, July). Social and economic risk factors for HIV/AIDS-affected families in zambia. *In AIDS and Economics Symposium,* July (Pp. 7-8).

Norris, F. H., & Kaniasty, K. (1996). Received and perceived social support in times of stress: A test of the social support deterioration deterrence model. *Journal Of Personality and Social Psychology*,71(3), 498.

www.manaraa.com

Pietrzak, R. H., Johnson, D. C., Goldstein, M. B., Malley, J. C., Rivers, A. J., Morgan, C. A., & Southwick, S. M. (2010). Psychosocial buffers of traumatic stress, depressive symptoms, and psychosocial difficulties in veterans of operations enduring freedom and iraqi freedom: The role of resilience, unit support, and postdeployment social support. *Journal of Affective Disorders*, 120(1), 188-192.

Powers, S. I., Hauser, S. T., & Kilner, L. A. (1989). Adolescent mental health. *American Psychologist*, 44(2), 200.

Rigby, K. E. N. (2000). Effects of peer victimization in schools and perceived social support on adolescent well-being. *Journal of Adolescence*, 23(1), 57-68.

Rosenberg, M. (1965). *Society and The Adolescent Self-Image* [J].

Rutter, M. (1985). Resilience in the face of adversity. protective factors and resistance to psychiatric disorder. *The British Journal of Psychiatry*, 147(6), 598-611.

Schmidt, S. J., Mueller, D. R., & Roder, V. (2011). Social cognition as a mediator variable between neurocognition and functional outcome in schizophrenia: Empirical review and new results by structural equation modeling. *Schizophrenia Bulletin*,37(suppl 2), S41-S54.

Schure, M. B., Odden, M., & Goins, R. T. (2013). The association of resilience with mental and physical health among older American Indians: T*he Native Elder Care Study*. American Indian and Alaska Native Mental Health Research (Online), 20(2), 27.

Serovich, J. M., Kimberly, J. A., Mosack, K. E., & Lewis, T. L. (2001). The role of family and friend social support in reducing emotional distress among HIV-positive women. *Aids*

www.manaraa.com

Care,13(3), 335-341.

Shumaker, S. A., & Brownell, A. (1984). Toward a theory of social support: Closing conceptual gaps. J*ournal of Social Issues*, 40(4), 11-36.

Stansfeld, S. A., Fuhrer, R., Head, J., Ferrie, J., & Shipley, M. (1997). Work and psychiatric disorder in the Whitehall II study. *Journal of Psychosomatic Research*, 43(1), 73-81.

Stein, A., Desmond, C., Garbarino, J., Van IJzendoorn, M. H., Barbarin, O., Black, M. M. & Bakermans-Kranenburg, M. J. (2014). Predicting long-term outcomes for children affected by HIV and AIDS: Perspectives from the scientific study of children's development. *AIDS*, 28, S261-S268.

Thompson, D. (2005). China Confronts HIV/AIDS.

VANCE, D. E. (2006). Self-rated emotional health in adults with and without HIV 1. *Psychological Reports*, 98(1), 106-108.

Veselska, Z., Geckova, A. M., Orosova, O., Gajdosova, B., van Dijk, J. P., & Reijneveld, S. A. (2009). Self-esteem and resilience: the connection with risky behavior among adolescents. *Addictive Behaviors*, 34(3), 287-291.

Wang, B., Li, X., Barnett, D., Zhao, G., Zhao, J., & Stanton, B. (2012). Risk and protective factors for depression symptoms among children affected by HIV/AIDS in rural China: A structural equation modeling analysis. *Social Science & Medicine*, 74(9), 1435-1443.

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

Wilks, S. E., & Croom, B. (2008). Perceived stress and resilience in Alzheimer's disease

www.manaraa.com

caregivers: testing moderation and mediation models of social support. *Aging and Mental Health*, 12(3), 357-365.

Williams, B., Brown, T., & Onsman, A. (2012). Exploratory factor analysis: A five-step guide for novices. *Australasian Journal of Paramedicine,*8(3), 1.

Yu, X., & Zhang, J. (2007). Factor analysis and psychometric evaluation of the Connor-Davidson Resilience Scale (CD-RISC) with Chinese people. *Social Behavior and Personality:* An International Journal,35(1), 19-30.

Zhang, J., Zhao, G., Li, X., Hong, Y., Fang, X., Barnett, D., ... & Zhang, L.(2009). Positive f uture orientation as a mediator between traumatic events and mental health among children affected by HIV/AIDS in rural China. *AIDS Care*, 21(12), 1508-1516.

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ABSTRACT

RESILIENCE AS A MEDIATOR BETWEEN SOCIAL SUPPORT AND MENTAL HEALTH AMONG CHILDREN AFFECTED BY HIV/AIDS IN CHINA

by

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Degree: Master of Education

The current study was to explore the mediation effect of resilience in the relationship between perceived social support and mental health among children affected by HIV/AIDS in China. Cross-sectional data were collected from144 AIDS orphans and 446 vulnerable children in rural central China. Participants reported their perceived social support, resilience, loneliness and self-esteem. The results showed that perceived social support, resilience and self-esteem were positively correlated with each other. Perceived social support and resilience were negatively associated with loneliness. The final Structural equation modelling indicated that resilience fully mediated the relationship between perceived social support and mental health among children affected by HIV/AIDS in rural China. These results extended recent findings on the relationship of perceived social support and resilience, and pointed out practical implications for the mental health promotion and intervention.

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