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The effect of caregiver training on time-use of children living in residential care facilities

Koch, Lyndsay Carol

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5. Chapter Five: Discussion

This discussion will consider the findings in terms of the demographics of the participants in the study as well as the effect of caregiver training offered by Thusanani Children's Foundation on the temporal and social contexts of infants and toddlers living in residential care facilities. The temporal context of these infants' and toddlers' related to their use of time in terms of the quantity of time spent participating in different activities and alone will be reviewed. The social context will be discussed in relation to the quality of interaction in time spent with caregivers including the one-on-one contact and language use during these activities.

The implications of these findings in terms of the various aspects of occupational development in these children will be considered. As occupational therapists, we are concerned with the participation in meaningful occupations (1) (16). This study investigated how infants and toddlers in residential care were spending their time across the day.

5.1. Demographics

The participants in this study were 29 infants (between 3 and 12 months), with a mean age of 7.41 months and 31 toddlers (between 13 and 23 months) with a mean age of 16.77 months. All participants lived in residential care facilities within the Johannesburg area. Racial distribution of participants was comparable to the national estimate of the general population in South Africa published by Statistics South Africa (StatsSA) in July 2009 as 85% of the participants were black (11). This estimate attributed 80% of the population to black ethnicity (Table 4-3). The male-female distribution, however, was not similar to the national estimate. In the

residential care facilities visited during the course of this study, there was a higher ratio of males making up 56.7% of this population. In the general South African population this ratio is reversed, with more females making up 52% of the population (11). However, the male:female ratio found in this study is similar to that in an audit study done on residential care facilities in Johannesburg, while a study done on residential care facilities spread throughout South Africa as well as a study in Russia also reported a slight predominance of males (5) (4) (12). This is an interesting trend, particularly when the group is divided further by age into an infant and toddler group. In the infant population of this study, males made up 51.7%, while in the toddler population, they made up 61.29%. National general population statistics, however, represent the entire population from birth to death and are therefore not necessarily representative of this particular age-group. Conclusions about gender distribution must therefore be made with caution. Nonetheless, this trend in the data may suggest the tendency of boys to remain in residential care after their first birthday and may be interesting for further study.

Twenty-six caregivers were observed in this study of which the entire population (100%) was female. This compares to studies done elsewhere in South Africa and abroad, which all report a predominance of female caregivers in residential care facilities (5) (4) (2) (12) (13) (34). This is probably due to the fact that caring for infants and toddlers is traditionally a female role and a bias exists both in the worker and the manager's mind regarding the suitability of a male caregiver.

In this study, twenty-one of the caregivers were employed by the residential care facilities they worked at, while five were international volunteers generally from either North America or Europe. This difference between being an employed caregiver versus an international volunteer accounted for some of the variance within the population with regards to race, age and educational status, especially between the

trained group and the untrained group (all five international volunteers were part of the trained group).

73.08% of the caregivers were black, which on the surface is slightly less than the statistics of the general population generated by StatsSA (11). However, 19.23% were made up of white international volunteers, which cannot be thought of as representative of the South African population. Furthermore, the international volunteers tended to be in their early twenties or late teens, much younger than the average age of all caregivers (36 years). They also were better educated, all having at least achieved a National Senior Certificate equivalent and representing the single university-trained caregiver in the group. The South African employed population of caregivers were older (much closer to the average age of 36 years) and less educated, with a fairly even spread between those that achieved a National Senior Certificate equivalent and those that only achieved a Grade 10 equivalent. The demographics of the caregivers in this study are very similar to those described by Meiring (2008) in her study of residential care facilities in Johannesburg (5). She also reported the greatest number of caregivers had achieved either a Grade 10 equivalent or a National Senior Certificate equivalent and fell in the 31 – 40 years age group (5).

The trend of using international volunteers as caregivers within residential care facilities is found throughout South Africa (4) (5). Although not the most common form of staffing, it can still be considered representative of the variety of care-giving models used in residential care facilities in South Africa. These volunteers are not trained in care-giving and are not offered the training offered to new caregivers employed within the residential care facilities that were observed in this study. This basic training focuses predominantly on basic health, nutrition and first aid with very little information around development and stimulation.

Meintjies et al. (2007) also reported that 41% of caregivers in residential care facilities in South Africa have received no special training at all, while 47% had received some basic training, but that this training was very variable (4).

International studies done within residential care facilities have also described the caregiver population group as tending to be older rather than younger, with poorer education levels than the general population group and being poorly paid. Although residential care facilities may employ a variety of professionals, such as doctors, nurses and a variety of therapists, these staff members are very seldom responsible for the day-to-day care of the children living in these facilities (12) (13) (34) (36). Thus the general caregiver population can be described as a group of people with generally poorer levels of education and receiving low salaries which would not attract people with excellent skills. As a result, those looking after some of our most vulnerable children are those who are least likely to know about or understand the importance of development and stimulation and the role of attachment in preventing developmental and emotional delays. It is, therefore, important to find effective ways of imparting knowledge and skills about these aspects of child care to this group of people.

In order to determine if differences in the demographic data could have an effect on the outcomes of the study, the groups of caregivers that had received training and those that had not as well as the two different groups of infants and toddlers, they cared for, were compared to one another. The groups could be considered homogenous. Therefore, significant changes seen in the social and temporal contexts at facilities where caregiver training had taken place were accepted as resulting from the training instituted by Thusanani Children's Foundation.

5.2. The Temporal Context of Infants and Toddlers in Residential Care Facilities (Quantity of Time)

Infants' and toddlers' main forms of occupation are the participation in a variety of age-appropriate play activities that promote both development in all spheres of occupation as well as learning (16) (26). Infants and toddlers are not yet capable of participating in educational activities, work activities or leisure activities as defined in the practice framework (26) (1). Social participation is also still in its infancy with true cooperative play and prolonged social interactions only developing at a later age (26). Therefore this study used the term "meaningful activity" to encompass all activities that promote development and learning, including all play activities that are appropriate for any particular age-group. In infants sensory-motor and explorative play are predominant, while in toddlers functional play, cause-effect play and parallel play are expected. (26) A child participating in any activity that is not appropriate for his/her age is not considered to be participating in meaningful activity, e.g. a toddler aimlessly banging a toy against a cot (2).

5.2.1. Quantity of Time Spent In Activities

Activity profiles describing the proportion of time spent in four broad categories of activities were generated for the infants and toddlers that participated in this study including time spent in meaningful, non meaningful and personal management activities.

There were marked differences in the activity profiles of the infant group as a whole when compared to the toddlers group in this study's sample (Figures 4-1, 4-2 and 4-3). The toddlers consistently spent on average 10% more time in meaningful activity.

This indicates an age related factor influencing time spent in meaningful and non-meaningful activity. It is possible that this may be related to mobility. Infants are very dependent on their caregivers to structure their time so that they can participate in meaningful activity and play. Their main form of play is explorative play, where infants will explore the properties of their own bodies as well as objects in their environments by touching, mouthing, shaking, stroking, hitting and throwing. Until infants are able to crawl (at about 9 months of age), they are unable to move around their environments independently and need to assistance of a caregiver should an object or toy roll out of reach. Their interactions with other humans are very limited and are usually directed by adults (26).

Toddlers, on the other hand, are able to some degree to initiate and participate in play activities by themselves without an adult being present. Indeed, with the emergence of functional play (the use of objects for their real purpose) as well as parallel play (playing alongside another toddler, but without interaction), this initiation of play is expected for this age group (26). Toddlers are also, with the emergence of language, capable of initiating limited interactions with others and are less dependent on adults than infants. As a result, if adults do not able to provide a lot of one-on-one interaction and stimulation for toddlers, it is likely that they will still be able to participate in some meaningful activity and appropriate play. For infants on the other hand this lack of interaction is more likely to result in considerable periods of time being spent in non-meaningful activity. This could explain the differences between the toddler group and the infant group in terms of time spent in meaningful and non-meaningful activity.

This has implications for normal development within residential care facilities. Participating in play activities and structured learning activities are necessary to promote the development of body functions and performance skills that are in turn necessary for normal development to take place. During play activities, infants and

toddlers learn about their world and how to interact with it. These skills form the foundation on which future learning is based and is the basis for the development of occupational performance within education, personal management and leisure (26). If infants are not afforded the opportunities to participate in meaningful play, this development cannot take place. Over extended periods of time, this can result in developmental delay and learning difficulties. This study did not record the age at which participants in this study entered the residential care facilities. Therefore it is not clear from this study whether infants' activity profiles will naturally change as they get older even though they are not receiving a lot of stimulation from their caregivers. It would be interesting to investigate this further.

These activity profiles were then compared to those generated by Tirella et al. (2008) in Russian baby homes in order to see whether South African orphans were spending their time similarly or differently to orphans elsewhere in the world. There were some interesting similarities and differences between the two population groups.

Time spent in non-meaningful activity was found to be comparable between the Russian and South African groups. Tirella et al. (2008) found that Russian infants in residential care spent 23.1% of their time in non-meaningful activities, which is comparable to the South African group of infants in this study (26.3%). The Russian toddler group spent 16.7% of their time in non-meaningful activities, which is again similar to the group of South African toddlers living in residential care facilities (15.3%) (2). Interestingly, time use in meaningful activities for infants and toddlers in this study was higher than that of the Russian subjects, who spent 17% to 22% less time in meaningful activity than their South African counterparts (2). This was surprising as one would expect that if time spent in non-meaningful (developmentally inappropriate and unstimulating) activity was similar, time spent in meaningful,

developmentally appropriate activity would be similar too. This difference of time was made up in different ways for the different groups.

In the infant group, it would appear that the Russian infants were spending almost 19% more time sleeping than the South African infants. In the toddler group, the Russian toddlers were spending almost 13% more time in personal management tasks than the South African toddlers.

It is important to note that there were many disabled infants and toddlers living in the baby homes in Russia and this may account for the differences in time use. Although infants and toddlers with developmental problems and HIV were not specifically excluded from this study, specifically designated “special needs” facilities were excluded. This was to try and minimize the influence of disability on the activity profiles as children with disabilities, especially those with moderate to severe neurological impairments, require more time to complete personal management tasks and find it more difficult to participate in meaningful activity. It is possible, therefore, that the differences between the Russian baby home group and the South African group are due to the presence and absence of severe disabilities within the population groups.

Tirella et al. (2008) suggested that training of caregivers could be a possible way of changing activity profiles of children living in residential care facilities (2). Thus one of the objectives of this study was to establish the effect of caregiver training on the temporal context of infants and toddlers in such care. The assumption made was that caregivers who had been trained would be more aware of the importance of stimulation and normal development. They would be able to facilitate more appropriate activities within the care-giving room which would allow the infants and toddlers under their care to participate in more meaningful, developmentally

appropriate activity (12) (13). It is also possible that the fact that some of the infants and toddlers living in residential care facilities in South Africa had caregivers that had received training had an influence in the differences noted between the South African groups' activity profiles in comparison to the Russian baby home group.

When the activity profiles of the infant groups cared for by caregivers who had and had not received training were compared, there was very little difference between the two groups regarding time spent in different activities (see Figure 4-2). The group of infants living in residential care facilities where caregivers had received training showed a small decrease of 5.8% in time spent in non-meaningful activity and a small increase in time spent in personal management time of 3%, but these differences were not statistically significant and the difference in time spent in meaningful activity is almost identical when cared for by untrained and trained caregivers. When the two toddler groups cared for by caregivers who had and had not received training were compared (see Figure 4-3), the differences between the two groups were even smaller – less than a 2% difference in all spheres. This means that infants and toddlers living in residential care facilities tend to spend the same quantity time during the day on the same sort of occupations.

Despite not demonstrating any significant difference in activity profiles between the groups living in residential care facilities where caregiver training had taken place and those living in facilities where no training had occurred, some interesting information could be gleaned from these results.

It is clear from these results that the current format of caregiver training does not have much influence on what the children in residential care facilities spend their time doing. It is not sufficient to only address knowledge and skill with caregivers if a programme wishes to impact on the general activity profile of children living in

residential care facilities. Other factors within the residential care facility, such as the caregiver-child ratios, routines, physical space, resources and the ethos of the facility, are probably influential in determining the temporal context or proportion of time infants and toddlers spend in different activities.

Caregiver ratios and expectation on caregivers may play an important role in the way in which infants and toddlers spend their time. These factors have also been identified in the literature as having an effect on the temporal context of infants and toddlers living in residential care facilities. South African legislation dictates a ratio of one caregiver to six infants and toddlers. This ratio places great demand on the caregiver's time in terms of just physically caring for these infants and toddlers. Consider the hours spent feeding, changing nappies, washing and dressing six infants and toddlers in one day. Often caregivers are also expected to do other tasks that are not direct infant and toddler care, such as prepare meals, do laundry or fold laundry, keep the care-giving area neat and clean and mopping floors. As such, very little time is left to spend playing with the infants and toddlers under their care. Furthermore, most caregivers in South Africa work on a shift basis, with caregivers rotating between duties. This creates an environment where children in a residential care facility may be seeing a different caregiver everyday and does not promote bonding or attachment to develop between caregivers and children.

The extreme form of this shift work was reported on by McCall et al. (2008) in St Petersburg Russia, who estimated that one child in a residential care facility would have had 50 – 100 different caregivers by the time the child is two years old (12). This is very disruptive for a child, but can also indicate disruptions in the routines of caregivers. In the end this could be one of the reasons that "mothering", although an integral part of parenting systems the world over, is not naturally elicited within the residential care environment.

This also hints at the effect of the ethos of individual residential care facilities – what does the management and staff within these facilities regard as their duties. Many residential care facilities have regimented routines regarding when personal management activities should occur as well as some routine regarding sleep time. These routines place strain on caregivers to complete tasks within a specified time. However, stimulation time and play time are often not embedded into these routines. The spaces in between personal management time and sleep time are not scheduled into specific play time or stimulation time and are usually used to complete any other tasks the caregivers may need to do (such as fold laundry). It is possible that playing with infants and toddlers is not viewed as "productive work" by either management or staff and therefore does not take a prominent place within the routine of the facility. This could be further backed up by the fact that the two audit studies done in South Africa in residential care facilities found that good care was defined as physical care and that the developmental, psychological, learning and emotional needs of children were often not considered by management within facilities when planning services and routines (4) (5).

Furthermore, the strong emphasis on cleanliness and infection control within residential care facilities in South Africa, while not bad in itself, tends to create an aversion to the messiness that naturally occurs when groups of children play together. It was observed that all the facilities visited during this study attempted to keep a neat, clean, orderly care-giving area, with floors being mopped at regular intervals and tidying happening in-between other tasks. This further expounds an ethos that emphasizes physical care rather than the developmental and emotional needs of children and does not create the time or the space for meaningful play and learning activities to occur.

Finally, physical space and material resources may also play a role. Although literature has suggested that the physical environment exerts the least influence over

a child's development, it is still important to have enough space to play and objects with which to play. These objects need not be expensive shop-bought toys, but there does need to be some form of objects within the environment. This becomes more important when larger groups of children find themselves in the same physical environment and therefore need more space and more objects to go around than in the average family.

Thus programmes hoping to influence the activity profiles of infants and toddlers living in residential care facilities can not only look to offer caregiver training, but must also address issues of physical space, caregiver ratios, resources and the ethos of both the facility as well as the caregivers themselves. Lessons can perhaps be learnt from the study undertaken by McCall et al. (2008) in St Petersburg. Here the most successful intervention was caregiver training coupled with structural changes in the actual management and general routine of the facility. This required buy-in from management and allowed the restructuring of shift working to more stable work hours that allowed the development of bonds between caregivers and the children they were caring for. Also ratios between children and caregivers were lowered and smaller mixed-age family-like units were created rather than large wards of children of the same age as this also helps to decrease the care-giving burden (12).

Finally activities such as play-time and story-time were imbedded into each unit's routine making it part of the general duties of a caregiver to spend time playing and interacting with the children in their care. The structural changes in the study tried to create a more family-like environment that would allow caregivers the time to interact with their charges and to create the social context that would support their development. This seems to be one of the best ways to change the overall environment within residential care facilities in a positive manner. This study reported excellent changes in the way that caregivers interacted with children and the

time they spent with children, although specific activity profiles were not generated and seems to underlie this principle (12).

Once again, however, the long-term sustainability of such a programme has not been reported. It is, therefore, difficult to assess whether the changes noted within interactions between caregivers and their charges continued to be of good quality.

A limitation of this study is that the attitudes and beliefs that caregivers and facility managers have regarding the importance of play during the daily routine was not investigated and therefore no further comment can be made regarding this. It would be valuable to further investigate these attitudes and beliefs within residential care facilities. In general, this study can report from observation that caregivers were often busy with other activities when children were playing alone within the care-giving room.

5.2.2. Quantity of Time Spent Alone and with Others

Tirella et al. (2008) found that infants and toddlers living in residential care facilities were spending on average half of their "awake" time alone (infants 65.5%, toddlers 43.1%) (2). This means that for half the day infants and toddlers within these facilities did not make any contact with another human being either by means of touch, language, eye-contact or play. This disturbing finding at facilities that were considered well-resourced in both material and human resources, provided some of the impetus for undertaking a similar study in South Africa where there has been such an increase in both the number of projected orphans (1.5 million by 2010) and the number of residential care facilities due to the HIV epidemic within our communities (4) (5). The question was whether infants and toddlers within South

African residential care facilities were spending comparable periods of time alone and whether training could make any difference to that statistic.

This is important information for all professionals, and especially occupational therapists, working within these facilities to promote normal development, as training has been suggested as a possible remedy for the situation (2). This is also one of the stated goals of Thusanani Children's Foundation (the only occupational therapy organization working solely within the residential care facilities in Johannesburg) as an indirect means of reaching the developmental needs of large numbers of children in residential care with a very limited number of occupational therapists. Yet despite the effort and resources being ploughed into caregiver training, no concrete evidence exists as to whether this training is actually successful in improving the quality of time-use patterns within these facilities.

All the groups within this study were spending more than half of their day alone (between 51% and 80%), an unacceptably high proportion of time considering the developmental and emotional needs of these children. It is important to note, however, that this percentage was calculated across the whole day and includes "sleep time". Obviously, it is completely acceptable for children to be alone when they are asleep, but even when "sleep time" is removed, it is still evident that all children living in residential care facilities spend a significant portion of their time alone (between 40% - 75%) (see Figure 4-5).

The implication of this result is that all the infants and toddlers in this study spent less than 40% of their time in one-on-one contact with their primary caregiver (ranging between 17% and 34%), who is the primary person within an infant or toddler's life for attachment and creating and promoting developmental experiences. The remaining time was spent either in contact with another adult (usually a volunteer from the

surrounding community who would come at irregularly organized visits to help out at the facility) or in contact with other children (usually a toddler who initiated contact with another toddler).

Caregiver-child ratios have already been discussed as a factor affecting infant and toddler activity profiles. However, it must be mentioned here that high caregiver-child ratios and busy caregivers may be one of the most important reasons for infants and toddlers in residential care facilities spending large portions of their time alone. When considering the hours spent feeding, washing and dressing six infants and toddlers in one day on top of other responsibilities, such as folding laundry, it is perhaps not surprising that caregivers do not have time to spend interacting with the children in their care. If South Africa hopes to provide adequate care for the multitude of vulnerable children requiring care outside of the normal family structures, then this issue will have to be seriously considered at both a legislative as well as at a NPO level.

Another interesting factor could be playing a role in the quantity of time an infant or toddler spends alone and warrants further investigation. The infant groups in the sample consistently spent more time alone that the toddler groups, regardless of training (see Figure 4-5). A possible explanation for this trend is that it is much easier to leave an infant in a cot for extended periods of time than it is to ignore a toddler who is demanding attention now!

During the visits to the residential care facilities that participated in this study, it was observed that infants were much more likely to be left in cots until such time as the caregivers had an opportunity to deal with them, while toddlers were much more likely to be playing on the floor at the caregivers' feet. This allows for more interaction between caregivers and toddlers. As younger infants are not yet able to

communicate with language and are often not yet mobile, it is more difficult for them to initiate interactions with caregivers than toddlers. Furthermore, toddlers are more capable of interacting with other children than infants and this can also be seen in the results (toddlers spend 16.5% of time with other children, while infants only spend 3% of their time with other children). This means that infants who are most dependent on adults to initiate contact and to direct their play and interactions with the world receive the least attention from those adults in their environment who could offer them this support.

Although Tirella et al. (2008) did not explicitly mention or investigate the relationships between age and time spent alone, it is clear from their results that infants spent the most time alone, followed by toddlers and preschoolers spending the least time alone (2). Preschoolers were not included in this study as the residential care facilities that had already received training at the commencement of this study predominantly housed infants and toddlers up to the age of 24 months. It would be interesting to further explore this trend by looking at correlating factors, such as age, to the time-use patterns of children living in residential care facilities in the future.

One of the primary objectives of this study was to determine whether caregiver training could be effective in altering the temporal contexts of infants and toddlers living in residential care facilities in South Africa. Indeed, Tirella et al.(2008) and Swartz (2009) both recommended the training of caregivers as a possible means of decreasing the quantity of time infants and toddlers spend alone in these facilities as well as decreasing participation in non-meaningful activity and increasing participation in meaningful activity (2) (13). This study has already shown that limited caregiver training on its own does not have a significant effect on participation in meaningful and non-meaningful activity, but is it possible to decrease the quantity of time infants and toddlers spend alone through caregiver training? (Figure 4-4 and 4-5)

On comparing the groups of infants and toddlers living in residential care facilities where caregiver training had taken place to the groups of infants and toddlers living in residential care facilities where caregiver training had not taken place, some significant differences in terms of quantity of time spent with the children was noticeable. Both infant and toddler groups living in residential care facilities where caregiver training had taken place spent significantly less time alone than their counterparts in facilities where caregiver training had not taken place. Infants living in facilities where caregiver training had taken place spent 17.8% less time alone than those living in facilities where caregiver training had not taken place and 17% more time in contact with their primary caregiver. This large difference may be indicative of an increased awareness amongst caregivers who had received training of all infants need to be stimulated and not left alone for extended periods. It is important to note here that though there were large differences between the two infant groups, the infant group as a whole still spent considerably more time alone than the toddlers despite training (the infant group living in facilities where caregiver training had taken place still spent more time alone than the toddlers living in either facilities where caregiver training had taken place or facilities where caregiver training had not taken place).

It would appear from the results of this study that, although basic components of responsive care-giving are found in the majority of parenting systems in a variety of cultures throughout the world, this “mothering” instinct is not automatically elicited when a caregiver is employed to care for a number of children in no way related to her, especially as she tends to be extremely busy and does not have the time to spend prolonged periods of time interacting with her charges. However, training caregivers in the importance of these interactions with infants seemed to not only improve the awareness of caregivers to the need to interact with infants, but also increased the time they spent actually implementing interactions. Thus training caregivers improved the temporal context of infants within residential care facilities

specifically with regards to the quantity of time caregivers spend interacting with them.

The toddler groups with and without trained caregivers showed a less dramatic difference in time spent alone than the infant group. Nonetheless, the toddlers living in residential care facilities where caregivers received training, still spent 10.5% less time alone than those living in facilities where training had not taken place and 12.9% more time with their primary caregiver. Interestingly, toddlers in facilities where training had taken place spent 2% less time with another adult than their counterparts in facilities where training had not taken place. These results, once again, indicate that caregivers had become more aware of the need to spend time interacting with the toddlers under their care and that training had an effect in changing the temporal environment of children living in residential care facilities.

These findings should be very concerning to any occupational therapist working to promote normal development amongst children living in residential care facilities. Although the nature of relationships and the manner in which caregivers interact with the infants and toddlers in their care falls under the social context, the temporal context can exert a powerful influence on these relationships.

The social context, and especially the human interactions with caregivers within that social context, has been shown to be the most crucial environmental factor influencing childhood development and is hypothesized to possibly be the reason for the many negative consequences of institutionalization. If caregivers do not spend enough quantity of time (the temporal context) with the infants and toddlers under their care, they will not be able to provide the human interactions and develop the responsive and contingent care-giving necessary for promoting a social context that is supportive of bonding and normal development. Infants and toddlers living in

Johannesburg residential care facilities, therefore, have a high risk of developing many of the negative effects of institutionalization like developmental delay, attachment difficulties, cognitive impairment, attention difficulties, quasi-autistic behaviour and poor skills development because their temporal context does not support the development of a social context that supports and encourages participation in age-appropriate occupations or building the supportive relationships crucial to the emotional well-being of children growing up in these facilities.

However, these findings also indicate that, although even with caregiver training, infants and toddlers in residential care facilities are only spending one third of their time with their primary caregiver remains an extremely concerning statistic, nevertheless there is hope for remedying the situation and that training can be an effective tool.

From the outset, occupational therapists at Thusanani Children's Foundation were aware of some of the difficulties in trying to change the temporal context within a residential care facility with strict routines, rotating caregivers and rigid management and decision-making structures. These therapists were aware that trying to fit another activity into an already overly busy caregiver's day was just not going to work. As a result, the training programme was geared towards making the implementation of training as easy as possible for caregivers. The focus of the training, therefore, was to try and improve the social context within the residential care facility within the time constraints and temporal context that was already set. Tirella et al. (2008) suggested that personal management time might offer a suitable opening for initiating contact between caregivers and their infants or toddlers as this represents a significant portion of an infant and toddler's normal day and is time that caregivers have to devote to each individual child anyway (2).

It is interesting to note that although the factors described in the literature as having a negative effect on the temporal context within a residential care facility (caregiver-child ratios, regimented routines, extra expectations from caregivers and the lack of family-like units) seem to play an important role in the activity profiles of infants and toddlers living in these facilities, this study has shown that it is possible to change the quantity of time children spend with their primary caregiver within these constraints.

5.4. The Social Context of Infants and Toddlers in Residential Care (Quality of Time Spent in Different Activities)

The second objective of this study was to establish if the caregiver training had achieved a change in the infants' and toddlers' social context. This study looked at measuring the quality of time infants and toddlers spent in different activities in the very broad sense by examining one-on-one contact with primary caregivers as well as the communication and language used within this contact. One-on-one contact, defined as maintaining eye-contact, or using specific, goal-directed touch, as well as using language as part of the interaction were observed to evaluate the social context of the children. This means that when a caregiver within this study was observed to be in one-on-one contact with an infant or toddler, she was by definition paying exclusive attention to that infant or toddler and that interaction was purposeful. Thus unintentional touch, or care-giving that does not display the characteristics of eye-contact (such as changing a child without any interaction between caregiver and child) is not considered to be one-on-one contact. Eye-contact, language use and directed touch all improve the quality of the time spent in any specific activity as interactions within that time are improved.

Occupational therapists at Thusanani Children's Foundation had identified personal management time as a target time to encourage stimulation as it would not add

anything extra to a caregiver's already full day. Thusanani Children's Foundation's training programme, therefore, emphasized personal management time as a stimulation time. The programme tried to teach caregivers not only the importance of good development and stimulation, but also taught simple activities that caregivers could do while feeding, bathing, dressing or changing a child. Furthermore, the programme tried to emphasize making use of whatever time you have with a child to make eye-contact, to touch the child and to talk to the child. This would improve the quality of interactions between caregiver and child and help to create the ever important social context to promote normal development.

Some of this training programme's greatest gains occurred within personal management time. Infants living in residential care facilities where caregiver training had taken place spent 25.2% less time alone during personal management time than those living in facilities where caregivers had not been trained (see Figure 4-6). Furthermore, they were spending 85.7% (a 34.5% increase to those living in facilities where no training had occurred) of their personal management time in one-on-one contact with their primary caregiver Infants in facilities where caregivers had not received training spent some of their personal management time in the company of another adult or another child. This was not the case at the facilities where training had taken place, where whenever an infant was not alone during this time, they were in one-on-one contact with their primary caregiver. This means that infants spent 85.7% of their personal management time interacting with their primary caregiver and that trained caregivers were providing the human contact and interaction so necessary for a positive social context.

These results point not only to caregivers who had received training putting into practice the simple interaction and stimulation ideas they had learnt while either feeding, dressing, bathing or changing the infants they were responsible for, but also that this had become an important time for them to interact with their charges – a

time they were not prepared to give up to another person. On the other hand, caregivers who had not received training were much more likely to prop a bottle into an infant's mouth and then chat to another adult in the room, or dip an infant into a bath and quickly wipe them down without any interaction – just another task to get through in a long list of tasks for the day. It can be inferred from this increased one-on-one contact within personal management time that caregivers who had received training viewed personal management tasks differently from their counterparts who had not received training, even though the attitudes and beliefs of these caregivers were not specifically measured.

In the toddler group, gains were once again more modest than in the infant group, although there was a 10% difference between the two groups (see Figure 4-7). Again this can be due to the fact that toddlers can be much more demanding of attention than infants and therefore even though caregivers had not received specific training, they have to pay attention to the toddlers in their care when feeding them or dressing them. The fact that caregivers who had received training showed an increase in the quantity of one-on-one contact with toddlers during personal management time shows that these caregivers were perhaps more aware of the need for interaction and stimulation during this time and were actively trying to implement interaction in this time.

A further interesting change to note was when caregivers were initiating one-on-one contact with infants and toddlers.

In the infant group the proportion of one-on-one contact with infants remained similarly split between personal management time and meaningful activities – although it must be remembered that the actual quantity of time increased significantly in facilities where caregiver training had taken place (see Figure 4-8).

The fact that caregivers who had not received training spent the same proportion of their contact time with infants in meaningful activity, i.e. in play activities or learning opportunities as their counterparts who had received training may be due to the fact that infants require support and help to engage in appropriate play activities. Young infants, who are still unable to move around their environments, can have difficulty engaging with their environment and with toys without adult interaction and stimulation.

In the toddler group, however, there was a significant difference in the proportionate distribution of when caregivers made contact (see Figure 4-9). Those caregivers who had not received training had one-on-one contact with their toddlers almost exclusively during personal management tasks (90%), a time when interaction and one-on-one contact with a toddler can be almost unavoidable. Only a tiny quantity of time was spent interacting with toddlers during meaningful activity. In comparison, the caregivers who had received training spent a much larger proportion of their contact time actually within meaningful play activity. This shows that caregivers who had received training were more aware of the need to structure toddlers' play time and to provide opportunities for participating in a variety of meaningful activities to promote development. This also backs up the observation that trained caregivers made an effort to create learning and play opportunities when interacting with especially toddlers instead of just talking "at" the child.

Moore (2002) stated that an important role for a caregiver is to provide opportunities for a child to participate in activities that challenge their current capabilities and skills, but are still within the child's reach. This allows a child to learn new skills and develop his/her capabilities and forms part of the socio-emotional environment that supports good development (20). By spending a greater proportion of their time structuring toddlers' play time, caregivers who had received training were

implementing this principle and thereby providing more of the “normal” interactions we expect and see within family structures.

The final analysis looked at both caregiver as well as infant and toddler language use during the day. The development of communication and language is perhaps one of the most important developmental tasks of the infant and toddler. By two years a child should be able to communicate his/her needs effectively to a caregiver and also start communicating in conversation (26). This development is dependent on the development of reciprocal noise making, babbling, as well as speech and language in the first two years of life and requires sensitivity and responsiveness from the caregiver.

Evidence for a change in view point by caregivers becomes evident when caregiver language use with infants during personal management time is examined – caregivers who had received training were spending 40% more time actually talking to infants while physically taking care of them. Caregivers who had not received training spent less than 20% of the time talking to infants (see Figure 4-10).

All infants need to have prolonged eye-contact with caregivers, need to see different facial expressions, need to be touched in a loving manner, need to have reciprocal “conversations” of cooing, babbling and making noises that caregivers respond to, in order to create that stable basis from which to reach out and explore the world. These interactions are vital to the development of a positive self-concept, of the self as a competent being that can have a positive effect on the world and forms the basis for further exploration and development. This need for interaction with adults is present despite the fact that infants may not be able to communicate in an understandable manner. It is clear from these results that trained caregivers had become more aware of this need for interaction as well as the importance of

interacting with infants. This creates a social context that is conducive to normal development. Again, although caregivers' attitudes and beliefs were not measured within this study, this dramatic change in language use could indicate a change in the way caregivers view infants and the value they place on interacting and chatting to an infant that is not capable of chatting back.

The greatest gains for the toddler group in this study came in the caregiver language use during personal management time. As in the infant group, caregivers who had received training spent 40% more time actually talking to the toddlers in their care (see Figure 4-11). This corresponds with an 11.3% increase in the quantity of time toddlers spend "talking" and using language. This indicates that though toddlers living in facilities where caregivers had received training may not have gained enormously in quantity of time spent with primary caregivers, there may very well be a significant difference in the quality of that time as indicated by the increased use of language.

Both the infant and the toddler groups living in residential care facilities where caregiver training had taken place showed significant gains in the area of using language – be that cooing, babbling, making general noises or actually using words. Infants living in residential care facilities where caregiver training had taken place spent 16.4% more of their time cooing, babbling and generally making noises than those living in residential care facilities where no training had occurred, while toddlers living in facilities where training had taken place spent 33.4% more time actually using language than those in facilities where no training had occurred. This increase can indicate that caregivers who had received training were more responsive to the sounds that infants or toddlers may make and were responding to and encouraging this development. This further emphasizes the improvement in the quality of the time spent in different activities as well as the improvement in the quality of the socio-emotional environment.

Unfortunately, the specific content of these interactions beyond the measurement of language, eye-contact and directed touch in terms of whether these interactions were constructive and formed learning opportunities for infants and toddlers was not assessed. In other words, what caregivers were actually saying when interacting, or if they were using the one-on-one contact time to do stimulation activities was not recorded. Therefore comment on the quality of time spent with infants and toddlers cannot be commented on beyond the numerically significant differences of increased language use and time spent with caregivers during personal management and meaningful activity. It would be interesting to further investigate the kinds of interactions and activities happening within these times to further compare the quality of time toddlers spend with their primary caregivers. It may very well be that training assists caregivers to improve the constructive use of one-on-one contact time to create learning opportunities for toddlers and to encourage participation in stimulation occupations that can further enhance development.

5.5. Limitations of Study

This study only measured the quality of the time use by infants and toddlers in residential care facilities in the very broad terms of making eye-contact, touching the child in a purposeful manner or using language. Thus, this measurement is unable to detect more subtle changes in the quality of the time spent in interaction and the level of improvement may be understated. Thusanani Children's Foundation's training programme spends considerable time in practical sessions where caregivers practice simple stimulation activities that can be used during interactions with children either during meaningful activity (playtime) or personal management activities. Thus a bath time can be turned into a play activity with infants and toddlers learning about their bodies, about water and concepts of wet and dry. Although a caregiver who has not received training may still spend time in one-on-one contact with a child during bath time, these learning opportunities and opportunities for bonding may be missed.

Only three residential care facilities in the greater Johannesburg area had received caregiver training from Thusanani at the time of this study, which represents only a small proportion of the number of facilities and caregivers in Gauteng alone, never mind in the whole of South Africa. These sites had also received training first as their managers had requested training from the foundation and were concerned about the developmental outcomes of the children resident at these facilities. This may bias the sample. Furthermore, it was not possible to compare time use patterns pre- and post-intervention in individual facilities as the researcher joined the team after the implementation of the training programme.

Due to the cross-sectional design of the study, observations at each facility only took place once. It is possible that despite measures taken to ensure observation of a typical day at the facility, extraneous factors may have influenced how caregivers interact with the children in their care.

However, despite limitations, the results from this study have concurred with other studies done in a variety of settings and in different parts of the world. Thus these findings can be considered valid and that caregiver training can produce the effects described above. Cautious generalization of results is thus possible as similar results are being reported from a number of different studies

5.6. Summary

Literature has suggested that the social and temporal contexts of the environment and the presences of human interactions have the ability to affect that child's very biology (20) (22) (21). These parts of the environment have the ability to turn genes

on and off and to affect neurophysiology, which forms the very basis of normal childhood development (20) (22). The children we find in our residential care facilities in South Africa are already an extremely vulnerable group, often with histories of one or more of the following: neglect, trauma, abandonment, malnourishment, HIV-infection or other infectious diseases (4). All of these events have been identified as having potentially devastating effects on a child's ability to grow and develop into a well-adjusted, functioning adult. Now this already vulnerable population finds itself not in an environment that helps to mitigate the effects of some of these risk factors, but rather in yet another high-risk environment

Many of the residential care facilities in Johannesburg at least have been set up because of the compassion and concern of adults for children in need. However, considering the large periods of time that infants and toddlers within these facilities are spending without any human interaction, it would appear that these very facilities set up to help vulnerable children are adding to the cycle of risk factors that detrimentally affect children's development. The fact that good care at residential care facilities is defined as only good *physical* care further perpetuates this cycle and needs urgent attention, both within the government of this country as well as the NPO community, who often carry the burden of care for orphan and vulnerable children.

This study has shown that caregiver training that focuses on knowledge and the development of skills may not be enough on its own to change infants and toddlers activity profiles. Other environmental and institutional factors, such as caregiver-child ratios, the number of tasks caregivers are required to do and shift work, probably play a larger role in determining these profiles.

However, this study has shown that caregiver training can be effective in changing how caregivers use the time they do have with the children under their care. In the

infant group, caregiver training dramatically improves the quantity of one-on-one time caregivers spend with the infants under their care, especially during personal management time. The quantity of human interaction between caregivers and infants as well as the quantity of time caregivers spend talking to their infants is also improved through caregiver training. In the toddler group, although caregiver training does increase the quantity one-on-one time caregivers spend with the toddlers under their care, the greatest gains in this group are in the quantity of language used by caregivers and toddlers as well as the increase in contact time during meaningful activity suggesting gains in quality of time use. Thus caregiver training has the potential to effect change in the temporal and social contexts of infants and toddlers living in residential care facilities.

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