



The University of Zambia  
School of Humanities and Social Sciences  
Department of Psychology

**Topic: Developmental differences of children raised in orphanages, adoptive families and biological families in Lusaka, Zambia.**

By

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A thesis proposal submitted to the University of Zambia in partial fulfillment of the requirement of the degree of child development psychology.

LUSAKA, ZAMBIA

## **DECLARATION**

I hereby solemnly declare that this thesis proposal represents my own work and that it has not previously been submitted for a degree to this or any other university.

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## **1.0 Introduction**

Institutional rearing of infants and young children in baby homes or orphanages often fails to support normal behavioral or physical development (Ames, 1990). Studies exploring the developmental effects of institutionalization on young children have indicated numerous delays and disturbances in development. Institutional rearing often, but not always, means high exposure to pathogens, low stimulations, lack of opportunity to form attachments to adults as well as poor nutrition (Johnson, 2000). Studies have shown that children in deprived and unstimulating environments suffer substantial and widespread developmental delays, including physical and motor delay, cognitive impairment and depressed language development (Dennis, 1973; Provence & Lipton, 1962). Early attachments have been proved to be important not only as an indicator of the parent-child relationship but also for their significant effects on other aspects of the child's functioning. Orphanage-reared children who have received adequate physical care without social or cognitive stimulation and few opportunities to establish relationship with a consistent caregiver, show striking delays in motor and cognitive growth over the period of institutionalization (Zeanah et al 2005). Physical growth has also been noted to be affected by institutionalization. Children who spend the first few years of their life in institutional care often show retarded physical growth. Central parameters of physical growth such as height, weight and head circumference lag behind those of their same-aged peers who were more fortunate and grew up in families. In a meta-analysis, Van IJzendoorn & Juffer (2006) found that adopted children largely outperformed their peers who were left in orphanages in physical growth.

Worldwide, thousands of young children are being raised in orphanages. War and distressed economies increase the number of orphaned and abandoned children and affect the resources available for their care. Of particular to Zambia, is a crisis of massive proportions due to AIDS, poverty and dwindling economic strength. Nearly three-fourths of the Zambian people live in poverty (situation analysis, 1999). Poverty has resulted in many families eating one meal per day or even less, decreasing school enrolments, inability to access health care, stunting in young children, increased maternal mortality and a host of other negative effects throughout the country. Over and above, the HIV/AIDS epidemic is drastically impacting these indicators. In its 2004 report on global AIDS epidemic, UNAIDS estimated that one in six Zambian adults was living with the virus and that there were over half a million AIDS orphans aged 0-14 years (UNAIDS,2004). Children are a particularly vulnerable group among those affected by the AIDS crisis and increasing poverty. Further, many children are losing one or both parents from AIDS. Increasingly children, both orphans and others, are not attending school; receiving proper nutrition or accessing health care. The condition of HIV/AIDS and poverty makes the situation even worse for orphanage- raised children.

This study will compare three groups, orphanage- raised children, orphans adopted into other families and parent- raised children. If children orphanage- raised children as expected from previous findings score lower on the various dependent variables to be measured than the parent-raised children, this could be attributed to two broad factors; firstly, loss of normal parental care and secondly abnormal restrictions of experiences characterised in the orphanages. Since the primary aim of the study is not

parental loss but investigating the environment itself, a third group of adopted children was introduced to participate in the study. If the adopted children resemble the parent-raised group more than the orphanage- raised group, this would be evidence that abnormal environmental factors are more significant than parental loss and that adoption and/or fostering successfully protects children against the negative developmental consequences of parental loss. The groups will be compared on the basis of security of attachment, cognitive development, physiological stress regulation and physical development.

## **2.0. Statement of the problem**

The suffering of the orphan and vulnerable child is contained within the confines of the family and the community. Daily, children suffer from malnutrition and childhood illnesses. The impact of their suffering is seldom seen outside their immediate surrounding, although, people estimate how much these orphans could be suffering but those with them in their environment know exactly what they are going through. On the contrary, those who are not affected continue without knowledge of the growing crisis and the pending impact the crisis will have on the country as a whole.

The orphan rate in Zambia increases daily as a result of the HIV/AIDS pandemic. Estimates vary as to the number of orphans in Zambia. One estimate (situation analysis, 1999) is that 1.656 million children, or more than one-third of those under the age of 15, are orphans who have lost one or both parents.

Less than one quarter of the orphans have lost their parent or parents to other forms of sickness or accidents, while more than three-quarters are orphans because of AIDS. Instead of getting smaller, or at least not increasing, the problem of orphanhood is increasing rapidly. Between 1996 and 1998, there was a national increase of over fifteen percent in the number of orphans.

This rapid growth of orphans has led to non- governmental organizations, churches and concerned individuals to come up with centers and institutions where these children are cared for and have basic necessities of life like food and shelter among others. A number of orphanages in Zambia have mushroomed and it has become a business and source of income for most of the Zambian care givers. This compromises both the quality of care the children receive and the emotional involvement of caregivers with the children.

In spite of serious social, behavioral, emotional and psychological effects of orphanage life on children, there is need to conduct more research in Zambia on developmental trajectories of these children. Further, research that compares orphanage and family raised children should be given more attention so that there is wide comparison among the groups of children with different patterns of care and that proper conclusions could be achieved.

### **3.0. Justification of Study**

The choice of the research topic emerged from an observation from previous studies that orphanage life presents many challenges of emotional, social, behavioral and psychological nature. Since Zambia has

orphanages, it is not an exception and that the children raised in the orphanages could have similar challenges. The study will use three groups of children living in different settings because this comparison will shed more light on the different developmental pathways that children in these settings experience. The aggravating impact of orphanage life does not only bring about behavioral problems but also psycho-social implications for the individuals orphanage- raised children later in life. The nature of caregiver- child interactions poses a threat to the attachment security of the child. For instance, unhealthy interactions and orphanage life in general may bring about behavioral problems, cognition problems, social problems, and insecure attachment patterns, particularly extreme attachment patterns. Orphanage children are also exposed to a number of caregivers unlike adopted children who have consistent caregivers and also living in a family setting.

The data from the analysis of orphans in Zambia demonstrate that 56% of orphan children and 49% of non-orphan children are stunted (situation analysis, 1999). The stunting of orphan children has been linked to lack of proper care by the foster caregivers and the with-holding of food from orphan children. It is therefore imperative to find out why orphanage children are stunted and whether this has some impact on developmental processes such as cognitive development. Since cognitive development has been found to be associated with the quality of physical growth in many studies, this study will explore whether a delay in physical development is linked to this developmental trajectory in children.



However, there are additional factors which may contribute to the larger percentage of stunted orphan children. For instance if the mother suffered a prolonged illness or was looking after ill family members, it is possible that she was unable to provide the normal care and attention to her children that good health might have allowed. Stunting amongst Zambian children under the age of five is serious and merits immediate and serious attention. The fact that orphan children tend to be stunted at a higher rate may signal the need for preventive measures in children after they become orphans and are admitted to orphanages.

This study compares three groups; the orphanage-raised group, orphaned group living in adopted families and the parent- raised children. This comparison is significant because it will highlight the developmental differences of the children with the same status “orphaned” but raised in different settings and with different patterns of care. This study will provide evidence about the way in which the orphanage- raised children are delayed the most in the developmental areas to be investigated. Many studies have been conducted on orphanage children in comparison to their counterparts who left the orphanage on developmental pathways like cognition, attachment and physical growth and the findings are that those who leave the orphanages perform better in these areas (Ames, 1990). This study will not only compare how delayed the orphanage- raised children may be from both groups but also find out if the adopted children are different from the parent-raised children on these developmental pathways. Consequently, the present study will help develop interventions for the children in orphanages to help them develop relative to their counterparts.

Finally, an intervention that emphasizes the need for an integrated, carefully planned approach may be considered after this phase of the a Masters Degree. Orphanage life leads to a change of life of children which in most cases affect behavioral, emotional and social lives and therefore these children need to have an integrated programme, which takes into consideration all these factors.

#### **4.0. Aims**

- The main aim of the proposed study is to investigate intellectual development, caregiver-child attachment, physiological stress regulation and physical growth of children raised in orphanages.
- To investigate whether the development of children in orphanages is delayed relative to that of children raised by their biological parents or adoptive families.

#### **4.1. Objectives**

- To provide knowledge about the different lifestyles of children in different settings
- To explore the range of physical, socio-emotional and psychological factors that differs among the three groups of children.
- To find out the effects of orphanage life and /or adoption on development
- Identify various physical, socio-emotional and psychological symptoms associated with orphanage life.

#### **5.0. Literature**

## **Developmental consequences of early institutionalization**

The adverse effect of institutionalization on the development of children has been described in a number of studies beginning from the 1940's (Bowlby, 1951; Dennis, 1973; Freud & Burlingham, 1973; Goldfarb, 1944; Goldfarb, 1945; Provence & Lipton, 1962; Spitz, 1945). The results of this and subsequent research were rather consistent in reaching the same general conclusion: deprivation in early life tends to be associated with major impairments in various areas of development. These impairments include a range of physical abnormalities, such as physical growth delay and brain growth deficiencies, sensory integration difficulties, stereotypes, speech and language delays (e.g., Cermak & Daunhauer, 1997; Judge, 2003; Mason & Narad, 2005; Miller, Kiernan, Mathers & Klein-Gitelman, 1995); and psychological and behavioral problems, such as inattention/hyperactivity (Kreppner, O'Connor, Rutter, Beckett, Castle, & Croft, 2001; O'Connor et.al., 1999; Roy, Rutter & Pickels, 2004), various emotional difficulties (Sloutsky, 1997; Wismer Fries & Pollak, 2004), autistic and quasi-autistic features (Rutter, Andersen-Wood, Beckett, Bredenkamp, Castle, Groothues, Kreppner, Keaveney, Lord, O'Connor, 1999), cognitive impairments (Castle, Groothues, Bredenkamp, Becket, O'Connor, Rutter, & the ERA Study Team, 1999; Kaler & Freeman, 1994; Morrison & Ellwood, 2000; Rutter et al., 2001), difficulties in relations with peers (Hodges & Tizard, 1989a, 1989b; Roy et al., 2004) and conduct problems (Groza, Ryan, Cash, 2003; Fisher, Ames, Chisholm, & Savoie, 1997).

Although researchers have not identified a single pattern that may characterize children with early institutional experience, Rutter, Kreppner, O'Connor, and ERA study team (2001) made an attempt to delineate the features that are specifically associated with institutional deprivation. Analysis of the various features of the functioning of children with early institutional experience, such as attachment problems, inattention/overactivity, emotional difficulties, autistic features, cognitive impairment, peer difficulties and conduct problems reported to be associated with institutional rearing by previous studies, revealed that four features were much more common in the Romanian sample (n = 165), and all four of them were significantly associated with the age at entry into adoption; these are: (1) attachment disturbances with disinhibited behaviors; (2) inattention/overactivity; (3) quasi-autistic features; (4) cognitive impairment. Rutter and colleagues (2001) suggested that as these features frequently co-occurred and were related to the early deprivation, presumably, a common etiological factor, they may constitute an *institutional deprivation pattern*. This finding requires further validation. This proposed study will examine whether the institutional deprivation pattern comprises the listed above features and can be found not only in Romanian adoptees but in children still reared in Zambian institutions.

### **Attachment and institutionalization**

In recent years, there has been much discussion concerning a sensitive period for the development of attachment (Shonkoff & Phillips, 2000; Thompson, 2001). Much of this inquiry has been guided by the formulations of attachment theory, which describes how infants develop their attachments to

caregivers and immediate and long-term significant of these relationships (Ainsworth, 1973; Ainsworth, Blehar, Waters & Wall, 1978; Bowlby, 1969/1982, 1973; Thompson, 1998). Attachment theory postulates that during the first years of life the child develops attachment relationships with specific individuals, such as parents or caregivers, who interact with the child on a regular basis (Bowlby, 1982). This interaction, according to Bowlby (1998), when nurturing, predictable, and attuned to the infant's or child's attachment needs, facilitates healthy development of the child within the "environment of evolutionary adaptiveness" or related developmental niches. Conversely, institutional care still common in developing countries and countries in transition due to suboptimal caregiver-child ratios, lack of educated staff, and high staff turnover usually confronts children with discontinuous and highly limited contacts with different caregivers who are not always sensitive to the individual needs of the child (Kaler & Freeman, 1994; The St. Petersburg – USA Orphanage research Team, 2005). Apparently, rearing in such circumstances may violate the conditions formulated by Bowlby and others to be necessary for a balanced attachment development, and therefore cannot provide the environmental input that will promote species-specific organization of attachment behaviors and attachment relationships.

Indeed, several studies found that children adopted from orphanages into home family settings show atypical attachment behavior: 'unattached' behavior, indiscriminate friendliness towards strangers, or other atypical behaviors that are difficult to classify within the usual attachment behavior coding systems (Chisholm, 1998; O'Connor, Marvin, Rutter, Olrick, Britner, & the English and Romanian

Adoptees Study Team, 2003; Vorria et al., 2003; Zeanah, Smyke, & Dumitrescu, 2002; Zeanah, Smyke, Koga, & Carlson, 2005). O'Connor et al. (2003) found that ordinary forms of insecure attachment in a sample of children adopted from Romanian orphanages were not associated with their experiences in the institutions, but there was a positive association between duration of institutionalization and insecure attachment. Hence, attachment organization in children exposed to early institutional care may manifest itself in a different way (e.g., in atypical or disorganized attachment) than the attachment organization of normally developing children with a history of differential, specific and continuous attachments. Therefore, in the proposed study, the focus will be on the attachment organization of orphanage children and examine whether and how it is different from the attachment organization of orphaned children reared in regular but adoptive families, children with birth parents in terms of antecedents and sequelae.

### **Risk and protective factors in institutional upbringing.**

Although institutional deprivation has significant impact on the development of the child, empirical studies demonstrate that it is not deterministic. For instance, in the study of Rutter et al. (2001), the proportion of children who had left Romanian orphanages before the age of 6 months with normal functioning was nearly 70%. In a study of child-parent attachment following early institutional deprivation O'Connor et al. (2003) found that, despite even prolonged exposure to very extreme and global social deprivation of the examined children in early life, attachment relationship within the normal range was observed in almost 50% of the children. Vorria et al. (2003) found in their study on

attachments of infants in the Metera orphanage that about 30% of the children had developed organized patterns of attachments, some of them even secure attachments. In a recent study by Zeanah et al. (2005) it was found that 18.9 % of children in Romanian institutions who spent on average 90% of their life in institutions were classified as secure. Similarly, Ames (1997) found that on each of the measures she administered, there was substantial within-group variation. She then concluded that not all of the orphanage children were experiencing all of the identified problems. This raises a risk and resiliency question. Why do some children recover from such extreme deprivation seemingly unscathed, whereas other children carry scars into their futures?

These findings suggest the presence of certain protective and/or risk factors which may buffer or exacerbate the influence of institutional care on children's development. However, the role of these factors remains understudied. They may be related to the way and extent in which institutional environment responds to the children's physical, cognitive and emotional needs, that may vary from global neglect of physical, nutritional, stimulation and relational needs to specific deprivation of emotional or cognitive needs (Gunnar, 2001; Gunnar, Bruce, & Grotevant, 2000; Johnson, 2000; Miller, 2005).

In addition, individual characteristics and circumstances of the child may play an important role in the differential susceptibility to the institutional deprivation. Indeed, some studies point out that gender may play a role, with girls demonstrating more resilience and positive outcomes than boys (e.g., Roy et

al., 2004; Vorria et al., 1998). Being a favorite of the caregivers in an orphanage was also found to have a positive influence on the child's development (Morison, Ames, & Chisholm, 1995). Furthermore, presence of siblings seems to have a mitigating effect on the developmental risks of orphanage children (Roy et al., 2004). Studies with non-institutionalized children point out that along with genetic background and temperament, prenatal history, e.g., substance exposure (see Zhang et al., 2005 for a review) may influence the course of the child's development (Rutter, 2006).

Another important factor is the child's health condition. During the last decade, the number of children abandoned because of their HIV status has been constantly growing. This health condition emerges as a potent risk factor due to the high level of stigma and discrimination among caregivers towards HIV positive children (Tarasova, 2006); because of it the quality of care these children receive in orphanages may decrease and their developmental needs may be compromised even further. Also, naturally, children with HIV status are the least preferred candidates for potential adoptive parents. The HIV/AIDS pandemic has caused a breakdown in the usual family and neighborhood networks that in the past provided the alternative care for children who lost their parents. This not only leads to a growing number of street children but also to a rapid extension of residential care settings in various African countries (e.g., SOS villages). These facilities might profit from the results of our endeavors. In sum, it is still not clear how different aspects of the orphanage environment interplay with different individual characteristics of the child, and which environmental or individual factors may act as risk or protective factors in the course of the orphanage child's development.



In the proposed study the focus will be on individual characteristics of orphanage children and direct observations of different features of the orphanage environment in order to explore how they interplay with each other and to what extent developmental outcomes in the domains of physical growth, attachment, cognition, emotion regulation, and behavior problems they lead. Understanding the interplay of possible risk and protective factors in the development of children subjected to orphanage care is of critical importance for the identification of the targets for intervention programs directed at the child care in orphanages.

### **Institutionalization and biobehavioral functioning**

Several studies suggested that the early stress and deprivation usually experienced by orphanage reared children may affect the structure and functioning of the brain (Chugani, Behen, Muzik, Juhasz, Nagy, & Chugani, 2001; Marshall & Fox, 2004), which can lead to neurobiological changes responsible for long-term emotional, cognitive and behavioral deficits. Carlson and Earls (1997) measured the diurnal pattern of salivary cortisol excretion in home-reared Romanian children compared with that of institutionalized children at 2 years of age. They found that in the group of institutionalized children morning cortisol levels were significantly lower, while noon and evening levels were higher, compared with the home-reared children. Gunnar, Morison, Chisholm, and Schuder (2001) also established that salivary cortisol levels in children adopted from Romanian orphanages, where they lived for more than

eight months of their first years of life, even six and a half years after adoption had higher cortisol levels over the daytime hours than did early adopted and Canadian born children.

These findings are in line with studies demonstrating that the hypothalamic-pituitary-adrenal-axis (HPA) of family-reared children with disorganized attachments, which develop as a result of pathogenic care, was more reactive to stressors than those of children with organized patterns of attachment (Hertsgaard, Gunnar, Erickson, & Nachmias, 1995; Spangler & Grossman, 1993). In descriptive non-experimental studies disorganized attachment has been found to be associated with hyperreactive neuro-physiological responses to stressors. Attachment theory suggests that this dysregulation is one of the consequences of disorganized attachment, and not a causal determinant. A corollary of *organized* attachment relationships as regulators of negative emotions is the idea of *disorganized* attachments leading to dysregulation of negative emotions, evidenced by a dysregulated HPA-axis (Van IJzendoorn & Bakermans-Kranenburg, 2002). In the proposed study, the mediating role of disorganized attachment and atypical insecure attachment in the influence of institutional care on a dysregulated cortisol response to stress will be examined.

Although hyperreactivity of the cortisol response has been found in previously institutionalized children, it cannot be excluded that some institutionalized children may respond with a flat daytime pattern, indicating hypocortisolism which might be a reflection of repeated daily intermittent stress (Gunnar & Vasquez, 2001). Therefore the study will examine whether in a natural as well as in

stressful laboratory settings neurobiological differences exist in orphanage reared children in comparison to home reared orphaned children, and children with biological parents and how these differences are related to their attachment status.

### **Quality of caregiving as an intervention target.**

Evidence from intervention studies conducted in institutions and orphanages suggests that even modest improvement of concrete, specific aspects of caregiving may lead to better physical, mental and socio-emotional outcomes in the children. Extra interaction between an experimenter and a child in 5 minutes daily sessions in an Iranian orphanage produced improvement in mental and psychomotor development of children (Hakimi-Manesh, Mojdehi, & Tashakkori, 1984). A 15 minutes auditory, tactile and visual stimulation program twice a day, 5 days a week during a month, led to significant gains in height, weight and head circumference in the experimental group of newborn children reared in a Korean orphanage (Kim, Shin, & White-Traut, 2003). Short daily play sessions in an Indian orphanage also led to significant improvement of children's development (Tneja, Sriram, Beri, Aggrawal, Kaur, & Puliel, 2001). An intervention study in one of the Russian orphanages which involved both training of the caregivers to promote responsive caregiving and staffing and structural alterations to increase the consistency of caregivers also proved successful: Institutionalized children involved in this intervention program showed improvements in physical growth, cognition, language, motor development, personal-social adjustment, and affect, with children having severe disabilities improving the most (Groak, Muhamedrahimov, Palmov, Nikiforova, & McCall, 2005). The intervention studies, however, did not

always control for various contaminating factors, for example through randomization. The institutional setting severely restricts opportunities for random experimentation, and careful evaluation of intervention effects.

One common feature of the intervention studies is the focus on the improvement of the quality of the child caregiver-relationships, which triggers improvement in different domains of the child's development. This is in line with findings in attachment intervention studies pointing out that sensitive caregiving in early childhood is causally related to the security of attachment mediating children's development in different domains. Intervention studies with family reared children suggest that a key determinant in the prevention of insecure infant attachment is sensitivity of the caregiver (e.g., Van IJzendoorn, Juffer, & Duyvesteyn, 1995). In a study on adopted children an intervention aimed at promoting adoptive parents' sensitivity was successful and resulted in an increased number of secure infant-parent attachment relationships (Juffer, Hoksbergen, Riksen-Walraven, & Kohnstamm, 1997), and a lowered number of insecure, disorganized attachments (Juffer, Bakermans-Kranenburg, & Van IJzendoorn, 2005). Meta-analytically, preventive interventions that were more successful in enhancing parental sensitivity were also more successful in promoting secure attachments in children (Bakermans-Kranenburg, Van IJzendoorn, & Juffer, 2003). Moreover, preventive interventions that aimed at promoting parental sensitivity were also successful in lowering disorganized attachment in children (Bakermans-Kranenburg, Van IJzendoorn, & Juffer, 2005).

A number of intervention studies have found that improvement of the quality of caregiving through the enhancement of the caregiver's sensitivity may improve the quality of attachment organization in children and produce better outcomes in other developmental domains in orphanage reared children. In this project the development of children who are orphans but living in different settings in Zambia will be investigated, with a goal of preparing an intervention protocol to be piloted in one of the orphanages after the research project is concluded. It would be ethically indefensible only to collect descriptive data and not at the same time prepare for an intervention that might enhance the quality of life and developmental prospects of this extremely deprived children. The implementation of the protocol in this study is impossible but intends to search for means to continue this line of investigation beyond the current Masters Project.

## **6.0. Hypotheses**

In the proposed study, the following issues are examined, all regarding children reared in Zambian child care orphanages in comparison to orphans raised in adoptive families as well as the of children reared by their biological parents.

1. The comparison family- reared children will present a normal distribution of organized and disorganized attachment, whereas children raised in orphanages will show a deviating distribution of organized attachment, in particular, they are expected to show higher rates of insecure and disorganized attachment.

2. Security of attachment organization is expected to be associated with higher caregivers' sensitivity.
3. Orphanage care is associated with a dysregulated cortisol response in the child and that this association is mediated by disorganized attachment.
4. Security of attachment in orphanage children is hypothesised to be associated with better outcomes in the domains of physical development, cognition and emotional regulation.

## **7.0. Methodology**

### **7.1 Research design**

The study will utilize a quasi-experimental method to compare the effects of the three different patterns of care on children. If the expected differences in socio-emotional (i.e., attachment), cognitive and physical development of the orphanage- raised children, children living with adoptive families and parent- raised children are confirmed by the study, it may lead to sounder research and more-convincing causal links between orphanage care and children's developmental delays in various domains. Consequently, the outcome of this study may lead to an intervention program focusing on the largest delays to be piloted in one of the orphanages.

### **7.2. Nature of sample**

Since the focus of this study is to make out how different orphanage children develop from other children, the study will recruit 7 healthy orphanage children and their caregivers; the first

comparison group will be a group of 7 never-institutionalized, non-adopted Zambian children living with their birth parents. This group will be used to help answer the question of how similar or different the orphanage children are from children reared entirely in Lusaka, Zambia.

The second comparison group will be a group of 7 children who are orphaned and adopted to their parents' relatives. Orphanage group children and their caregivers will be recruited from several Children Homes in Lusaka, Zambia. Both the children living with their adopted families and biological parents will be recruited from kindergartens and primary schools and will be pair-matched in age and gender across the groups.

### **Orphanage group**

#### Inclusion criteria:

1. Permanent residence in a childcare institution.
2. The children must be in the age range of 2 to 5 years old.
3. The children must have been in the orphanage for at least eight (8) months.

#### Exclusion criteria:

1. Genetic syndromes (e.g., Down syndrome), definite signs of fetal alcohol syndrome.
2. HIV positive children

### **Orphaned adopted group**

#### Inclusion criteria:

1. Children must be orphaned but living with an adoptive family.

2. The children must fall in the age range of 2 to 5 years old.

Exclusion criteria:

1. History of institutionalization or prolonged hospitalization.
2. Genetic syndromes (e.g., Down syndrome), definite signs of fetal alcohol syndrome.

**Control group**

1. Children must live with both parents.
2. Children must be between 2 to 5 years of age.

Exclusion criteria:

1. History of institutionalization or prolonged hospitalization.
2. Genetic syndromes (e.g., Down syndrome), definite signs of fetal alcohol syndrome

**7.3. Procedure**

For all the participants enrolled in the study, informed consent will be obtained from their biological and adopted parents/ guardians and the authorities that are in charge of Children's Homes in the city. Each Control Group child's parent will accompany the child during evaluations. Adopted children will be accompanied by their guardians during evaluations. Orphanage children will be accompanied by their "favorite" caregivers, as will be determined through informal interviews with children and caregivers and/or observations. If a favorite caregiver is difficult to identify, the person who spends most of the time with a child and knows him or her the best will be involved.



#### **7.4. Data collection techniques**

Quantitative and qualitative research method will be used to collect the data. In this study, the emphasis is on the quantitative data collection through standard tests, questionnaires, interviews and video recordings.

#### **7.5. Data analysis**

The quantitative data will be analyzed using the SPSS statistical package. Frequencies and percentages will be used to describe distributions of single and summated variables. Measures of central tendency will also be used to analyze the data. Regression strategies will also be used to present relationships between variables.

#### **7.6. Pilot Study**

The pilot study will be carried out between December 2007 and January 2008. The aims of the pilot study are as follows:

- To gain familiarity with regard to the assessment tools.
- To finalize some of the assessment tools.
- To finalize the number of sessions required for each participating dyad.

A total of four cases will be included in the pilot study. Out of these one will be included in the main study. Following the pilot study, a few changes will be made if necessary in the study.

### **7.7. Main Study**

Data collection for the main study will be done between February 2008 and April 2008, for a period of three months. During this period, participants will be contacted from different families and orphanages in Lusaka, Zambia.

For each dyad that will be contacted, the details of the nature and purpose of the study will be explained to both parents or significant others, wherever necessary. Participants, who fit the specified criteria, following an intake interview, will be allotted sequentially either to one of the groups. Informed consent to participate will be obtained.

### **8.0. Assessment measures**

The measures that will be included in the study and the constructs they are intended to assess are included in Table 1.

#### **Caregiving environment**

Structure and functioning of the institutions will be assessed through observations and semi-structured interviews with the directors and caregivers of the Children Homes in Lusaka, Zambia. Information about the size, children homes' schedules, personnel, child-to-caregiver ratios will be collected.

### Early Childhood HOME Inventory

The HOME is designed to measure the quality and quantity of stimulation and support available to a child in the (home) environment (Bradley, 1993). The focus is on the child in the environment, the child as a recipient of inputs from objects, events, and transactions occurring in connection with the surroundings. The information needed to score the HOME is obtained during a 45- to 90-min visit to the place where the child lives, during a time when the child and the child's primary caregiver are present and awake. The procedure is low-key semi-structured observation and interview done so as to minimize obtrusiveness and allow observed participants to act normally (Bradley, 1993; Bradley & Caldwell, 1988; Caldwell & Bradley, 1984).

### Home Environment Potential Assessment (HEPA).

The HEPA is designed to measure the nature of children's psychological needs as they are understood within a given culture and society (Serpell, 1987). It explores ways of measuring the degree to which they are being satisfied for a given individual. It makes explicit ways in which psychological health is conceptualized and how to organize them into a manageable set of dimensions. HEPA also focuses on how the environment impinges on a child's development towards each of these goals. HEPA is a schedule of observations and enquiries to be made by a visitor to a child's home in order to assess its potential for promoting healthy psychological development. The schedule has been field- tested for inter-rater reliability and face validity across a purposively sampled range of home environment in

Zambia including variables in urbanization, maternal education, language / culture groups, family size and type of primary care giver.

The choice of using the HEPA in this study was due to an observation that a recurrent pattern in cross-cultural psychology has been the adoption for research in a third world country of an imported package of theoretical constructs and empirical methods which define the problem under investigation so tightly that locally distinctive phenomena and issues become marginalized or distorted (Serpell, 1976). The HEPA version that will be used in this study comprises 167 items, 71 based on direct observation by the visitor and 96 based on an informant's report ( 53 of the items were adapted from Caldwell and Bradley's (1984) Home observation for measurement (HOME) inventory. The items are arranged in 7 sections entitled physical support, emotional support, framing, individualization, training in social responsibility, demonstration and explanation of ideals and intellectual stimulation and capacitation. Certain sub-sets of the items apply only to of the three age ranges sampled (under 2 years, 2-6 years, 7-12 years an) and a few apply only to boys or to girls.

The schedule is designed to be filled out immediately following a visit to a home during which the rater conducts a semi- structured interview with the key-person in the target child's regular environment. Each item is phrased in the form of Yes/No question. 104 of the items are keyed as indicators of a potential strength in the child's regular effective environment, while 63 are keyed as indicators of potential risk.

## **Caregivers**

### Parental characteristics

The case records of the Institutionalized Children will be studied and Control Group parents will be interviewed in order to collect information about the biological parents with respect to criminality, psychiatric disorder and social malfunctioning.

### The Emotional Availability Scale:

Sensitivity during free play will be observed with the Emotional Availability Scales (EAS; Biringen et al., 1993; Stams et al., 2002). The EAS not only contains scales for parental behavior, but also scales for child behavior (e.g., child responsiveness). The coders will be blind for the background of the children's status (orphanage or home reared). Also, different coders will code parental and child behavior.

## **Children**

### Social background

Case records of the institutionalized children will be assessed in order to study the child's individual history of institutionalization such as age at first admission, reason for admission, history concerning previous residence and number of transferences between institutions, change of caregivers since

admission, and duration of institutionalization as well as the presence of siblings in the same institutions and presence and amount of contacts with biological parents or relatives.

### Physical characteristics

Standard physical assessments of height, weight and head circumference will be conducted. Data on physical growth through the course of the child's development will be collected on the basis of the child's medical record. Physical measures of height and weight will be compared with respect to the Zambian population norms and will index nutritional deprivation. Head circumference will index brain growth (Van IJzendoorn, Bakermans-Kranenburg, & Juffer, in press; Van IJzendoorn & Juffer, 2006).

### Medical problems

Medical problems questionnaire concerning the health condition of the child from birth through the day of the assessment will be collected using the child's health records at the orphanage.

### Child stress reactivity and salivary cortisol

The salivary cortisol collection consists of two phases; first the home data collection to cover the circadian rhythm and second, the stress reactivity samples at the research centre. To measure diurnal cortisol changes the one-day, six-sample protocol may be applied. In this case, the timing for the samples may be: 1) awakening, 2) 45 minutes after wakening, 3) 2.5 hours after wakening, 4) 8 hours after wakening, 5) 12 hours after wakening, and 6) bedtime. The home data collection will be taken

over a 'typical' day at home. This diurnal or daily rhythm is a stress marker in itself may indicate hypocortisolism (Gunnar & Vasquez 2001) and is used as a baseline for the stress reactivity samples. The stress reactivity samples are taken at the research centre around the separation-reunion procedure: before the procedure, immediately after, and 15 minutes after the procedure. The samples of saliva are collected by means of salivettes, which consists of a sterilized cotton swab, a small beaker and a plastic tube. At home parents get sampling kits with pictured and written instructions to take the samples themselves. At the research centre the samples are taken by the parents guided by trained research assistants.

### False belief task

Children's performance on false belief tasks plays a central role in theorizing about how they acquire a theory of mind, in studying the relations between theory of mind and language (e.g., de Villiers & deVilliers, 2000), social behavior (e.g., Dunn, 1999; Moore&Frye, 1991), and executive function (e.g., Carlson&Moses, 2001), and in understanding developmental disorders such as autism (e.g., Baron-Cohen, 1995). The classic Sally–Ann task will be used to measure autism. It involves two dolls, each with a different colored basket, and a piece of chocolate. Sally puts her chocolate in her basket and leaves, and Ann enters, moves Sally's chocolate to her basket and leaves. The child is asked where Sally will look for her chocolate. In this study, since chocolates are not typical to the Zambian children, sweets will be used instead.

## Temperament

Child temperament will be measured with the Infant Characteristics Questionnaire (ICQ; Bates, Freeland, & Lounsbury, 1979). The ICQ contains 33 items, describing concrete behaviors in well-defined situations. The items are rated on a 5-point scale, ranging from 0 *not true* to 4 *true*.

## Cognitive tests

SON-R: The SON-R 2.5-7 (Tellegen, Winkel, Wijnberg-Williams, & J.A. Laros, 1998) is an individual intelligence test for general application which does not require the use of spoken or written language. The tests consist of 7 subtests mainly focused on visual-spatial abilities and abstract and concrete reasoning. Research indicates that the nonverbal SON-R tests are well suited for use with children of ethnic minorities in the Netherlands (Tellegen, & Laros, 1993) and in other countries (e.g., Zhang, Gong, Sun, & Tian, 1997). Two subtests from the SON-R 2.5-7 will be used: spatial subtest *Patterns*, as a proxy of IQ (Tellegen et al., 1998), and abstract reasoning subtest *Analogies*. Based on the standardisation research, the reliability of the subtests of the SON-R is .76 on the average with the *Patterns* and *Analogies* subtests as two out of three most reliable subtests of the SON-R (Tellegen & Laros, 1993).



## Attachment

Attachment to the caregiver will be observed in the Strange Situation Procedure (SSP; Ainsworth et al., 1978). The procedure involves a series of episodes in which the infant is exposed to mildly stressful events: the entrance of a stranger and two separations from the caregiver, followed by a reunion. In infancy, children who are insecure-avoidant shift their attention away from their distress and from the caregiver, and seem to remain focused on exploration. Insecure-resistant children display attachment behavior and seek proximity, but at the same time resist contact, and do little exploring. Secure children strike the balance between exploration and attachment behavior: they seek contact with the caregiver when distressed, but are readily reassured and resume exploration. For older children, patterns of attachment are based on communication, gaze, affect, body positioning, play, and control. Insecure-avoidant children keep a comfortable distance from the parent and show minimal responses. Insecure-resistant children are preoccupied with the relationship with the mother, and show immature and/or angry behavior. Secure children have calm and comfortable interaction with the mother and give an update to the mother when she returns (Stevenson-Hinde & Verschueren, 2002).

Insecure/Controlling-Disorganized children either show contradictory or misdirected and other disorganized behaviors, or show that they have taken control of the interaction and of the relationship as a strategy to reduce uncertainty when the caregiver cannot be counted upon. Next to the attachment classifications, continuous ratings for security, avoidance, and disorganized/controlling behavior are assigned (Cassidy & Marvin with the MacArthur working group, 1992).

Moreover, the attachment relationship will be rated using the Attachment Formation Rating (Carlson, 2002), that has been developed in particular for observation of children in institutionalized care or with a history of fragmented care (see Zeanah, Smyke, Koga, & Carlson, 2005). The Attachment Formation Rating indexes to what extent the child can be considered attached to the caregiver, ranging from 1 (*child demonstrates no attachment behavior and no differentiation between familiar and unfamiliar adults, and exhibits flat or minimal change in affect and little behavioral interaction with adults*) to 5 (*child exhibits behavior consistent with one of four traditional attachment classification patterns, demonstrating a clearly recognizable pattern of attachment and exploratory behavior in relation to the caregiver*). There are reliable coders in the research group, who also have experiences with atypical attachment behaviors (e.g., as reported in Vorria et al., 2003). The coders will be blind to the background of the children (orphanage or family reared).

#### Indiscriminate Friendliness Scale

Additional information on disinhibited patterns of behavior will be obtained from a semi-structured interview with a caregiver designed to assess the child's behavior toward the parent and other adults in both novel and familiar situations. Caregivers will be asked (1) whether the child wandered without distress; (2) whether their child is willing to go home with a stranger; (3) how friendly their child is with new adults; (4) whether their child is ever shy; (5) and what their child typically does upon meeting new adults (Chisholm, 1998). For each question a child is given a score of 1 if a caregiver

gives a response indicating indiscriminate friendliness. Research demonstrated substantial convergence of this measure with other measures of indiscriminate behavior, with intercorrelations ranging from  $r = 0.64$  to  $r = 0.97$ . The Indiscriminate Friendliness Scale had an internal consistency of 0.83 (Zeanah, 2002).

### 8.1. Ethical consideration

Before data collection for the main study, this research proposal will be submitted to the Ethical Committee for review. All explanations about the purpose of the study will be made to participants and informed consent will be obtained from those who will agree to participate in the study. Therefore, all necessary ethical guidelines will be considered in this research.

### 8.2. Work plan

This research will be conducted within a given time frame. Different components of this research will be systematically done according designated times. The table below shows the research timeframe.

<b>DESCRIPTION</b>	<b>TIMEFRAME (IN MONTHS)</b>
Pilot programme	December -January
Instrument administration	December-January
Data collection	February- April
Data analysis	May- June
Reporting (thesis)	July- September

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**Appendix (1) informed consent.**

**INFORMED CONSENT FORM**

**“Developmental differences of children raised in orphanages, adoptive families and biological families in Lusaka, Zambia.”**

**INFORMATION**

This research is being carried out by a masters’ student and research assistants in the Department of Psychology at the University of Zambia.

**Why have you been chosen?**

Individuals with the characteristics of the described sample will be asked to take part in this study.

**What will happen if I take part?**

You will be asked to fill in a number of questionnaires, interviews, standardized tests and video recordings about you and your child’s behavior, your health condition, your relationship with the child.

You will not put your name on the questionnaire but we will ask for your child’s initials for identification’s sake.

**Do you have to take part?**

It is up to you whether you take part.

**What will happen to the information I give?**

The information is confidential. The research will not identify you individually and no one other than the researcher will know what you have said. The questionnaires will only have initials not names. We will also remove any information that you give that can identify you personally. We hope the results from the study will help us to a programme to enhance the quality of life of children living in orphanages after this pilot study.

**Who can I ask if I have any questions?**

If you would like to ask any questions about the research then you can ring Mrs. Tamara Chansa-Kabali on 0977 765946.

Thank you for reading this.

**INFORMED CONSENT**

The participant should complete the whole of this sheet himself/herself

**Cross out as necessary**

- Have you read & understood the information sheet? YES/NO

- Have you had opportunity to ask questions & discuss the study? YES/NO
  
- Have all the questions been answered satisfactorily? YES/NO
  
- Have you received enough information about the study? YES/NO
  
- Who have you spoken to Mr/Mrs/Ms .....
  
- Do you understand that you are free to not to participate in study YES/NO
  
- Do you agree to take part in the study? YES/NO

Signature

Name (In block capitals)

Date

I have explained the study to the above participant and he/she has indicated his/her willingness to participate.

Signature

Participant

## Appendix (2) instruments

### Appendix ii. Constructs and measures

<b>Domain</b>	<b>Constructs</b>	<b>Measures</b>	<b>Source of Data</b>	<b>Comments</b>
<b>Environment</b>	Structure and functioning of the institutions	Questionnaire	Observations, semi-structured interview	Information about the size, structure, logistics, schedules, etc.
	Caregiving environment	Early Childhood HOME Inventory	Naturalistic observation	



		HEPA	Structured questionnaire		
<b>Caregivers</b>	Parental characteristics	Characteristics of biological parents	Assessment of the case records / interviews		
	Sensitivity	The Emotional Availability Scale	Naturalistic observation	bathing episode	
<b>Children</b>	Social background	Child's individual history of being in the orphanage	Assessment of the case records		
	Physical characteristics	Height	Exam of a child		
		Weight	Exam of a child		
		Head Circumference	Exam of a child		
	Medical Problems	Medical Problems Scale	Caregiver report/ orphanage records		
	Child stress reactivity	Diurnal cortisol		Exam of a child	
		Sampling of cortisol around the separation-reunion		Exam of a child	

		procedure		
	Presence of autistic features	False Belief Task	Exam of a child	Unexpected transfer test (Sally-Ann)
	Temperament	ICQ		
	Level of cognitive functioning	IQ test- SON-R	Exam of a child	
	Attachment	Separation Reunion Procedure	Structured lab observation	
	Indiscriminate friendliness	Indiscriminate friendliness scale	Semi-structured interview with a caregiver	