



Social Environmental Impact on Adolescent Attachment and Peer Relational Competence

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Authors' contributions

This work was carried out in collaboration among all authors. Author NI designed the study, performed the statistical analysis and wrote the first draft of the manuscript. Authors AJM and KT managed the literature searches of the study. Author SOCM managed the discussion of the manuscript. All authors read and approved the final manuscript.

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ABSTRACT

This study aimed at investigating the differences in attachment levels to the caregiver and the differences in interpersonal relational competence between adolescents raised in the home environment and those raised in orphanages. It was hypothesized that adolescents raised in orphanages would be less attached to their caregivers than adolescents raised in the home environment with regard to trust, communication and alienation. It was also hypothesized that adolescents raised in orphanages would have a lower interpersonal relational competence in comparison to adolescents raised in the home environment. Both the adolescents raised in the home environment and the orphanage-raised adolescents were from Lusaka, Zambia. Stratified sampling technique was used to obtain the sample of 97 adolescents, 48 raised in orphanages and 49 raised in the home environment, between the ages 11 and 14 ($M=12.27$, $S.D= 0.94$). The Inventory of Parent Peer Attachment (IPPA) was administered to all participants. Significant differences were found between adolescents raised in orphanages and adolescents raised in the

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home environment with regard to their attachment to their respective caregivers. There were significant differences in trust in their caregivers between the two groups $t(97) = -3.6, p = 0.05$. As hypothesized, there were significant differences in interpersonal relational competence between adolescents raised in orphanages and adolescents raised in the home environment. Finally, a strong positive correlation between attachment to the caregiver and peer relational competence was found between alienation from the caregiver and alienation from peers $r(72) = .606, p < .01$. Attachment bonds between adolescents and caregivers take place regardless of the rearing environment and peers can buffer the effects of harsh rearing environments. More research is needed to better understand the attachment in children under institutional care to stave off negative effects of institutional care in Zambia.

Keywords: Attachment; interpersonal relational competence; peer relational competence; caregiver; adolescent; communication; trust; alienation.

1. INTRODUCTION

As children interact with adults over a period of time, an attachment bond is developed which may be influenced by the responsiveness and sensitivity that the caregiver shows towards the child [1]. An attachment bond is an affectionate bond which is not dyadic, it is not a bond between two people instead, it is a bond that one individual has to another individual who is perceived as stronger and wiser [2]. Attachment refers to the quality of the relationship between the caregiver and the child. Unlike infants whose primary goal in an attachment relationship is to seek proximity to the attachment figure, availability and responsiveness are the key elements in attachment relationships in older children with their caregivers [2]. The differences in caregiver responsiveness and availability gives rise to different attachment styles which are: secure attachment; avoidant attachment; resistant attachment; and disorganized attachment [2].

The child's growth, in all aspects of health and personhood, depends on the capacity of adults, in whose care the child rests, to understand, perceive and respond to the child's bids for assistance and support" [3]. Developing a secure attachment relationship or close bond with a parent or primary caregiver has long term benefits for children through children's later adaptation, for instance through the development of emotion regulation [4]. Bakermans et al [5] pointed out that the rearing environment in most institutions is characterized by structural neglect due to discontinuous routine-like care and multiple shifts of overburdened professional caregivers working with too many children.

According to Lassi et al [6], due to the repeated state of neglect, abuse and fear, children in

orphanages are one of the most vulnerable groups of children in society. Alcohol abuse has been also found to be common among young people in Zambia [7] and experience of sexual violence in young women [8]. Further, Lassi et al [6], observed in a study on Eritrean orphanages that, children were found with mood disturbances, language delays and disturbed social interaction with peers. It was concluded that orphanages are necessarily the breeding grounds of psychopathological problems. Peer relational competence is a phrase that was used to refer to the adolescent's ability to amicably and confidently interact with peers in the environment. Additionally, the phrase interpersonal competence was used interchangeably with peer relational competence to refer to the adolescent's ability to have cordial relations with peers in the environment.

According to WHO, it was estimated that over 2 million children were being raised in institutions around the world, with more than 800,000 of them in Central and Eastern Europe and the Commonwealth of Independent States [9]. The World Health Organisation report showed that institutional rearing has adverse effects on physical, neurological, linguistic, cognitive, and social-emotional development [9]. Despite exposure to stressful and traumatic experiences, survivors of these events tend to show resilience due to individual, family and community factors particularly family, peer, school and community support [10].

Karadag-Caman and Ozcebe (2011) observed that the diversity of symptoms and the average level of distress caused by existing psychological symptoms reported by respondents were higher among adolescents raised in orphanages than those living in the home environments [11]. In addition, Ustuner, Erol and Simsek [12] reported

that the frequency of problem behaviours among 6-17-year-olds was 9.7% for those living with their biological parents in comparison to 12.9% for those living with a foster family and 43.5% for those in institutional care. Furthermore, Simsek et al. [13] noted that more problem behaviours were reported among adolescents living in institutional care (18.3% to 47.0%) than in adolescents living with their biological families (9.0% to 11.0%). These studies emphasize the negative impact that institutional care has on the development of adolescents.

In some cases, maltreatment occurs in orphanages or institutional care [14]. Maltreatment is defined as "all forms of physical and/or emotional ill-treatment, sexual abuse, neglect or negligent treatment or commercial or other exploitation, resulting in actual or potential harm to the child's health, survival, development or dignity in the context of a relationship of responsibility, trust or power" [15]. Ruset al. [14] observed that maltreatment has an early impact on children's well-being in domains such as behavioural, neurological, and molecular, furthermore, maltreatment can have lasting effects on biological, psychological, academic, and social functioning way into adolescence and adulthood. Research has also shown that there is an association between maltreatment in early-life and school absenteeism, high levels of aggression, anxiety/depression, dissociation, posttraumatic stress disorder symptoms, social problems, thought problems, and social withdrawal among adolescents [14]. In a study by Bellis et al. [16] it was found that adverse childhood experiences were associated with health-harming behaviors into young adulthood such as smoking, physical inactivity, multiple sexual partners, engagement in early sexual activities, drug abuse, problematic alcohol use, and attempted suicide.

Zeanah et.al [17] noted that the central tenet of attachment theory has been that early experiences between young children and their caregivers provide a model for intimate relationships in later life hence the need to study the effects of the two environments on attachment in adolescents. It is important to assess the differences that exist in attachment levels between adolescents that have been raised in the home environment and adolescents that have been raised in orphanages and brought up by caregivers. This would allow stakeholders to make informed decisions in improving the child social welfare system.

Further, Maclean [18] alludes to the study of attachment behaviours having the potential to inform our thinking with respect to the roots of pathology in children which may be valuable information when attempting to curb deviant or delinquent behaviours in children before they become adults. If attachment problems are detected early on, it may be possible to establish measures that may reduce and prevent any extreme side effects in associations or relationships with people later in life.

There is a literature gap in Zambia on how adolescent-caregiver attachment affects adolescent's interpersonal relations, this research is an attempt to fill in that gap. There are insufficient studies conducted in the African context, particularly Zambian studies emphasizing the importance of the caregiver-adolescence relationship and its effects on the developing child. There is a need for research in this field to better understand the concept of attachment in the Zambian orphanages among adolescents and how this affects their interpersonal relations. Research in child and adolescent attachment may help curb child delinquency and child psychopathology in Zambia. The main aim of the study was to investigate the differences in attachment level to the caregiver and differences in interpersonal relational competence between adolescents raised in the home environment and adolescents raised in orphanages.

1.1 Theoretical Framework

This study used is based on attachment theory which suggests that as long as there is a caregiver present, an attachment will be formed though the type of caregiving available may affect the attachment style. VanIjzendoorn [19], notes that according to attachment theory, the security of infants' attachment to their caregivers is determined by the quality of the care they receive. When children receive warm and sensitive care, they generally develop basic trust in their caregivers during the first year of life [1] which may affect later relationships that may form. The type of care adolescents receive as children will affect the type of attachment styles that they present later in life. Sensitive responses to infants, correctly reading their signals and needs are associated with secure attachments, whereas rejection of infants' communication and inconsistent care are related to insecure attachments [19].

Caregiver-child attachment is vital to child social relations. According to Bowlby [1], children form an internal working model from their initial relationship with their primary caregiver which becomes a standard by which the individual later views other relationships. According to Parade et.al [20] state that studies have “shown that the strength of this relationship does not decline and that parents retain a substantial influence on the development of adolescent social relationships outside the family”. According to Dekovic and Meeus [21], the strength of the attachment bond between the adolescents and their parents continues to have an impact on the adolescents’ relations with others in a social context.

According to Bowlby [1], experience with primary caregivers leads to expectations and beliefs (which he referred to as ‘internal working models’) about the self, the world, and other relationships. Watersand Hamilton [22] also note that these representations are persistent and yet open to revision in light of experience. This implies that the first mental representations that the individual creates about caregivers form a basis on how the individual will relate with others but these mental representations are subject to change based on experiences the individual has. This theory also emphasizes the significance of the caregiver-child relationship on the child’s social development thereby supporting Bowlby’s Attachment theory [1].

Bronfenbrenner’s Ecological model emphasizes the significance of the environment’s influence on the development of the individual [23]. Furthermore, Bronfenbrenner [23], referred to the different forces within the environment as ‘systems’ and he proposed that the first system to influence the individual’s development is the micro-system which accommodates both the family and the school [23]. According to Bronfenbrenner [23], a micro-system is a pattern of activities, social roles and interpersonal relations experienced by the developing person in a given face-to-face setting with particular physical, social and symbolic features that invite, permit or inhibit engagement in sustained, progressively more complex interaction with and in the immediate environment, such family, school, peer group and workplace. Therefore, it can be noted that the environment in which an individual has face-to-face interactions may impact the developing individual. The two environments investigated in this study may be considered micro-systems as well because the adolescents had face-to-face interactions with their caregivers.

Social psychology theorists have indicated that as the individual grows into adolescence, the individual seeks to relate with peers more than with parents or caregivers and to be accepted into peer groups [24]. In order to be accepted into some of the peer groups or cliques, adolescents are susceptible to drinking, smoking, engaging in sexual relations, partaking in illicit drugs and other deviant or delinquent behaviour [24].

As such, it is important to investigate the environment in which adolescents are nurtured and how their attachment bonds to their caregivers are created to determine if the environment the adolescent is raised in has caregivers that are responsive and available. This is because these factors may influence the formation and maintenance of an attachment bond which would subsequently affect later relationships, according to Bowlby’s theory of attachment [1-2].

2. METHODOLOGY

The study used a correlational design. The study sample consisted of 48 children who were raised within orphanages and 49 children who were raised in the home environment and orphanages. The participants were between the ages 11 and 14 years from Chishawasha Children’s Home. The inclusion criteria used in the study was that the orphanage had to have adolescents in residence that had spent the first five years in the orphanage and had spent the year prior to the study as residents of the orphanage.

Class lists and other background information were used by teachers and other administration staff, to identify pupils that fitted the requirements for inclusion in the study. The adolescents raised in orphanages were selected first and the adolescents raised in the home environment were demographically matched to the former. The Inventory of Parent and Peer Attachment (IPPA) by Guarnieri [24] was used in this study. The IPPA was modified to only include two sections, one assessing attachment to the mother figure and the second assessing peer relational competence.

It was hypothesized that adolescents raised in orphanages would be less attached to their caregivers than adolescents raised in the home environment. The data was analyzed using independent samples t- test to find the differences between adolescents raised in orphanages and those raised in the home

environment in their attachment to their caregivers. Composite scores were created of six constructs: mother trust, mother communication and mother alienation which denoted attachment to the caregiver while peer trust, peer communication and peer alienation denoted peer relational competence. The two different environments were measured against each construct respectively.

3. RESULTS

The findings of the study revealed that participants had large families comprising of a large number of siblings especially in the orphanages as indicated in Table 1 below. The participants in the orphanages also reported that they had a larger number of other caregivers and a larger number of people they live with in comparison to the participants raised in the home environment.

3.1 Impact of Rearing Environment on Attachment to Caregiver

The results showed that participants raised in the home environment had statistically significant higher mean scores ($M= 40.8$) compared to orphanages ($M= 34.7$) on mother's trust; $t(97) = 3.6, p= 0.05$ indicating that participants raised in the home environment were more trusting towards their mothers compared to the participants in the orphanages towards their mother figures who were their caregivers. Participants in the orphanages had statistically significant higher mean scores ($M= 18.2$) compared to the participants in the home environment ($M= 12.4$) on mother alienation; $t(97) = 4.48, p= .01$. Scoring high on mother alienation means that participants in the orphanages were not close to their mother-figures. However, there were no statistical significant differences on mother communication between participants in the home environment and those in orphanages. As hypothesized, these results show that participants raised in orphanages were less attached to their caregivers than adolescents raised in the home environment as shown in Table 2.

3.2 Impact of Rearing Environment on Peer Relational Competence

It was hypothesized that adolescents raised in the home environment would have better peer interpersonal competence than their counterparts

raised in orphanages. The results showed that there were statistical differences on peer communication $t(97) = 2.26, p= .05$ and peer alienation $t(97) = 2.28, p= .05$. Adolescents raised in the home environment had higher mean scores on peer communication ($M=29.8$) compared to orphanages ($M= 21.1$). This shows that participants raised in the home environment were better at communicating with their peers in comparison to the participants in the orphanages. On peer alienation, participants in the orphanages had higher mean scores ($M= 18.2$) compared to the participants in the home environment ($M= 17.6$). This means that participants in the home environment were closer to their peers compared to participants in the orphanages. However, there were no statistically significant differences in peer trust (see Table 3).

3.3 Relationship between Attachment to the Caregiver and Peer Relational Competence

It was hypothesized that there would be a positive correlation between attachment to the caregiver and peer relational competence. To test this hypothesis, Pearson's correlation was used to find the association between mother and peer relational competences. The results showed that mother trust was positively correlated to peer trust $r(63) = .336, p< .01$. Mother alienation was positively associated to peer alienation $r(72) = .606, p< .01$. Mother communication was correlated to peer trust $r(64) = .543, p< .01$, peer alienation $r(68) = .434, p< .01$ and peer communication $r(70) = .467, p< .01$. These results show evidence that support the null hypothesis as shown in Table 4.

4. DISCUSSION

This study investigated the differences in attachment levels to caregivers between adolescent raised in orphanages and adolescents raised in the home environment. It was hypothesized that adolescent raised in the orphanage would be less attached to their caregivers. That is, they would trust and communicate less to their caregiver and be more alienated from their caregivers in comparison to their counterparts raised in the home environment.

The results showed that adolescents raised in the home environment were more trusting and closer to their caregivers (less alienated from their caregivers) in comparison to their

counterparts raised in orphanages. This supports existing literature [18,17,25]. However, there were no differences in communication between adolescents raised in the home environment and adolescents raised in orphanages. Therefore, it can be noted that adolescents raised in the home environment have a higher level of attachment towards their caregivers as they trust them more and are less alienated from their caregivers in comparison to their counterparts raised in orphanages. This could be attributed to the fact that the adolescents raised in the home environment have greater access to their caregivers because they have a fewer number of

siblings. The children raised in the orphanages referred to other children living in the premises as their siblings. It was noted that 27% of the adolescents raised in orphanages had six to ten siblings in comparison to adolescents raised in the home environment that showed that only 8.1% had siblings in that range. Thus, this reveals that the caregiver to child ratio was higher in the orphanage than in the home environment. Research has shown that the caregiver-child ratio has an impact on the development of attachment as this affects the amount of time and number of interactions each child has with the caregiver [3,2].

Table 1. Background characteristics of the respondents

Variable	Group	Orphanage		Home environment	
		Frequency	Percentage	Frequency	Percentage
Number of siblings	0	4	8.3	4	8.1
	1-5	19	39.5	38	77.5
	6-10	13	27	4	8.1
	11-15	7	14.5	--	0
	Total	43	89.3	46	93.7
	Missing	5	10.4	3	6.1
Live with other caregivers	Total	48	100	49	100
	Yes	34	70.8	17	34.7
	No	12	25	29	61.2
	Total	46	95.8	47	95.9
	Missing	2	4.2	3	4.1
Number of people at home	Total	48	100	49	100
	1-5	6	12.5	20	40.8
	6-10	25	52	25	51.1
	11-15	11	22.9	1	2
	16-20	2	4.2	--	--
	Total	44	91.6	46	93.9
Missing	Missing	4	8.4	3	6.1
	Total	48	100	49	100

Table 2. Adolescents and mother attachment

	Group						95% CI	t	df
	Home environment			Orphanage					
	M	SD	N	M	SD	N			
Mother Trust	40.8	7.2	41	34.7	8.7	37	-10.1,-2.9	-3.6*	76
Mother Communication	32.8	6.5	40	32.8	8.1	39	-3.2, 3.3	.01	77
Mother Alienation	12.4	5.2	44	18.2	6.6	40	3.3, 8.3	4.48**	82

*p< .05 level & **p< .01 level

Table 3. t-test Results for adolescents and peer relational competence

	Group						95% CI	t	df
	Home environment			Orphanage					
	M	SD	N	M	SD	N			
Peer Trust	35.6	8.9	36	38.4	8.6	34	-1.3, 6.9	1.3	68
Peer Communication	29.8	7.8	45	21.1	7.8	35	1.1, 8.1	2.26*	78
Peer Alienation	17.6	5.9	45	18.2	6.6	46	.4, 6.6	2.28*	82

*p< .05 level

Table 4. Correlation matrix - mother attachment & peer relational competence

	1	2	3	4	5	6
1. Mother Trust	--					
2. Mother Alienation	-.182	--				
3. Mother Communication	.669**	.248*	--			
4. Peer Trust	.366**	.124	.543**	--		
5. Peer Alienation	.153	.606**	.434**	.186	--	
6. Peer Communication	.229	.221	.467**	.789**	.326**	--

(* Correlation is significant at the 0.01 level (2 tailed) and * Correlation is significant at the 0.05 level (2tailed)

In adolescence unlike in childhood, the requirement for attachment formation is caregiver availability and responsiveness and not necessarily proximity to the caregiver [2]. As such, adolescents would require the caregiver to be readily available to them when need arises. However, the results revealed that there were no statistically significant differences in communication between the two groups. That is, both sets of adolescents communicated to their caregivers at similar levels. This might be because despite not trusting their caregivers and feeling more alienated from their caregivers than their counterparts, the adolescents raised in orphanages still relied on their caregivers to provide for them. The adolescents would therefore have to express themselves to their caregivers to have their basic needs met regardless of not trusting them and irrespective of how many other children required the attention and care of the caregiver.

The caregivers in orphanages also have shifts in which they alternate with other caregivers. The present study revealed that 70.8% of the adolescents raised in orphanages lived with other caregivers in comparison to the 34.7% of adolescents raised in the home environment. Consistency in care-giving is vital in attachment formation. As such, alternation of caregivers can disturb the formation of attachment to a particular caregiver and affect the levels of trust the adolescent may develop. The separation from a caregiver can cause distress to the adolescent and affect the attachment formation [1]. According to Kenny [26], attachment requires the consistent availability of the of the care-giving adult over an extended period of time. Van den et.al [27] noted that shift care, regardless of the duration of the shift interferes with accessibility to the caregiver.

It was also hypothesized that adolescents raised in orphanages would have lower interpersonal relational competence in comparison to their counterparts in the home environment. True to the hypothesis, the study showed that the

adolescents raised in orphanages had a lower interpersonal relational competence in comparison to the adolescents raised in the home environment. These findings support the theoretical inferences that adolescents raised in orphanages have disruptions in attachment to caregivers and thus will have internal working models that will negatively affect their relations with peers [1,2]. West et al. [28] assert that attachment relationships beyond childhood have an important functional role in the adjustment of the child, as the caregiver-child attachments give way to new affection ties to peers which become the basis for later stable reciprocal attachment relationships.

The attachment theory proposes that there is a universal need for close emotional relationships with significant others which influences an individual's sense of security which allows for exploration of self, others and the world [2, 29]. Mota and Matos [29] note that sensitive and consistent parental responsiveness promotes the development of models of self and others which influences the relations with others in the environment. Mary Ainsworth implied that the search for support, comfort and intimate sharing may constitute attachment bonds [2] and thus, peer groups create a safe haven which provides an excellent context for learning problem-solving skills, developing self-control, and maintaining close relationships [29].

In a study by Mota and Matos [29], examined peer relations among adolescents living in orphanages as attachment to peers seems to represent a major source of emotional support and personal development. Mota and Matos proposed that peers in this context can represent a microsystem that takes on the role of caregivers, who are fundamental to enhancing adolescents' affective connections, emotional development and promoting their sense of security [29]. This shows that peers can be a support system particularly for adolescents raised in orphanages. The acceptance and

integration into peer groups is important in adolescence because not only could it ensure that the adolescent is accepted by others but it can also be a form of protection from non-members of the peer group [30,31]. This is important especially in orphanages where older children may prey on younger ones. Children may feel safer in a group with their peers as opposed to when they are alone.

The results revealed that a statistically significant, positive relationship between attachment to the female caregiver (or mother) and peer relational competence exists. This implies that the better and stronger the relationship between the adolescent and the caregiver is, the better the adolescent is capable of relating amicably with peers in the environment. These findings agree with literature that purports that the attachment a child has to its caregiver forms the basis of other relationships. The findings of the current study showed that there was a significant relationship between attachment to the primary maternal caregiver and peer relational competence regardless of the environment the adolescent was raised in. The relationship between the caregiver and the adolescent is therefore important in the formation of other attachment bonds as previously shown by Bowlby and Ainsworth [2]. Kenny and Gallagher observed that the affectively charged pattern of attachment behaviours and beliefs about attachment carried forward from the attachment history with their caregivers critically influences the adolescents' success in creating new supportive relationships [26].

5. CONCLUSION

Attachment theory proposes the significance of the child-caregiver attachment relationship and the impact it has on later relationships. More research should be conducted on how caregiving in institutional care in Zambia affects the developing child. In addition, there are few studies that target attachment in adolescence and even less those that are conducted in the Zambian and African contexts. Furthermore, attachment theorists and relational theorists have pointed out the importance of attachment to peers and the positive effects of healthy peer relations to the self-esteem, emotional and social wellbeing of the individual. More research on interpersonal relations in orphanages should be done in order to create opportunities for healthy interaction among adolescents to establish more

positive, empathic attitudes in the youth and combat delinquency. There is a need for local scholars to create reliable and valid research tools to be used in the Zambian context that will take into consideration the cultural norms, language variations and socio-economic conditions. It is also recommended that a bigger sample of orphans are used in future in comparison to the children living with their biological parent.

CONSENT AND ETHICAL APPROVAL

The study sought approval from the University of Zambia Ethics Committee. In addition, the participants were assured of confidentiality, they were made aware that they were free to withdraw from the study at any point, consent was obtained from their parents and guardians and assent was obtained from the children.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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