NEUROFEEDBACK AS A TREAMENT METHOD: PERCEPTIONS OF THE CHILD AND YOUTH CARE WORKERS AT THE DURBANVILLE CHILDREN'S HOME

A minor dissertation in partial fulfilment of the requirements for the award of the degree of

MASTERS IN CLINICAL SOCIAL WORK

BY

ALICIA VAN VUUREN (VVRALI001)

Supervisor: Fatima Williams

DEPARTMENT OF SOCIAL DEVELOPMENT

Faculty of Humanities

University of Cape Town

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University of Cape Town

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ABSTRACT

The study explored the perceptions of child and youth care workers employed at the Durbanville Children's Home on Neurofeedback as a treatment method. It primarily considered the child and youth care workers opinions, as this target group is considered the primary carers of the children in the setting. The participants opinions are based on the implementation of Neurofeedback as a new treatment method within this organisation, what they would consider the perceptions of the children to be; challenges and benefits, as well their recommendations regarding the implementation of the treatment method in other child and youth care centres.

This research was conducted using a qualitative research design. Eighteen participants were selected using purposive sampling at the Durbanville Children's Home. Due to unforeseen circumstances, three participants were unable to complete the research study and terminated their involvement. As a result, fifteen participants therefore were interviewed using a semi-structured interview schedule. Each interview was recorded using a Dictaphone and was then transcribed. The data was analysed using qualitative methods of data analysis and Tesch's eight step guideline.

The findings of this study indicated that child and youth care workers have a basic understanding of Neurofeedback but that further in-depth training is still required. The interview findings indicated that the majority of participants were positive about the prospect of introducing Neurofeedback as a treatment method at the Durbanville Children's Home. The findings highlighted that participants wanted the current treatment interventions offered at Durbanville Children's Home to be further developed and expanded on. Participants also raised concerns and uncertainties they had over the treatment method including concerns over the treatment being too advanced to be used in a child and youth care setting and that the target group was not yet prepared for such an advanced intervention. The benefits of the treatment were perceived to include improvements in children's behavioural, emotional and cognitive functioning. Challenges highlighted by the participants included negative perceptions some of the staff may have to introducing a new treatment model as well as anxieties the children may experience in receiving this form of treatment. Other challenges included the high financial cost and logistical aspects of implementing a

new treatment method. The participants however, felt that the benefits of introducing Neurofeedback as a treatment method out-weighed these challenges.

Recommendations were made with specific considerations to the implementation of Neurofeedback, the provision of training and information to both staff and children about this treatment method, specific recommendations regarding the role and tasks of staff as well as recommendations for future research.

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CHAPTER ONE

PROBLEM FORMULATION

1.1 Introduction

This study explored the perceptions of the child and youth care workers at the Durbanville Children's Home with regards to the introduction of a new treatment method, namely Neurofeedback. In this chapter the research topic is formulated within the context of both a national and international scope. The research questions, research objectives and assumptions are introduced and central concepts within the study are defined and clarified. Focus is given to the ethical aspects and reflexive views which are pertinent to this research. The outline of further chapters is provided, followed by a conclusion,

1.2 Statement of the Problem

The South African Human Right Commission (SAHRC) together with UNICEF (United Nations International Children's Emergency Fund, 2011) released a report stating that 88 600 children living in South Africa were found to be in need of care and protection by a children's court. 56 500 of these children were reported to be victims of violent crimes and 29% of all sexual offences reported were against children under the age of 10 years. Approximately 13 250 of these children are residing in registered child and youth care centres and close to half of these children (45%) were abandoned or neglected.

The Optimus Study South Africa (2016) recently undertook a study on childhood sexual abuse and maltreatment in South Africa. This study reported that by the time South African children are between 15 and 17 years old, many of them have already experienced sexual, physical or emotional abuse, neglect, or have been exposed to high levels of family and community violence. The study also indicated that one in five young people (boys and girls) reported having experienced some form of sexual abuse in their lifetime and more than a third of the respondents reported having been physically hurt by an adult who was appointed as their carer (Optimus Study South Africa, 2016). The study also found that one in six young people reported experiencing emotional abuse; one fifth of respondents reported experiencing neglect and one in five young people had witnessed violence committed by an adult

caregiver against a sibling or another family member in their homes. These statistics indicate the concerning high levels of trauma experienced by children in South Africa.

These concerning statistics unfortunately follow the international trend in the abuse and maltreatment of children. According to Van der Kolk (2005), each year over 3,000,000 children are reported to the authorities for abuse and/or neglect in the United States, of which about one million are validated. These high statistics suggest that children both nationally and internationally are exposed to high levels of trauma.

Developmental Trauma is a term used to describe childhood trauma such as chronic abuse, neglect or other harsh adversity experienced in their homes (Van der Kolk, 2005). When a child is exposed to constant stressful situations and their caregiver does not help reduce this stress, they are at risk of experiencing high levels of emotional, cognitive and physical conditions that last throughout their lives (Fisher, 2014). Children and youth in care facilities often have physical, psychological, and social characteristics that put them at risk for developing multiple complex problems which inhibit their individual progress and their social integration (Van den Steene, Glazemakers, van West, 2016). Children are reliant on on the quality of their relationship with caregivers for normal development, and when they are repeatedly traumatised, their psyche becomes damaged (Van der Kolk, 2005). Children naturally internalise a caregiver's facial expressions, emotions, and actions that serve as a “mirror” reflecting to a child his or her personal worth and identity (Gabowitz, Zucker, Cook, 2008). If caregivers are inconsistent, or if they are violent or negligent, children tolerate tremendous stress.

According to Gabowitz et.al (2008), this stress is often displayed in victims as persistent psychological conditions of hyper-arousal, nervousness, and agitation, and/or hypo-arousal or feeling emotionally numb.

Recent research on the effective treatment of youth who have experienced trauma suggest that concentrating on interventions which require children and adolescents to make rational choices and decisions, may not be the most effective approach to treatment (Perry and Dobson 2009). This is due to the dysregulation and severe impact of trauma on the brain which is defaulted to survival mode when children have experienced ongoing abuse and neglect (Fisher, 2014). The results of

developmental trauma trigger responses and actions based on the fight or flight response in the brain and often bi-pass the rational thinking process in order to escape the perceived threat (Fisher, 2014; Thompson and Thompson, 2005).

Perry and Dobson (2013:249) explain that by including a neurobiological informed approach in interventions, it ensures that the clinician is thinking about the client through a developmental perspective. This neurodevelopmental perspective allows a viewpoint that compliments other theoretical frameworks. It is not meant to replace but to compliment other treatment modalities.

Social service professions, which include child and youth care workers, embrace the bio-psychosocial approach as a means of engaging in holistic evaluations and effective intervention with individuals, families and groups. Yet, in practice models taught focus primarily on the psycho-social domains (Samson, 2010). Educating professionals such as child and youth care workers as well as other child related disciplines in the basics of neuroscience and neurodevelopment will in the future lead to innovations and improved results, programs and policies (Perry, 2009).

Child and Youth Care Workers view the behaviour of children and youth from a developmental perspective and they create interventions that form as a result of the existing strengths and abilities of the individual. According to Ferguson and Anglin (1985) Child and youth Care workers develop therapeutic relationships which require a high level of individual and specialised development on the part of the child and youth care worker and require the integration of a complex constellation of knowledge, skills, and elements of self.

Child and youth care workers often are referred to and expected to be the “substitute parent”. Their interventions play a important role in the forming of children’s attachment styles, their ability to form relationships and relate to both peers and adults. Small and Dodge (1988) identified various roles/tasks which CYCW’s undertake which include being the primary caretaker; the therapeutic agent and the “universal educator”. These tasks teach the children the skills for understanding the stresses of everyday living.

Child and youth care workers (CYCW) therefore have a significant role in providing care, support and a different experience to the abuse of the past. They offer

consistency and a safe environment in order to promote healthy and holistic development. According to Van Den Steen et. al. (2016) if there is a respectable working relationship between the child welfare workers and mental health workers, there is an improvement in the mental health outcomes of the youth. CYCW'S provide direct services to youth having experienced developmental trauma and thus have a responsibility to remain knowledgeable in the most appropriate treatment available to clients. The profession of CYCW has only in recent years been recognised as a profession in its own right in South Africa and internationally. This is further explored in chapter 2.

In considering the significance and influence of developmental trauma on youth, CYCW'S need to access resources and strategies that holistically take the bio-psychosocial effects of such trauma into consideration (Samson, 2010). It is recommended that staff within this field receive ongoing exposure and opportunities to develop knowledge and understanding of the holistic development of children and youth within a biopsychosocial model especially when having to provide inputs regarding treatment methods to address aspects such as trauma (Maynard et. al 2017).

1.3 Geographical Location of the Problem:

The geographical location of this study is specific to the Durbanville Children's Home (DCH), situated in the Northern suburbs of Cape Town in the Western Cape Province of South Africa. The organisation is a residential facility for 144 children between the ages of 2 -18 years. Of the 144 children, 134 are cared for in 12 house units at the main campus in Durbanville while a satellite home in the nearby suburb of Kraaifontein is home to another 10 children (Durbanvillekinderhuis, n.d.). The Children's Home is a programme of BADISA, a faith-based NGO (non-governmental organisation), which provides a professional service DCH, as well as providing policies and guidelines for the Home. The Home has 63 staff members of which the majority of employees consist of child and youth care workers. The other staff members includes 6 social workers, a team of administrators, marketing and fundraising staff, a financial manager and a logistics team. All staff is trained in policies and procedures to ensure the protection and safeguarding of the children placed in the home within a therapeutic environment (Durbanville Children's Home

Annual Report 2015-2016). Services offered at the Durbanville Children's Home are categorised into developmental, educational and therapeutic programmes. These services include programmes such as life skills, sport and recreational activities, and therapeutic interventions such as play therapy, trauma counselling and group work (Durbanvillekinderhuis, n.d.). The researcher is employed at the Durbanville Children's Home, and matters related to this will be discussed further in this chapter. Consent was given for the study to be undertaken by the Children's Home Management.

1.4. Rationale and Significance of the Study:

The extent to which children experience reactive care has a noteworthy impact on their physical and cognitive development ([a]Jamieson, 2013). Responsive caregiving, from the moment they are born up until late adolescence, sets the foundation for emotional security and promotes trust and a sense of belonging (Jamieson and Richter, 2017). Children who receive sufficient parenting gain several benefits which include self-confidence, good behaviour, optimal nutrition and high educational outcomes (Jamieson and Richter, 2017).

As mentioned above, the high statistics and prevalence of children not experiencing responsive care and being exposed to developmental trauma in South Africa awakens urgency in ensuring effective and best practice treatment methods. While traditional methods focus on the psycho-social aspects of treatment, growing evidence supports the inclusion of biologically informed modalities (Perry 2013).

Neurofeedback is one of the biofeedback modalities recommended for the treatment of developmental trauma (Fisher, 2014) but limited research is available given the new development of neuroscience in trauma related interventions. Neurofeedback is a new and growing field in South Africa, according to Louise van der Westhuysen, from the Biofeedback Association of South Africa who states that it is offered in most provinces in South Africa (van Der Westhuysen, personal communication, 2017, April 4).

According to Fisher (2014), when applying Neurofeedback to persons who have experienced developmental trauma, the primary goal is to calm the fear-driven brain. When the rhythms of the brain, body, and mind are normalised, attention stabilises,

fear subsides, and, with persistent, dedicated training, regulation sets in and can address various difficulties such as anxiety, post-traumatic stress, attention difficulties, and addictions (Fisher, 2014; Thompson and Thompson, 2015).

Traumatic histories and experiences is a significant reality for youth in residential treatment programs (Zelechoski, Sharma, Beserra, Miguel, DeMarco and Spinazzola, 2013). A recent study conducted by Briggs, Greeson, Layne, Fairbank, Knoverek, and Pynoos,(2012) found that 92 % of traumatised youth in residential care reported experiencing numerous traumatic events, in relation to 77 % of traumatised youth not in residential care. The children placed at the Durbanville Children's Home come from environments where their primary carers were often absent; leaving the children unprotected towards abuse, including emotional, psychological and physical abuse (Durbanvillekinderhuis, n.d.).

According to Streeck-Fischer and Van der Kolk (2000) basic rules and caring measures relied upon in residential treatment may be perceived as threats. Children who have been removed from their homes and placed into the care system experience a lack of trust in adults and thus any measures put in place by CYCW are questioned and suspected of being harmful rather than helpful. In addition, the logistical realities of residential treatment often means that traumatised youth live with other traumatised youth, which places them at risk of being re-traumatised due to the nature of children sharing and acting out as a result of their own bacgrounds. Although there is limited research available regarding treatment with this specific population, there is considerable information available linked to working with traumatised youth and evidence-based practices in residential treatment settings (Zelechoski et al. 2013; Briggs et. al .2012; Streeck-Fisher and Van der Kolk, 2000).

Care and treatment options offered at the Durbanville Children's home is aimed at supporting the transformation of institutions, that historically have viewed intervention as pathological and at times even retributive, into trauma-informed classifications of care as described by Zelechoski et. al. (2013). This transformation supports the purpose of residential care as being therapeutic rather than institutional.

The aim of this study is to form a baseline for the introduction of Neurofeedback as a new intervention at Durbanville Children's Home. The initial phase consisted of presenting a workshop on Neurofeedback to the child and youth care workers who

are the primary carers at the Durbanville Children's Home. The workshop was aimed at giving explanations of the process, the history, as well as the benefits and criticisms of this form of intervention. A practical and experiential component was also included where the child care workers could experience and see the Neurofeedback being applied in a live session with a volunteer.

The Durbanville Children's Home refers to the child and youth care staff as the deliverers of their core services (Durbanville Children's Home Annual Report 2015-2016:3) and stresses the importance of receiving the necessary training to ensure excellent service delivery to every individual child. These inputs confirm how fundamental it would be to gain the child and youth care worker's inputs, opinions and recommendations when introducing a new therapeutic intervention to the children and youth in their care.

The purpose of this study will only focus on the initial phase which is exploring the opinions of the child care workers at Durbanville Children's Home to Neurofeedback as a possible treatment intervention. The findings will be used to guide the implementation of phase 2 which would be introducing Neurofeedback to the client system.

1.5 Formulated Research Topic:

Neurofeedback as a Treatment Method: Exploring the perceptions of the Child and Youth Care Workers at Durbanville Children's Home

1.6 Research Questions:

1.6.1 What are the Child and Youth Care Workers (CYCW) perceptions of Neurofeedback as a treatment method for developmental trauma?

1.6.2 What do the CYCW's consider being the benefits of implementing Neurofeedback as a treatment method?

1.6.3 What do the CYCW's consider as challenges to implementing Neurofeedback as a treatment method?

1.6.4 What recommendations would the CYCW's make regarding the implementation of Neurofeedback at Durbanville Children's Home?

1.7 Research Assumptions

The researcher assumed that the participants would have sufficient knowledge of the topic (Neurofeedback) in order to provide their own perceptions thereof and recommendations for the introduction of Neurofeedback. In order to ensure that this assumption is correct, the researcher provided the child and youth care workers with a workshop on Neurofeedback whereby the participants were given information about the treatment method, and were exposed to the equipment as well as an opportunity to experience and witness the implementation thereof.

It is assumed that while most participants will be positive regarding the introduction of Neurofeedback as a treatment method, it is also assumed that the study will highlight concerns and anxieties around introducing the treatment in a residential care setting.

1.8 Concept Clarification

The following are key concepts in the study:

'Neurofeedback' is a comprehensive training system that promotes growth and change in the cellular level of the brain (Demos 2005:3). It is defined as "a non-invasive method of training the brain to optimise the intricate interplay of brainwaves that determine our behaviour, emotions, thoughts and attention" (The Biofeedback Association of South Africa [BFASA] 2018). This will be discussed further in the literature review.

'Child and Youth Care Worker' is defined as "a person who works in the life space of children and adolescents with both normal and special development needs to promote and facilitate optimum development through the planned use of everyday life events and programs to facilitate their ability to function effectively and within different contexts (National Association for Child Care Workers [NACCW], 2012). *The Children's Act 38 of 2005* defines "Child and Youth Care work" as the acts performed by a child and youth care worker which focuses on children and youth within the context of the family, the community, and the life span of a person.

'Perceptions' - The Oxford Dictionary defines perceptions as the way in which something is regarded, understood or interpreted. ("Perceptions", 2007:463). For the

purpose of this study, perceptions will refer to how the Child and Youth Care Workers understand, regard and interpret the use of Neurofeedback as a treatment option.

'Treatment intervention' - Intervention is defined as an action taken to improve a medical disorder ("Intervention", 2007:409). For the purpose of this study, treatment intervention will be referred to as an applied psychological intervention performed to bring about change in people.

1.9. Main Ethical Considerations:

Ethical considerations are important within this study given that people are the elements which are studied. De Vos (2012) states that when undertaking research, ethical aspects should include authentic knowledge, truth, accountability, trust and mutual respect. The following ethical areas are considered to be relevant to this study:

1.9.1 Voluntary Participation and Informed Consent:

Informed consent includes the voluntary participation of those included in the study (Maree, 2011). It was important for the researcher to obtain the participants' consent to be part of the research to ensure that their rights were not being violated and to ensure that they felt comfortable disclosing their personal experiences (Johannisen, 2014).

The researcher confirmed that the purpose of the research and the means in which the research would be conducted was discussed thoroughly with the potential participants. All participants had a choice in participating in this research and were informed of the aim of the study as well as the process involved. The participants were asked to complete a consent form (Appendix A) and were informed of their right to consent/decline or withdraw at any period of the research process without there being any should any participant decline or withdraw from participating in the research. Two of the participants did withdraw from the study due to ending their employment at the organisation.

1.9.2 Confidentiality, Anonymity and Privacy:

The difference between confidentiality and anonymity is described by Babbie and Mouton (2011). The differences are distinguished in confidentiality applying that when a researcher can recognize a participant's response but gives assurance not to do so publicly; whereas anonymity indicates that not even the researcher will be able to determine any participant after the response. Privacy is the control over the space, and conditions of sharing personal aspects (physically, behavioural, or intellectually) with others (Perrault and Nazione, 2016).

As mentioned above, none of the participant's identities are revealed in the research findings. The findings for each individual will remain confidential and is protected through assigning the participants a number rather than using their name.

Participants' right to privacy, anonymity and confidentiality was also maintained by ensuring that documents which linked names to data was securely stored at all times and were saved with a password-protected file on the computer. Privacy was ensured by conducting the interviews in a private office.

1.9.3 Avoidance of Harm:

According to De Vos et al. (2012), subjects can be harmed in a physical and/or emotional manner. An important aspect of ethics within research is to ensure that the participants do not experience any emotional maltreatment (Padgett, 2008). Given the nature of qualitative research, interviews do lend itself towards allowing participants to share their own personal experiences and in this manner share information that was not intended. In order to maintain ethical responsibility, it was therefore important that the researcher selected what personal information was essential to the research and what information (which could possibly cause harm) could be excluded. Debriefing was also offered to any participants who may need this service after the interview.

1.9.4 Publication of Findings:

De Vos et al. (2012) state that subjects should be informed about the findings as a form of recognition to participants concerned. The research findings will be presented to the participants in a follow up workshop presented on Neurofeedback.

The participants' recommendations will be taken into consideration in the implementation of stage 2 in the research process.

1.9.5 Compensation

According to Strydom (2011), participants should be compensated for costs that they undertake due to being part of the research e.g. transport costs, time away from their employment etc. However, if the researcher refunds or compensates the participant with high amounts of monetary means, there may be ethical implications which may imply that the participant is only participating for the compensation (Strydom, 2011). The researcher undertook the interviews on the premises of the Children's Home at a time which was convenient for participants and suitable to their shift planning. It was therefore not necessary for participants to receive compensation for their travelling expenses.

1.9.6 Competency of the Researcher

According to Rubin and Babbie (2008) it is the researcher's duty to treat the participants with respect and not to deploy or deceive them in any way. It is also important that the researcher does not use misleading or manipulative questions which would also lead to unethical methods. The researcher ensured that the interviewing techniques were conducted in an ethical manner and ensured that the participants were treated with respect and received regular supervision and guidance to ensure ethical practice implemented.

1.10 Reflexivity:

Reflexivity is the process of becoming self-aware and applying ongoing critique and critical reflection of his or her own biases which includes researchers making regular efforts to consider their own thoughts and actions in light of different contexts (Mills, Durepos, and Wiebe, 2010). Reflexivity also acknowledges that the researcher's personal experiences, approaches and feelings can affect the willingness of the participants as well as the analysis of data (Rubin and Babbie, 2008). In this study, the researcher's own awareness of this aspect as well as regular supervision received, assisted in the ensuring of objective interpretations of the data.

The researcher is a social worker at the participating organisation but not employed as a case manager and therefore does not have close relational contact with the participants in this study. The researcher undertook training and research on the topic of Neurofeedback and developed a personal interest in this intervention. International interest and recent studies indicated this method has a significant impact on various difficulties, which the researcher had witnessed as an employee at the Durbanville Children's Home, on children and youth who have experienced developmental trauma. These studies gave rise to the interest of both the researcher and the participating organisation to explore the possibility of introducing Neurofeedback to the Children's Home. Due to the researcher's previous training and interest in the topic of Neurofeedback and it is was important to be aware of personal bias toward this form of treatment.

Reflexivity is one of the masts of 'critical' qualitative research and according to Jootun and McGhee (2009: 3) this critical thinking leads to "bracketing or phenomenological reduction", which is used to help the researcher avoid misinterpreting the phenomenon as is experienced by the participants. Jooton and McGhee (2009:3) refer to bracketing as the cognitive process of putting aside one's beliefs, not making judgements about what one has observed or heard and remaining open to data as they are revealed. This process makes the researcher's thoughts, ideas, suppositions, or presuppositions about the topic, as well as personal biases clear at the outset of the research (Jootun and McGhee, 2009). It is important to the researchers own bias towards neurofeedback and relates it to the degree of influence that the researcher exerts, either intentionally or unintentionally on the findings. For these reasons it was therefore important that she sought regular supervision to mitigate any potential bias in the data collection and data analysis. Supervision was therefore regularly received from the University and bias opinions were carefully eliminated within findings.

1.11 Structure of the Research Report

The dissertation consists of five chapters. Chapter one outlines the formulation of the topic including the background information, rationale for the study, research questions and objectives and ethical considerations. Chapter two provides the literature review; the methodology used in undertaking the research is discussed in

chapter three. Chapter 4 presents the findings and the final chapter considers the researchers conclusions and recommendations that have materialised as a result of this study.

1.12 Summary of the Chapter:

This chapter provided the rationale and benefits of this study; the research questions and objectives; and the clarification of key concepts. The ethical considerations were outlined and emphasis given to the role of reflexivity. The chapter is concluded with the outline of the chapters within this dissertation.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

The literature review grounds the study within the theoretical frameworks of the Biopsychosocial Model and the Theory of Change. Focus is given to the policies which guide the implementation of interventions with children and the scope of the practice for child and youth care workers is explored. An in-depth discussion of Neurofeedback is then presented. The chapter ends with a brief conclusion.

2.2 Theoretical Models

The study is framed by two theoretical models:

2.2.1 The Biopsychosocial Model

The biopsychosocial approach was developed by George Engel (1980) and considers biological, psychological, and social factors when understanding the person as a whole in a treatment intervention. Maynard, Boutwell and Vaugh (2017) state that the biopsychosocial model is a rich and diverse model that includes components of quantitative genetics, behavioural endocrinology and psycho-physiology, and neuroscience-based performance measures and brain imaging to understand human behaviour. In the past 20 years, there has been a sudden explosion in research of the brain and neuroscience, which has led to a sudden interest in how the brain affects behaviour and similarly how behaviour affects the brain (Garret, 2003; Farmer, 2009). The study of the brain and its link with social behaviours has been referred to as "social neuroscience" (Farmer 2009).

Embracing biosocial research methods can also directly inform assessment, prevention and treatment strategies (Maynard et al. 2017). MRI studies (Magnetic Resonance Imaging) used in psycho-social treatment investigations can identify key areas of the brain that are impacted by psycho-social mistreatment and thus enhance the specification of treatment along with its scientific credibility (Maynard et.al 2017). Recent research has further enriched the biopsychosocial perspective by demonstrating that psychosocial experiences not only influence neurobiological processes but may actually change the structure of the adult brain (Garland and

Howard, 2009). These research findings confirm the empirical foundation of social work principles in that people have the power to transcend and transform their limitations into opportunities for growth and well-being. This means that the body mechanisms can affect the mind, and the workings of the mind can affect the body mechanisms (Halligan and Aylward, 2006). The recent studies regarding the growth and development between the mind-body connection within the social sciences is captured within the biopsychosocial model (Zittel, Lawrence and Wodarski, 2002). Social work and child and youth care work have not yet fully integrated these recent studies and Zittel et al (2002) raises concerns and urgency for these professions to integrate this model into practice and education. These concerns are further confirmed by Maynard et.al. (2017) who argue for the need to more fully incorporate and actively engage in these new developments within social work research. The new developments and progress in understanding how the brain effects social, emotional and behavioural development is an important aspect which needs future development and research to advance the social service profession (Maynard et. al 2017).

2.2.1.1 A Biopsychosocial Model in Child and Youth Care Work

Children and youth in care facilities often have physical, emotional, and social characteristics that put them at risk for developing numerous compound problems which constrain their individual development and their social amalgamation in to society (Van den Steene, Glazemakers, van West, 2016). Children are highly in reliant of on the quality of their relationship with carers for normal development and when they are repeatedly traumatised, their psyche becomes injured (Van der Kolk, 2005). They naturally internalise a caregiver's facial expressions, sentiments, and behaviours that serve as a “mirror” reflecting to a child his or her personal worth and identity (Gabowitz, Zucker, Cook, 2008). If caregivers are inconsistent, or if they are violent or negligent, children endure tremendous stress. According to Gabowitz et.al (2008), this stress is often displayed in victims as persistent psychological conditions of hyper-arousal, nervousness, and agitation, and/or hypo-arousal or feeling emotionally numb.

It is recommended that staff within this field receive ongoing exposure and opportunities to develop knowledge and understanding of the holistic development of

children and youth within a biopsychosocial model especially when having to provide inputs regarding treatment methods to address aspects such as trauma (Maynard et. al 2017).

2.2.1.2 The Biopsychosocial Model in Treating Developmental Trauma

For the purpose of this study, it is important to link this framework with the treatment of developmental trauma given that the child and youth care workers interviewed in this study are working with children who have experienced this form of trauma and thus their opinions are based on implementing the treatment aimed at this client group.

Developmental trauma impacts the child's physical, emotional, biological, social and cognitive functioning (Fisher, 2014; Van der Kolk, 2005). These traumatic experiences leaves a deep inscription on the young person's psychobiology and has a profound and lasting effect on the child's developing brain and body, as well as his/her ability to self-regulate, learn and to relate to others (Kolk, 1994; Fisher, 2014).

One of the key focuses in the biopsychosocial model is to ensure emotional regulation is obtained but children who have experienced developmental trauma experience great difficulty in maintaining emotional regulation (Samson 2010; Fisher, 2014). Problems of dysregulation can be witnessed in children's behaviour through extreme outbursts, aggression, and oppositional defiance as well as depression and withdrawal (Warner, Koomar, Lary and Cook, 2013). Emotional regulation is controlled by the sympathetic, parasympathetic nervous system and the limbic system. The limbic system, together with the autonomic and central nervous systems, plays a significant role in in a person's ability to manage his/her emotions (Van der Kolk, 2005; Fisher, 2014; Thompson and Thompson, 2015; Swingle, 2015). Research has shown specific areas of the brain which are effected during traumatic experiences, have resulted in the chronic overstimulation of the stress response system which leaves the child in a constant state of fight or flight response (Warner et.al. 2013). However, most importantly, the human brain is supremely resilient, particularly the minds of children and therefore, early identification of a traumatic history can significantly help avoid or minimise the various emotional, social, and medical issues that children encounter (Van Den Steen et. al., 2016).

For the above reasons, it is important that a biological approach is included when considering a treatment plan for children who have experienced developmental trauma.

2.2.1.3 The Biopsychosocial Model in Treating Children and Youth in Residential Settings

A considerable amount of research exists on youth in residential treatment programs and on children who have had traumatic experiences, however, there is considerably less information available about youth for whom these two aspects are combined. Consequently, careful assessment and detailed clinical information gathering is crucial to understanding the unique symptom presentation of these youth and implementing appropriate and effective interventions (Zelechoski et.al, 2013).

Within the Durbanville Children's Home, all of the residents have experienced trauma on some level (Durbanville Children's Home Annual Report, 2015-2016). Given the high level of occurrence and pervasive impact of trauma with children in residential treatment, ensuring best practice in trauma-focused interventions within such settings is crucial.

The Biopsychosocial Model encourages treatment interventions which focus on emotional regulation such as EMDR (Eye Movement Desensitisation and Reprocessing), mindfulness and Neurofeedback, which is considered as a pioneering treatment intervention with youth in residential settings (Samson, 2010). It is however, important to note that these treatment methods are not seen as stand-alone treatments when working with children and youth who have experienced developmental trauma. It is an intervention used as part of the biopsychosocial intervention aimed at assisting in the holistic needs of traumatised children (Sampson, 2010).

2.2.1.4 Neurofeedback within the Biopsychosocial Model

As mentioned above, the biopsychosocial model not only makes provision for, but also encourages the importance of including the holistic aspects of a person when considering a treatment model. This model includes and emphasises the need to focus on the biological component of a person when providing treatment methods (Maynard et. al 2017). For this purpose, the researcher has included the

Biopsychosocial model in the study due to its provision and focus on the biological component when considering treatment methods for individuals.

While a full discussion of the research and implications of neurobiology are beyond the scope of this research, the importance of understanding the brain as a biological component of the biopsychosocial context is important. The field of neuroscience is vast and now comprises a wide array of disciplines, all focused on understanding the way humans think, feel and behave at the molecular, cellular, systemic and cognitive level (Farmer, 2009). Neurofeedback is one of the methods used in addressing some of the biological components as part of the holistic model presented in the Biopsychosocial model. The Biofeedback Association of South Africa (BFASA) explains (2018) explains that Neurofeedback is non-invasive method of training the brain to optimise the intricate interplay of brainwaves that determine our behaviour, emotions, thoughts and attention. It further explains that the goal of this treatment is to help an individual improve academic performance, mood, behaviour, and thought processing. Neurofeedback meets the criteria by the American Psychological Association to be classified as an evidence-based intervention (BFASA, 2018). Further information about Neurofeedback will be explored in Section 2.5.

2.2.2 The Theory of Change

The second theory relevant to this study is the Theory of Change. This study aims to explore the perceptions of child and youth care workers about introducing a new treatment method at the Durbanville Children's Home and the Theory of Change serves to provide a framework through which these opinions could be understood.

The Theory of Change is a detailed type of procedure used for planning, participation and evaluation that is used in particular for non-profit and non-governmental sectors with the aim of promoting and developing social change (Brest, 2010). It is further explained as being the way actions are understood in producing a series of outcomes that contribute to achieving the final intended impact (The United Nations Children's Fund, 2014). A theory of change can be established for an intercession, aimed at identifying objectives and activities which could be planned beforehand, so that change can occur in response to emerging issues as well as to decisions made by partners and other stakeholders (Brest, 2010).

The Theory of Change has strong origins in a number of professions, including environmental and organisational psychology (Austin and Bartunek, 2004). Within industrial-organisational psychology, Austin and Bartunek (2004) have noted that approaches to organisational change are determined by two suppositions; the processes through which organisations change and the interventions needed to effect the change. These two suppositions are further explored in the sections below.

2.2.2.1 Resistance to Change

Organisational changes, such as an introduction of a new treatment method should be guided by theoretical frameworks to ensure a successful transition. When introducing a new treatment method, one is requiring people to consider new expectations, methods and improved outcomes. Wanberg and Banas (2000), state that people fear the unknown as they are uncertain as to how it will impact on them personally. Folger and Skarlicki (1999) further explain that resistance is the employee's natural reaction to organisational change. In several user resistant studies, the assumption was made that employees are generally resistant to change (Laumer, Maier, Eckhardt, Andreas, Weitzel, 2015). Resistance to change has been studied as a prime reason why most change does not flourish or get executed (Egan and Fjermestad, 2005). In order to understand these reasons, Luamer et al. (2015) identified four dimensions of resistance to change which may explain why people experience change as a negative exercise. These include reasons such as people seeking routine, experiencing and avoiding certain emotional reactions, having short-term focus and also experiencing cognitive rigidity. The study undertaken by Laumer et. al. (2015) indicated that these four dimensions were stronger influences than individual variables such as age, gender or working practices.

According to Waddell and Sohal (1998) managers have traditionally viewed resistance as a negative element that should be eliminated to ensure a successful change. However Waddell and Sohal (1998) encourage managers that resistance can actually be beneficial to the organisation. Therefore, management should not automatically avoid or suppress resistance. People do not reject change itself but rather are opposed to uncertainties and possible consequences of change (Egan and Fjermestad, 2005). Edmonds (2011)

states that the resistance to change in organisations, is largely as a result of the fear of the unknown but if handled correctly, using known and verified change management systems, change can be brought about positively (Edmonds, 2011).

2.2.2.2 Implementing Change in Organisations

The implementation of Theory of Change has increased exponentially among government agencies, international Non-Governmental Organisations (NGOs), the United Nations (UN), and many other major organisations in both developed and developing countries (Vogel, 2012). The theory allows for reviewing the appropriateness, comprehensiveness and accuracy of a new intervention and so directly speaks to the aim of this research.

To ensure a successful implementation of change, Gitlin (2013) proposes using an Intervention Development Plan (IDP). According to Gitlin (2013), the IDP consists of a phase-based approached and includes the following four phases: Phase 1- feasibility; Phase 2- Exploratory; Phase 3- Efficacy; and Phase 4, dissemination and implementation. Gitlin (2013) states that emerging and challenging health-related behavioural interventions involve an core process of building an all-inclusive body of evidence (discovery, proof of concept, feasibility, safety, and efficacy) followed by three extra phases; translation, implementation and maintenance - sustainability. This is aimed at ensuring a verified intervention and standardised procedures within an organisation which could form a basis for introducing a new treatment method in the Durbanville Children's Home.

For the purpose of this study, focus is given to Phase 1 – The Feasibility Study. In this phase Gitlin (2013) suggests undertaking case studies, pre-post study designs, or focus groups, or a combination of these methodologies, aimed at defining and refining involvement of the change agents. The Durbanville Children's Home will implement the knowledge and recommendations of this study to identify potential barriers to adherence and change. If there is a clear and positive predisposition for the implementation of Neurofeedback then the next phase of involving stakeholders will be considered.

The Theory of Change and the implementation of Gitlin's phase-approach encourages the perspectives of staff, managers, associates and public members in

the intervention and whether it works or fails (Austen and Bartunek, 2004). In order to ensure positive outcomes when introducing change or a new method, Furst and Cable (2008) suggests undertaking consultations with staff. This process involves managers inviting employees to provide suggestions and ideas in facilitating the change. By promoting employees participation in the change process, they gain a greater sense of control over their work and by voicing their opinions they are able to re-align their own goals (Furst and Cable, 2008). This is supported by Edgett (1994) who also recommends when introducing a new intervention, to ensure a high level of coordination and cooperation amongst the people and departments involved. Child and youth care workers perceptions of introducing a new treatment model could be influenced by whether the management team at the Durbanville Children's Home would offer consultations and thus offer a platform for their concerns and ideas to be heard.

According to Edgett (1994) a strong and visible senior management involvement is needed to implement the change and to provide support and approval of the provision of the available resources such as finances and human resources. Further recommendations include implementing a thorough preliminary assessment of the treatment's feasibility before valuable resources are consumed. This will include reviewing the appropriateness, comprehensiveness and accuracy of a new intervention first (Clark and Taplin, 2012). This process allows the organisation to either to terminate or modify a new service project and, thereby, conserve scarce resources (Edgett, 1994). The child and youth workers may raise concerns over the availability of resources, especially human and financial resources, given the limited availability of these two aspects within a NGO/NPO organisation. Any intervention which may require additional resources may influence the child and youth care workers perceptions negatively and create concerns over their job security.

2.2.2.3 Benefits and Challenges of Introducing a New Intervention

As stated by Gitlin (2013), introducing a new intervention is a significant and exhilarating endeavour but is not without challenges. One of the most critical challenges identified by Gitlin (2013) is that progress and testing emerge over a long period of time, approximately for an average period of 17 years or longer and that complete integration of a new intervention could be even longer. This creates

concerns for invested funders and researchers as outcome based practices are required to evaluate investments. Gitlin (2013) concludes that the length of time from discovery to integration in a practice location, the intricacy of developing proof for varied populations, and insufficient funding for introducing interventions, can create boundaries and trials which could hamper the development of new interventions. There is a high turn-over of Child and youth Care Work staff within the NGO/NPO organisations given their unmatched salary bands in comparison with the Government employed programmes (Cohen, 2011). The staff who thus participate in this study would therefore not necessarily be involved in the full development or integration of a new treatment intervention as suggested by Gitlin (2013).

The benefits according to Austin and Bartunek (2004) of deliberate alteration or developmental change is undertaken to progress the current way(s) of functioning. It is a premeditated change, with the potential to achieve a certain desirable output/performances and to make the organisation more approachable to internal and external demands. Change can also improve employees' technical expertise through the introduction of new technologies and systems.=. Child and youth care workers are engaging in new and developmental approaches to working with children given their recent registration as a profession (NACCW, 2014) and thus may be open to training and exposure to new intervention models.

Other benefits according to Austin and Bartunek (2004) include improving team work, the introduction of new products and services, and improving employee welfare measures. According to the NACCW (2014) Child and youth care workers benefit from learning new methods and services and are highly adaptable, innovative and resourceful in implementing these techniques.

2.3 POLICY AND LEGISLATION:

Work with young children and youth in South Africa is guided by the South African Children's Act No. 38 of 2005, as well as on the norms and standards established for Child and Youth Care Centres. It includes the practice ideologies that have been recognized in the child and youth care field as being vital for providing excellent services to children, youth and their families (Thesen, 2014). The following section

identifies the policy and legislation related to child and youth care workers as well as to children living in alternative care facilities, in particular, child and youth care centres. Aspects such as children's right to participate in decisions and ethical issues relating to consent is discussed in this section due to its validity when considering implementing a new treatment model.

2.3.1 Policies Related to Child and Youth Care Workers

The South African Council for Social Service Professions (SACSSP) is a constitutional body recognised in terms of section 2 of the *Social Service Professions Act No. 110 of 1978.* The Council has two specialised boards under its auspices: the Professional Board for Social Work and the Professional Board for Child and Youth Care Work (SACSSP, 2018) and in 2014, The South African Council for Social Services Professions (SACSSP) distributed regulations regarding the registration of child and Youth care workers (SACSSP: Board of Notice 56, 2014).

The Council, in concurrence with its Professional Boards, confirms and guides the professions of child youth care work in facets pertaining to registration; education and instruction, professional conduct and ethical performance. The SACSSP also provides the platform in certifying ongoing professional development and endorsing compliance with professional principles. It protects the reputation of the social service professions as well as the concern of the public at large (SACSSP, 2018).

In order to protect the public and secondarily the professions, registration with Council in terms of the Act is a requirement before practising social work and child and youth care work. Registration is required for social workers, social auxiliary workers, student social workers, student social auxiliary workers, child and youth care workers, auxiliary child and youth care workers, student child and youth care workers, and student auxiliary child and youth care workers (SACCSP, 2018).

Before the registration of child and youth care workers at the South African Council for Social Service Professions, the National Association of Child Care Workers [NACCW] dominated the rights and regulations of this profession in South Africa ([a]Jamieson, 2013).The recent enactment of this field as a profession has resulted in recognition and registration with the professional board at the SACSSP (NACCW, 2014). This journey of three decades was driven largely by the NACCW ([b]Jamieson,

2013) The Association succeeded in the promoting for the recognition of the profession of child and youth care work as a distinct entity and the statutory regulation that safeguard the rights of children, youth and their families and provide professional responsibility for the values of services provided by child and youth care workers (NACCW, 2014).

In these regulations, the SACSSP and NACCW clarifies the scope of practice for child and youth care workers, to include the care, development and protection of children and youth with regards to their physical, emotional, spiritual, cognitive, social and developmental needs. Further expansions on these descriptions include behaviour management, communication, relationship building, counselling and activity programming ([b]Jamieson, 2013; NACCW, 2014; SACSSP, 2018).

The South African Inter Ministerial Commission (IMC) (1996:5) categorises 15 practice values which are as follows: accountability, empowerment, participation, continuity of care, continuum of care, family centred, integration, normalisation, effective and efficient, child-centred, rights of young people, restorative justice, appropriateness, family preservation, and permanent planning.

According to Schwartz (2017) Child and Youth Care Workers have a responsibility to balance the task of guiding children in matters pertaining to them and at the same time fulfil the requirement of having the child's voice be heard and letting the child be involved in these matters. Johannisen (2014) states that the child and youth care workers together with social workers, are also jointly responsible for guaranteeing the children's rights, and in particular children's participation, are applied in child and youth care centres.

2.3.2 Policies Regarding Children in Child and Youth Care Centres

Child and youth Care Workers are the designated carers of children placed in a residential treatment setting or child and youth care centre and therefore it is important that all interventions considered are in line with the legal framework which serves to protect and care for these children. The following section considers both international and national laws and policies which guide services and interventions for children in alternative care and specifically with children placed in residential care

settings. These laws and policies include the *United Nations Conventions of the Rights of Children, the Children's Act 38 of 2005* and the Constitution of The Republic of South Africa. Within these legal frameworks, professional opinions and considerations are included to ensure the implementation and interpretation of these regulations are carefully deliberated and appropriately applied within the area of this study.

The United Nations Convention on the Rights of Children, Article 20, states that "a child temporarily or permanently deprived of his or her family environment, or in whose own best interests cannot be allowed to remain in that environment, shall be entitled to special protection and assistance provided by the State. State parties shall in accordance with their national laws ensure alternative care for such a child. Such care could include, inter alia, foster placement, kafalah of Islamic law, adoption or if necessary placement in suitable institutions for the care of children. When considering solutions, due regard shall be paid to the desirability of continuity in a child's upbringing and to the child's ethnic, religious, cultural and linguistic background" (Viviers, 2014:8). The Durbanville Children's Home is an approved and registered Child and Youth Care Centre with the Department of Social Development to provide such alternative care.

The Constitution of South Africa (Section 28) states, that every child has the right to appropriate alternative care when removed from the family environment; and to be protected from maltreatment, neglect, abuse or degradation. In South Africa, *The Children's Act 38* of 2005 currently provides policies, regulations, norms and standards to ensure that no harm is done to any child through the provision of care-based residential treatment. The Children's Act also requires child and youth care centres to provide therapeutic interventions as stated in Chapter 13. These interventions should promote the best interest of the child and comply with the norms and standards as set out in the act. The Durbanville Children's Home provides therapeutic services according to the guidelines stated in the *Children's Act 38 of 2005.*

Along with considering the policies that govern the work with children, there are also two ethical issues that professionals working with children need to consider which will be discussed below.

2.3.2.1 Consent to Treatment

Therapeutic service providers are faced with questions of informed consent regarding children receiving treatment in residential facilities. Treatment of children in governmental care and who are placed in residential care programs have legal responsibility to provide therapeutic care and protection as stated in the *Children's Act 38 of 2005, Section 191(2)(g)(ii).*

Although decisions regarding the therapeutic treatment approaches provided to children in residential care are mostly determined by the multi-professional team linked with the centre, there are ethical issues to be considered such as informed consent of the parents, access to information about treatment and how this influences relationships with the parents/family members. Molin and Palmer (2005) emphasise the fragmented histories of children in the care system and stress the importance of helping children to integrate their life experiences rather than adding to the fragmentation. The researcher supports Molin and Palmer's (2005) recommendation that such referrals should include the children's families, so that the process does not further weaken their commitment. Research undertaken by Geurts, Boddy, Noom, and Knorth (2012) indicated that family involvement could improve long-term outcomes. An inclusive and holistic approach will help to encourage and strength family attachments while they are in alternative care (Molin and Palmer, 2005).

2.3.2.2 Children's Right to Participation

The Children's Act 38 of 2005, chapter 2 no 10 states that "Every child that is of such an age, maturity and stage of development as to be able to participate in any matter concerning that child has the right to participate in an appropriate way and views expressed by the child must be given due consideration". Children should therefore also have a right to participate in the form of treatment they receive. Johannisen (2014) identifies four important elements for meaningful children's participation. These include information distribution in age appropriate language, listening to children's opinions, taking what they say into deliberation when making decisions and providing them with the necessary assistance and guidance during the process. McCarthy (2016) adds further significant factors to consider in children's participation which include the voice of the child, the ability of young people to participate; their

access to effective advocates and the context of the available participatory spaces. By taking all these factors into consideration, Salmon (2006) concludes that preparing the child for treatment will enhance and encourage the child's active contribution in the intervention.

2.4 Child And Youth Care Work In Residential Settings

Child and youth Care Work in residential setting differ from community child care work, in that community care workers support vulnerable children and families in their own communities and often in the physical context of their own homes. Child care in the residential setting works in the life space of children living in settings such as children's homes/child and youth care centres and other long-term placements outside of their family setting. Child care workers working in these settings experience long working hours

Most literature agrees that the scope of work of child and youth care workers in residential settings is broad and includes a variety of tasks. These tasks are all grouped under the term "life space work"'. The NACCW (2014) define life space work as the creation and management of a caring and helpful setting through the application of specific skills and methods in child development, behaviour management, communication, relationship building, treatment, activities and programming (www.naccw.org.za). According to Whittaker (1981:98) "The Life Space Interview makes use of a series of momentary daily spontaneous life experiences in order to extract from them a level of insight within healthy relationships which makes it possible to achieve long-term therapeutic goals".

Within a residential setting, services will also include the provision of well-ordered, hygienic structures and amenities; the provision of a considerate, foreseeable, reliable and structured environment for children; to meet children's needs in a holistic means, including the physical, emotional, social, spiritual, educational aspects. (www.naccw.org.za). The NACCW (2014) also suggests that the children's home should be a place where the child can develop his maximum potential and be prepared to be a functional member of society.

Linton and Forster (2003) emphasise the importance of the relationship child and youth care workers build with children in residential settings. This relationship is

characterised by “immediacy, intensity and intimacy” and constantly includes an interchange of oneself over a long period of time (Linton and Foster, 2003). This highlights the very different nature that this profession holds in comparison with other helping professions.

Despite the intense demands of the child and youth care worker, until recently, minimal social acknowledgment or professional standing was given for this difficult, exhausting, and important work. Research undertaken stated that some of the key challenges experienced by child and youth care workers were dealing with children’s challenging behaviour; the lack of tangible results; poor relationships with other professionals; and the lack of clarity regarding job descriptions and tasks (Molepo, 2014). Molepo (2014) is of the opinion that supports services, to assist child and youth care workers, are lacking in South Africa and in return results in difficulties in recruiting and retaining staff. He further recommends that rigorous efforts are made by both child and youth care workers and employees to guarantee access to psycho-social support systems as well as the study of technology-based facilities (Molepo, 2014). These recommendations will aid child and youth care workers in their tasks within residential settings.

2.5 Neurofeedback as a Treatment Intervention

The Biofeedback Association of South Africa (BFASA) states that extensive research has shown that Neurofeedback is an effective option for children and adults with difficulties such as concentration problems, hyperactivity, depression, anxiety and sleep disorders (The Biofeedback Association of South Africa, 2018). BFASA explains that Neurofeedback is a non-invasive method of training the brain to optimise the intricate interplay of brainwaves that determine our behaviour, emotions, thoughts and attention. The latest computer software provides the client with real-time, immediate visual and acoustic feedback regarding what is happening in the brain. It enhances elasticity, thereby improving the brain’s ability to respond with healthy patterns of functioning. The goal of Neurofeedback is to help an individual move from one brain state to another to accommodate each new task and therefore, improve academic performance, mood, behaviour, and thought processing (Thompson and Thompson, 2015). The process can be compared to listening to your heart beat through a stethoscope (Hammond, 2011). According to

Swingle (2015) the amount of sessions needed to regulate the brain wave patterns vary according to the individual client and is determined by the brain mapping assessment. He states that the duration of sessions is usually between 30 and 45 minutes and is a naturalistic, painless and safe procedure.

Despite an increasing awareness, there persists a level of controversy and/or bias in the medical and research communities towards Neurofeedback, and as a result, Neurofeedback has been largely discounted, or disregarded within social neuroscience (Orndorff-Plunkett, Singh, Aragón and Pineda, 2017). It is thus proposed that a systematic, empirically-based approach is used for assessing the effectiveness, and utility of Neurofeedback within more evidence-based research (Orndorff-Plunkett et.al., 2017).

2.5.1 The History of Neurofeedback

Neurofeedback was built on the foundation of behaviourism, physiology, neurology and its link with modern technology (Thompson and Thompson, 2015). In 1875 Richard Caton became the first person to discover that electrical activity fluctuated in the brain during mental activity (Demos, 2005). He recorded this electrical activity by placing electrodes on exposed brains of animals. In 1920 Hans Berger, followed his experiments by measuring electrical activity on human scalps through electrodes connected to an EEG (Demos, 2005;). Berger was the first person to record raw EEG on paper which led the way for operant conditioning via biofeedback to be scientifically possible (Demos, 2005).

Later in 1963, Joseph Kamiya proved the human ability to control brain waves via instrumentation which confirmed that an individual could become attuned to his own mental state but was unable to identify how they were able to do so (Thompson and Thompson, 2015). Kamiya's trainees experienced peaked states of emotional learning and psychological growth. This paved the way to what Demos (2005) referred to as dynamic psychotherapy by facilitating the client into optimal brain wave states. Applied psychophysiology had been born – "the joining of psychotherapy with any biofeedback modality" (Demos, 2005). Psychophysiology would not be limited to psychology but also to the field of medicine, mental health, cognitive rehabilitation and peak performance training (Demos, 2005).

Five years after Kamiya's discovery, Barry Sterman made a break-through in the neuroscience field which resulted in his acclaimed title as the father of Neurofeedback. His findings began with a Pavlov-like experiment with cats (Demos, 2005). Sterman participated in an experiment to see if cats could control their brainwaves by having a machine reward them with food every time they were successful, and they soon learned to regulate their brainwaves to get the treat. Some years later while doing a trial for NASA, he used the same cats from his previous experiments in testing the effects of exposure to lunar lander fuel. Sterman found that cats exposed to rocket fuel and that experienced high frequency EEG training was able to improve their seizure threshold and had greater tolerance for lethal substances (Thompson and Thompson, 2015). After training, the cats that were exposed to rocket fuel survived, whereas cats that had not had EEG training were subject to seizures and died. By 1971, the procedure was successfully applied to humans (Thompson and Thompson, 2015).

To date, many studies have been conducted on neuro-feedback therapy and its effectiveness on the treatment of many disorders; however there are some methodological limitations and clinical ambiguities (Marzbani, Marateb and Mansourian, 2016). Similar to other treatments, Neurofeedback has its own benefits and challenges. Although it is a harmless and non-invasive procedure that showed improvement in the treatment of many difficulties and disorders such as Attention Deficit and Hyperactivity Disorder (ADHD), anxiety, depression, epilepsy, addiction, learning disabilities, dyslexia etc. its validity has been questioned in terms of convincing scientific evidence of its efficiency (Marzbani et.al., 2016).Further evidence-based studies are therefore recommended.

2.5.2 Benefits of Implementing Neurofeedback in a Child and Youth Care Centre

For the purpose of this study, focus will be given to three main areas where Neurofeedback would be beneficial as a treatment intervention in residential settings. These three areas will include improving behaviour and emotional stability and the development of skills.

2.5.2.1 Improving Behaviour

According to Greenwald (2000), challenging behaviour conducted but youth having experienced developmental trauma can be explained when considering the contribution trauma has to brain development. Neuro pathways that are developed and strengthened under negative conditions create a default or “over-ride” cognitive process which triggers the fight or flight response in the brain (Thompson and Thompson, 2015). Children and youth then respond to any situation which is perceived as a threat, such as discipline measures from child and youth care workers, by either fighting back or fleeing the situation and reported as absconding. These behaviours are then alleged and reported as “challenging behaviour”. Samson (2010) questions whether youth who have a fight or flight default setting could be expected to access or even learn cognitive skills such as healthy conflict management which requires the brain to be able to perform executive functions such as rational decision making, paying attention and making good judgements.

A considerable amount of research has been done internationally in the field of Neurofeedback and behaviour including hyper-activity, impulsivity, inattention and over-activity. Neurofeedback treatment with children diagnosed with ADHD (Attention Deficit/Hyperactive Disorder) with a high majority of studies showing improvement in behaviour (Alhambra; Alhambra and Fowler, 1995; Barabasz and Barabasz, 2000; Lubar, 2003; Foks, 2005).

Neurofeedback therapy is regarded as a rehabilitation approach within its treatment. Its goal is to normalise the behaviour without dependence on other treatments. The approach includes training and stabilising brain wave patterns. There are five types of brain waves: alpha, beta, gamma, delta, and theta and each has a different frequency, which can be measured with an EEG (Thompson and Thompson, 2015). Studies’ suggest that people with ADHD have more theta waves and fewer beta waves than people without the disorder. When treating ADHD with Neurofeedback, the goal is to decrease fast acting brain waves (Theta waves) and to increase slow acting brainwaves (beta waves) which results in an effective treatment in reducing hyperactivity (Swingle, 2015).

2.5.2.2 Improving Emotional Stability

Childhood and adolescence is a significant time for young people's emotional development and therefore, the ability to shape brain networks associated with the regulation of emotions could be crucial for preventing future mental health problems (Cohen, Luo, de Burca, Feng, Linden, Lau, 2016).

Van der Kolk (2016) states that Neurofeedback can help traumatised children who are exceptionally disorganised by normalising their brain waves so that they can contor their reactions, improve concentration and stay focused on playing, learning, making friends and pursuing goals. Studies undertaken have proved that Neurofeedback lead to improvements in the following emotional difficulties: Post-Traumatic Stress Disorders (Mills, 2013; Gapen, Van der Kolk, Hamlin, Hirshberg, Suvak, Spinazzola, 2016); eating Disorders (Schmidt andMartin, 2016 and Campbell and Schmidt, 2017); depression (Peeters, Oehlen, Ronner, van Os, Lousberg, 2014 and Cheon, Koo and Choi, 2016) and anxiety (Kerson, Sherman, and Kozlowski,2009 and Mennella, Patron and Palomba, 2017).

Marzbani et al. (2016) reports that Neurofeedback training is used to increase alpha and theta brain waves, while inhibiting faster beta frequencies, to produce significant improvements in depression. Demos (2005) states that anxiety inhibits alpha waves, so using Neurofeedback to apply alpha brain wave training would relieve symptoms of anxiety and post-traumatic stress disorder (Demos, 2005).

2.5.2.3 Development of Skills

Being able to pay attention means better administration and precision, fewer disruptions, improving social skills by being able to listen considerately to others, and grasping new tasks easier (Williams, 2006). The benefits of Neurofeedback have also been found useful in achieving optimal performance or otherwise known peak performance training. These benefits include improving attention/concentration, imagery, stimulation level, and declining worry and contemplation (Williams, 2006). Pacheco (2016) supports the outcome that Neurofeedback treatment results in improved cognitive, emotional, and psychophysiological performance.

Swingle (2008:186) defined the role of Neurofeedback peak performance training as “The training of the mind to become insulated from distractions while releasing the mind to be in synch with the energy of the universe. The brain is trained to efficiently to engage and disengage at the highest level”. This means that by clearing the brain from distractions and training the mind to focus, attention could be improved and optimised to perform at its best.

In order to obtain optimum outcomes, Neurofeedback for peak performance training begins with appropriate assessment and evaluation of an individual's brain wave activity through the use of an EEG. (Wilson, Thompson, Thompson, Fallahpour, Linden, 2011). Individualised training plans are based upon the assessment findings and the specific needs of the targeted sport or activity (Wilson et al. 2011). In a study undertaken by Lingenfelter (2001) to review the literature regarding the efficacy of Neurofeedback, in the treatment of attention deficit hyperactivity disorder, the studies reviewed indicated that Neurofeedback can potentially enhance the Intelligence Quotient (IQ), academic improvement, pro-social behaviours, and decrease behavioural and cognitive difficulties. Progress was made by “unburdening” the brain rather than by “challenging” the brain. The success lay in eradicating limitations rather than in applying them (by way of challenges). The brain was able to transform into a more functional structure solely on the basis of feedback, in the absence of any obvious or exceptional cognitive challenge.

A study undertaken by Dempster and Vernon (2009) concluded that Neurofeedback training improved a vast range of skills such as sport performance, cognitive ability, creativity, artistic skill. This study was supported by Pacheco (2016) who confirmed an improvement in cognitive performances.

2.5.3 Challenges in Implementing Neurofeedback in a Child and Youth Care Centre.

2.5.3.1 Negative Perceptions of Neurofeedback

The children and staff may be fearful and anxious to engage with a treatment method they are not familiar with. These fears and anxieties may be linked to concerns that the focus of treatment is on the brain. According to Fisher (2014) some

children will fear mind control where as others will be afraid of the power in the hands of the Neurofeedback practioners.

Although Neurofeedback involves reading brain waves through an Electrocephenogram (EEG), no electricity or shock treatment is applied to the brain (Demos, 2005). According to Husby,Slettebø ad Juul (2018) and Cossar, Brandon and Jordan (2016) staff including social workers and child and youth care workers, are identified as providing trusting relationships for children to voice their thoughts and feelings. In order to address children's anxieties it is recommended that staff fulfil their role and tasks as primary caretaker, therapeutic agent and "universal educator" when introducing a new method to children (Small and Dodge, 1988).

2.5.3.2 High Financial Costs

High cost implication**s** are a challenge due to the requirement of specific training and the high costs of Neurofeedback equipment and specialised software programmes needed to implement this treatment method. The equipment includes an electroencephalogram (EEG), electrodes, a computer and a monitor to measures the electrical patterns (Thompson and Thompson, 2015). The equipment is costly and may not be affordable for non-profit organisations such a child and youth care centres. Not only is the equipment expensive but the training is costly and there are currently only a few persons qualified and available to provide training in Neurofeedback in South Africa (www.biofeedback.org.za).

Edgett (1994) recommends implementing a thorough preliminary assessment of the financial situation before valuable resources are consumed. This allows the organisation to either to eliminate or modify a new service project and, thereby, conserve scarce resources. This recommendation is important, especially to Non Profit Organisations such as the Durbanville Children's Home where financial resources are scarce. Sudbeck and Bradly (2018) suggest creating a network of community relations and community engagement in order to promote and develop partnerships, which in turn could lead to further affordable and sustainable ways of implementing costly programmes. Inter-organisational partnerships have been used by non-profit organisations in a variety of industries to build organisational capacity, yet they are currently under-utilised by many organisations (Jones, Edwards Bocarro, Bunds, Smith, 2017).

2.5.3.3 Limited Evidence-based Practices and Research

Given that is a new field of study, there are limited evidence-based practices (EBP) and research available on children and the effects of Neurofeedback on developmental trauma (Van der Kolk, 2005). Therefore guidelines and standardised training protocols are limited.

Fisher (2014) indicates that protocols should be guided by each individual assessment which is similar to other traditional therapies which provide treatment guided by the outcome of the clinical assessment. Bessel Van der Kolk (2005) and Sebern Fisher (2014) are the fore-runners undertaking studies in this field and have published articles and books on this subject. This research therefore relies greatly on their findings and references to their findings are dominant within this study.

Demos (2005) indicate that Neurofeedback is not a “cure” for any disorder and will not fix all problems associated with the brain. He explains that Neurofeedback is rather a training procedure which includes the cooperation of both the practioners and the trainee.

Samson (2010) identifies that limitations in evidence-based practices are not only aimed at the individual but also on the profession and educational institutes. Each has a responsibility to keep abreast of the latest findings in biopsychosocial research (Samson, 2010). Child and youth care workers are included within this responsibility.

2.6. Recommendations in Implementing Neurofeedback in a Child and Youth Care Centre

The introduction of a new intervention often brings about uncertainties and anxieties over potential successes and failures; it also raises questions about correct and beneficial procedures and applications. These natural uncertainties and negative perceptions result in resistance to new approaches in the work place, people having a natural fear of change and a feeling of a loss of control (Laumer, et.al, 2015).

The role of staff in introducing a new treatment model is also an important aspect to consider. It is recommended that child and youth care workers fulfil their role and tasks as the primary caretaker, the therapeutic agent and the “universal educator as described by Small and Dodge (1988). This would include tasks such as explaining

and introducing children to a new treatment intervention, assisting children through the treatment process and ensure a safe and supportive environment. According to Husby (2018) and Cossar, Brandon and Jordan (2016) social workers provide a platform for children's participation in decision-making. It therefore be important that social workers are supportive of children's participation in introducing Neurofeedback to them.

One of the recommendations made by Samson (2010) and The Inter-Ministerial Committee on Young People at Risk (1996) was that child and youth care workers needed higher levels of skills and training. The Inter-Ministerial Committee (IMC) acknowledged the significance of therapeutic and developmental programs in child and youth care centres and recommended training requirements for child and youth care workers. These recommendations have been made a priority for the SACSSP ([a]Jamieson, 2014).

2.7 Conclusion

The literature review discussed the two theoretical frameworks that underpin the study. Policies and legislation regarding Child and youth Care Centres were considered. The concept of Neurofeedback was further explored and focus was given to the benefits, challenges and recommendations of introducing this method in a Child and Youth Care Centre.

CHAPTER 3

METHODOLOGY

3.1 Introduction

The chapter discusses the methodology undertaken in the study. The research design and methods undertaken in sampling, data collection, data verification and analysis are discussed as well as the limitations to the study, followed by a short conclusion.

3.2 Research Design

A research design is considered to be the blue-print or plan of how the research will be conducted (Babbie and Mouton, 2011). It also considers the type of research to be undertaken which is dependent on the aim of the research. While a qualitative design is concerned with understanding rather than the explanation, a quantitative design is focused on the cause-and-effect relationship (De Vos et. al. 2012). Qualitative research considers the process and the social and cultural contexts in which people interact (Maree, 2011). As this study provides subjective perceptions that individual participants have to the treatment, a qualitative, rather than quantitative design was chosen.

Qualitative methods are normally more flexible in that they allow greater spontaneity and communication between the researcher and the study participant (Maree, 2011) The advantages of qualitative research is its ability to provide intricate written accounts of how people experience a given research issue such as individual actions, beliefs, sentiments, reactions, and relationships of individuals (Nkwi, Nyamongo and Ryan, 2001).

The importance of gathering rich, subjective and individual data was imperative to the success of this study. A qualitative design was best able to provide a framework though which specific research questions could subjectively be explored. Through a qualitative design, individual stories can produce an in-depth and diverse description of the phenomenon (Rubin and Babbie, 2008). Words and pictures are used to describe the phenomenon rather than numbers, and data is collected in the form of quotes, interviews and field notes (Merriam and Tisdell, 2016). Through this

approach, it was possible for the researcher to engage and interact with participants through individual interviews, where rich data was generated on their perceptions of Neurofeedback as a treatment method.

In order to meet the research objectives an exploratory research was undertaken with the aim of presenting an initial research study which forms the basis of more a more conclusive research. The topic is also aimed at gaining insight into a new area of interest, namely the introduction of a new treatment method in a child and youth care centre. Exploratory research is often the first stage in a sequence of studies and used when a researcher observes a new interest or when the study is fairly new (Babbie and Mouton, 2011; De Vos et. al. 2012). An explorative study also aims to produce new information and make initial inquiries into a relatively unknown occurrence (Terreblanche, Durrheiman Painter, 2006). The current research study is therefore explorative, as not much has been written about the perceptions of child and youth care workers on Neurofeedback as a treatment model. The researcher wished to gain information from participants in order and to gain a picture based on their views and opinions (Creswell, 2014). This research study was also explorative, in that it was seeking insight into a situation, phenomenon, and community or individual, of which little is known (De Vos et al., 2012) and to fully explore their challenges experienced in their own words. It is hoped that the knowledge gained from this research will the possibility of introducing a new treatment intervention at the Durbanville Children's Home.

3.3. Sampling Framework

Sampling is referred to as the process used to select a proportion of the population for a study (Maree, 2011). A population group is defined by Bless and Higson-Smith (2005) as the entire group of people which the focus of the research is about. For the purpose of this study, the population group consists of all child and youth care workers employed by BADISA. Qualitative sampling therefore necessitates the identification of appropriate participants who can best inform the study in order to address the research question and to develop a full account of the occurrence being studied (Thesen, 2014).

Non-probability sampling is a sampling technique that does not give all the particpants in the population identical probabilities of being selected (Maree, 2011).

This method is mostly used in qualitative studies due to the reliance of available participants; the appropriateness of the sample based on the researcher's prior knowledge of the population and to ensure representativeness (Maree, 2011; Babbie and Mouton, 2011). Non-probability, purposive sampling method was used for the purpose of this study**.**

The sample group for this study consisted of 23 child and youth care workers. This staff component consists of nineteen females and four males. Although all of the child and youth care workers at Durbanville Children's Home (DCH) were invited to attend the training workshop on Neurofeedback, a total of 18 staff members did attend. The reasons why staff members could not attend was due to illness, maternity leave and having to provide supervision to children at the time the training was presented. The sample group was selected based on the criteria that the participants needed to be employed at DCH and have attended the training workshop in order to gain an understanding of Neurofeedback as a treatment method. By the time the data collection commenced, a further 3 participants had resigned and could no longer continue to participate in the research study. The total number of child and youth care workers in the sample selection was 15 participants.

Latham (2013) suggests that the amount of participants needed in a research study is determined when the "saturation" level is reached. According to Latham (2013), saturation is reached when the participants are no longer providing new information and when "data satisfaction" is obtained. Guest, Bunce, and Johnson (2006) propose that saturation often occurs at around 12 participants in homogeneous groups. Homogenous groups refer to a particular level or group of employees in an organisation, in this study it would refer to the group of child and youth care workers employed at Durbanville Children's Home. According to Crouch and McKenzie (2006) less than 20 participants in a qualitative study promotes a closer relationship and thus improve the "open" and "frank" exchange of information. This can help alleviate some of the bias and validity threats inherent in qualitative research (Crouch and McKenzie, 2006). According to Latham (2013), the ideal sample size in qualitative research studies is between fifteen to twenty homogeneous interview participants hence the sample was considered as sufficient by the researcher.

3.4 Data Collection

3.4.1 Data Collection Tool

According to Creswell (2014), qualitative researchers are inclined to collect data in the field at the site where participants experience the issue or problem under study. The most frequently used data collection methods in qualitative research are participant observation, face-to-face in-depth interviews and focus group consultations (Moser and Korstjens, 2018). The researcher made use of face-to-face interviews guided by the format of a semi-structured questionnaire. According to De Vos et. al. (2012) semi-structured interviews are organised around a particular interest but still allows for considerable flexibility in scope and depth. The unstructured interview resembles a discussion more than an interview and is considered to be a "controlled conversation ([a]Jamshed, 2014). The interviewer should record the exact responses of participants and probe for in-depth answers with rich content. De Vos et al., (2012) states that the researcher should have good listening skills such as listening for unfamiliar expressions, strong tones or other hints which may indicate a new or hidden, topic which could be important to the research.

Each participant was approached individually, requesting their permission to participate in the research study. The researcher explained to participants the purpose of the research project, what significance was hoped to be gained from it, and how the interview process would be take place. The researcher also explained what questions would be asked, the need for recording the interviews, the protection and eventual deletion of the audio recordings, confidentiality of their identity, and the reassurance that taking part in the study was voluntary.

Maree (2011) emphasises the need for informed consent which implies that consent individuals participate out of free choice and free from duress or manipulation. A consent form was therefore signed by the participants once the research process and ethical considerations had been clarified and accepted

Participants who were willing to participate were interviewed in a private and sound-proof office on the grounds of the Durbanville Children's Home to ensure minimal disruption to participants working hours. Semi-structured interviews follow a basic

interview schedule which allows for research objectives to be explored openly but still remains focussed on the participant's subjective experience (Moser and Korstjens, 2018). The interview schedule consisted of predetermined questions, which served to guide the interview rather than dictate it as suggested by De Vos et. al. (2012). Questions were carefully selected, open-ended and designed to encourage in-depth responses and simultaneously address the research objectives. The semi-structured interview followed the attached interview schedule (Appendix B).

De Vos et. al. (2012) suggests that additional questions can also be used if the researcher wants the participant to expand on what he or she is saying. The researcher included some supplementary questions applicable to specific participants to gain a richer perception of the individual's subjective experience. This occurred in two occasions where the participants had personal experiences of Neurofeedback prior to the interviews. The researcher created a more open, less formal conversation with participants by being curious and persistently prompting the research participants to elaborate on what they have just said. According to Terreblanche et. al. (2006) applying these measures, indicates to participants that the researcher is listening which in turn encourages them to continue talking about the subject under discussion.

Morse and Field (1995) warn that interruptions can hinder the data collection. In order to ensure interruptions were avoided, the researcher informed all personnel working in close proximity to the office where interviews were held, that disruptions were not allowed and that the researcher would not be allowed to be disturbed during the interviews. Morse and Field (1995) also recommend that researchers should not do too many interviews on one day as it may hinder concentration on the part of the researcher and result in distraction from the process. The researcher therefore divided the amount of interviews undertaken over a four day period resulting in an average of 4 interview schedules per day.

3.4.2 Apparatus

In order to accurately record the data, the researcher chose to record the interviews. Permission was obtained from the participants for the researcher to record the interviews. De Vos et. al. (2012) states that a tape recorder allows for a richer

recording, versus taking notes which often results in the researcher losing focus during the proceedings. Jamshed (2014), supports that the recording of an interview makes it easier for the researcher to focus on the interview content and thus enables the transcriptionist to generate “verbatim transcript” of the interview. In order to ensure that the raw data was protected and secured, it was saved under a password on the recording machine which only the researcher had knowledge of. The recording device was kept in a locked cabinet in the researcher’s office, which only the researcher had access too. Once the data was compiled, the researcher deleted all the recordings personally. All documents saved on the computer was saved with a password which only the researcher had access too.

3.4.3 Pilot Study

The purpose of conducting a pilot study is to observe the feasibility of a method that is intended to be used in a larger scale study (Leon, Davis, and Kraemer, 2011). Thesen (2014) adds that another important aim of the pilot interview is to determine whether the applicable data can be acquired from the participants. A pilot study was undertaken by interviewing a social worker employed at the child and youth care centre to ensure that the questions were easily understood. The social worker was chosen instead of a child and youth care worker as to not eliminate a child and youth care worker from the opportunity to be a part of the study, given the limited amount of potential participants. One of the questions needed clarification and the researcher made the necessary adjustments in the final interview schedule. No other problems were identified and having completed the pilot study, the researcher felt confident to proceed with the data collection.

3.5 Data Analysis

According to Thesen (2014) data refers to evidence of fact and figures from which deductions can be concluded and analysis refers to the separation of a whole into its component parts for the specific purpose of defining its nature. Qualitative analysis according to Babbie (2007:378) is the “non-numerical examination and interpretation of observations, for the purpose of discovering underlying meanings and patterns of relationships”. Due to this study being a qualitative study, the aim is therefore aligned to finding themes and correlations within the data which is collected.

The data analysis method used in this study was based on Tesch's eight step guideline to developing a systematic approach to data analysis, these 8 steps include the following (Tesch, 1992:142–145):

1. Reading the transcript carefully to gain a sense of the entire data and write down the ideas.

2. The researcher asks questions such as "what is this about?" and thinks about the core meaning in the information. The researcher's views are written in the margin.

3. A list is made of all the themes or topics. Similar themes or topics are grouped together.

4. The researcher applies the list of themes or topics to the data. The themes or topics are condensed as codes, which are written next to the appropriate segments of the transcripts. The researcher tries out this initial organising scheme to see whether new categories and codes appear.

5. The researcher finds the most expressive wording for the themes or topics and categorises them. Lines are drawn between classifications to show the relationships;

6. The researcher makes a final decision on the abbreviation for each category and alphabetises the codes;

7. The data material belonging to each category is assembled and a preliminary analysis is performed;

8. The researcher recodes current material if necessary.

3.6 Data Verification

3.6.1. Research credibility refers to the degree to which the research conclusions are credible and suitable, with particular reference to the level of agreement between participants and the researcher (Creswell, 2014). It also refers to the confidence in the truth of the results which ensures that data is viewed objectively (Lincoln and Guba, 1985). Ethical measures were implemented to ensure that personal bias from the researcher would not influence the participant's responses and that objectivity

and credibility would be maintained. Regular supervision supported the measures put in place to ensure credibility.

3.6.2 Research validity refers to the extent to which the research measures what it intended to measure (Maree, 2011). Validity was a specific aspect which was carefully monitored due to the researcher being employed by the organisation involved in the study. Lincoln and Guba (1985) however suggest that when participants have a trusting relationship with the researcher that participants feel more comfortable to share information with researchers who they have a good rapport with and this leads to a richer content. The researcher engaged in regular supervision to ensure that any discrepancies in the findings were addressed and minimised.

3.6.3 Transferability shows that the findings are applicable in other contexts and according to Babbie and Mouton (2011). Although the research study only included participants from one child and youth care centre, transferability can still be ensured due to the high consistency in responses, from the participants. The research findings would still be relevant to other child and youth care centres but broader studies should be conducted in order to further validate the outcomes.

3.6.4 Dependability refers to reliability of the tool being used in the research, which ensures that the study can be conducted again within a comparable context (Babbie and Mouton, 2011). In order to ensure transferability, the researcher provided thorough information on the data collecting and analysis methods to ensure that the study could be simulated.

3.7 Limitations to the study

According to Creswell (2014), the process of qualitative research has innate limitations. Research on this particular subject is limited and therefore it is difficult to obtain information which could lead to generalisations in the research; however it is anticipated that as more qualitative research is conducted in this area, the body of scientific knowledge will grow providing a firmer foundation for conducting future qualitative research studies (Thesen, 2014).

Possible limitations of this study include:

3.7.1 Research design: The greatest limitation to qualitative research designs is that it cannot be generalised to wider populations (Babbie and Mouton, 2011). Other limitations include ambiguities that arise in a subjective content which often lead to misunderstandings in the interpretation of data (De Vos et.al., 2012). The purpose of this study however was not to generalise the findings to other populations but to gain an understanding of the perceptions of child and youth care workers specifically at the Durbanville Children's Home on Neurofeedback.

3.7.2 Sample Size: Limitations in qualitative research include smaller sample sizes which raises the issue of generalisation to the total population of the research (De Vos et. al., 2012). Given that this study is focused specifically to child care workers employed at Durbanville Children's Home, the findings are not generalised to other child and youth care populations. Although reliability maybe limited due to the size of the population, given the high level of consistency, transferability is still possible.

3.7.3 Role of the Researcher: The role of the researcher as interviewer during data gathering, which is often unavoidable in qualitative research, can influence the participants' responses (Anderson, 2010). The researcher was very aware of her position as a social worker at the specific child and youth care centre and how this may have influenced participants on both a positive and negative level in the research study. According to Leedy and Ormrod (2001) if the participants have a trusting relationship with the researcher, it could improve response levels as well as the richness of the responses**.** Whilst being a social worker at the centre could have been to an advantage in terms staff possibly feeling more comfortable to share their views, it could have also been disadvantageous in terms of the participants perhaps feeling apprehensive to share their true opinions in fear of confidentiality being breached or being treated differently in the future. There is also a non-documented power dynamic between social workers and child and youth care workers which could also potentially influence participants. The participants were however reassured both verbally and in the consent/assent forms that all information would be treated as confidentia. She also clarified that in the study her role was that of researcher and not a staff member of DCH.

3.7.4 Researcher Bias: According to Polit and Beck (2013), research bias is frequently understood to be any effect that provides a distortion in the results of a

study. Researchers should be aware of all possible foundations for bias and undertake all possible actions to reduce or minimise such influences (Šimundić, 2013). Due to the researcher's personal interest in Neurofeedback, regular supervision was scheduled to ensure that own views and opinions did not influence reliability and validity of the research process.

3.7.5 Data Collection: Undertaking face to face interviews can be time-consuming and the success of face to face interviews depends mainly on the skills of the interviewer (De Vos et. al. 2012). If participants are not made to feel comfortable and a rapport is not built, then the researcher will experience challenges in obtaining information (De Vos et.al. 2012). One of the challenges experienced in this study was that not all of the participants could be interviewed in their preferred language. The researcher's first language is English but can understand Afrikaans; participants were offered the choice of engaging in any of these two languages. Three of the participants' were Xhosa speaking but were comfortable to conduct the interviews in English. The researcher was careful to avoid academic language and terminology and used language and concepts which was tested in the pilot study and deemed to be understandable. De Vos et. al. (2012) also states that recording large volumes of data through face to face interviews can bring about its own challenges and limitations. These include the use of recording mechanisms which could be faulty and also participants not feeling comfortable with being recorded. The researcher spent an appropriate amount of time before each interview preparing the participants and obtaining their permission to record the interview.

3.7.6 Data analysis: The main shortcoming of qualitative methods to data analysis is that their results cannot be extended to wider populations with the same degree of confidence that quantitative analyses can (Creswell, 2014). Another limitation is that data could go missing in the interpretation thereof. According to Kang (2013) missing data occurs in almost all research which then reduces the statistical outcomes of a study and can produce invalid conclusions. These limitations were discussed in supervision and considerations of the above limitations were carefully considered during the analysis phase.

3.8 Conclusion

A qualitative research design was chosen to explore and understand the perceptions of child and youth care workers on Neurofeedback as a treatment method. Non-probability sampling methods were described and the data collection, analysis and limitations were discussed. The findings of this study are presented in chapter four.

CHAPTER FOUR

FINDINGS

4.1 Introduction

This chapter presents the findings of the study and will commence with a profile of the participants. The findings will be presented within a framework of analysis and will be discussed using the research objectives as key headings. A conclusion will summarise the chapter.

4.2 Profile of Participants.

Table 4.1: Profile of participants

Participant	Age	Gender	Years being employed in child care	Years employed at DCH
1	39	F	5	5
2	35	F	14	5
3	24	M	3	3
4	54	F	19	19
5	35	F	11	10
6	50	F	20	26
7	45	F	14	14
8	50	F	20	2
9	31	M	6	4
10	59	F	15	15
11	49	F	25	25
12	23	M	3	3
13	43	F	25	2
14	42	F	12	2
15	43	M	10	2

A brief discussion and analysis with regards to the demographics of the participants in the research study follows.

4.2.1 Age of Participants: The average age of participants were between ages 45 and 50yrs which corresponded with the average amount of years working in child and youth care work to be between 10 and 15 years. Two participants were younger than 25years of age while four participants were older than 50yrs.

4.2.2 Gender of Participants: 73% of participants who took part in this study were female, while only 27% were male. The majority of the participants in the research study were female, which is congruent with the trend in the child and youth care sector where there are predominantly more women. This ratio is reflective of the general male: female ratio in the profession as cited by Winfield (2005). The National Association of Child Care Workers' training data base presents the same trend, reflecting the majority of learners being female ([b]Jamieson, 2013). Females are mostly appointed as child and youth care workers due to "their mothering qualities and their perceived ability to raise children successfully" (Thesen, 2014).

4.2.3 Duration of Working as a Child and Youth Care Worker:

The majority (67%) of participants had between more than 10 years' experience of doing child and youth care work. Four participants had over 20 years' experience. Less than 15% of participants had less than 5 years' experience in this field. These statistics indicate a high level of experience within the field of child and youth care workers employed at the Durbanville Children's Home.

4.2.4 Duration Employed at the Durbanville Children's Home

The child and youth care workers interviewed for the purpose of this study include a diverse staff group of various ages and years of experience. Most child and youth care workers who have many years' experience in child care work have started and continued their career at Durbanville Children's Home, indicating a low staff turnover within this group.

4.3 Framework of Analysis

The following table structures the major themes and sub-themes that emerged from the data analysis.

Table 4.2: Framework of Analysis

THEME	CATEGORY	SUBCATEGORY
Neurofeedback (NF) as a treatment model for developmental trauma	Understanding of Neurofeedback	Target Areas
		Equipment
		Functions of NF
	Thoughts and feelings about Neurofeedback	Positive feelings
		Negative feelings
Benefits to introducing Neurofeedback as an intervention method	Improving Behaviour	Awareness of behaviour
		Understanding behaviour
	Improving Emotional Stability	Trauma related emotions
		Depressive symptoms
	Skills Development	Optimal Functioning
		Coping Skills
Challenges to introducing Neurofeedback as an intervention method	Staff Perceptions of NF	Feelings regarding NF
		Resistance to NF
	Children's perceptions of NF	Feelings regarding NF
		Inconsistencies of NF treatment
	Technical and financial limitations of NF	Affordability
		Knowledge
		Accessibility
	Uncertainties of a new intervention method	Managing Behaviour
Recommendations	Recommendations for implementation	Education and Training
	Recommendations regarding children	Explanations and Preparations
		Selection of Children
		Parents and Families
	Recommendations regarding staff	Child and Youth Care Workers
		Social Workers
		Managers
	Recommendations to other Child and Youth Care Centres	Community Resources

4.4 Findings

The findings are presented below under the heading of each research objective. The themes and their accompanying sub-themes will be presented and illustrated, providing direct quotations from the transcripts of the interviews.

4.4.1 Objective 1: What are the perceptions of Child and Youth Care Workers of Neurofeedback as a treatment model for developmental Trauma

The following section will explore the child and youth care worker's understanding of the concept, feelings and thoughts about Neurofeedback as well as how child and youth workers perceive how this intervention could help treat children with developmental trauma.

4.4.1.1 Understanding of Neurofeedback as a treatment model

All the participants understood that the Neurofeedback is connected with the brain. Participants further described the target area of Neurofeedback as the mind, brainwaves and or pathways of the brain. Some of the participants referred to the equipment and components thereof in describing what they understood Neurofeedback to be.

"It checks the brainwaves to see where it's not working correctly and where you can manage to correct it" (Participant 10)

"It is basically something electrical…displayed on a monitor… resetting the pathways for a child so something to do with how the brain thinks…" (Participant 13)

"My understanding (of Neurofeedback) is to check the brain of the child…by that machine…" (Participant 7)

This finding is supported by the definition provided by the Biofeedback Association of South Africa (BFASA, 2018) which confirms that Neurofeedback has to do with the brain. The process according to Hammon (2003) includes the reading of electrical activity in the brain through the placement of electrodes on the scalp and ear and recording the activity of the underlying neurons (nerve cells) through an Electroencephalogram (EEG).

The participants further described Neurofeedback with regards to the functions it serves such as to calm, stabilise, reward, reset or balance the brain.

"It is about stabilizing the brain" (Participant 6)

***"Children who are very hyper to calm their mind … like a reward system…"* (Participant 9)**

"It is about re-guiding the brain into a more stable environment…" (Participant 5)

Fisher (2014) concurs with the finding and she indicates that when applying Neurofeedback with clients who have experienced developmental trauma, the primary goal is to calm the fear-driven brain. Thompson (2015), shares that Neurofeedback is aimed at changing the brain's pathways through a reward system. This finding deepens the understanding that Neurofeedback focusses on the biology of the brain but also accentuates that in doing so it influences the behaviour of the person.

4.4.1.2 Participants Feelings and Thoughts about Neurofeedback

Most participants shared both positive and negative thoughts and feelings they had about Neurofeedback as a treatment model. Some of the participants were uncertain and initially felt they could not comment on this aspect. Through further exploration they shared what their uncertainties were about.

4.4.1.2.1 Positive Perceptions of Neurofeedback

Participants who felt positive towards Neurofeedback shared that they thought it would be helpful to the children and hopeful that this intervention could further

develop the treatment programme. Some participants felt that it would also benefit the child and youth care workers in better understanding the children they work with.

"It will help a lot in terms of even the child care workers… so they will know how to deal with the child" (Participant 3)

"…this could possibly be a treatment option to help children cope without medication or with less" (Participant 13)

"…if you look at a teenager today, technology is a teenager's thing today, so I think for the older kids it would be fine" (Participant 5).

Swingle (2015) confirms these findings by stating that the Neurofeedback assessment can and does provide information on where and why the brain is not functioning efficiently. Being able to understand and provide information to child and youth care workers to help understand the child and identify the correct treatment method is possible through the Neurofeedback as identified by Swingle (2015:165). This finding thus confirms that Neurofeedback should be considered as an intervention to develop and expand on treatment options for children in residential care and serve as a supportive intervention for the work offered by child and youth care workers.

4.4.1.2.2 Negative Perceptions of Neurofeedback:

None of the participants expressed purely negative perceptions of Neurofeedback. Those who did express negative views included positive aspects as well. Negative views were mostly around their initial impressions and concerns over the treatment. These thoughts and concerns included views that this form of treatment was too advanced to be used in such a setting and that the organisation was "too old fashioned" for such an intervention. Other concerns included matters over the Neurofeedback equipment and fears that it would harm or damage the brain. Some participants had concerns over how the children would respond to such a treatment and highlighted fears and anxiety it may cause them.

"To me it was like they think we are crazy because sticking this [on my head]… you know this is my way of thinking sometimes" Participant 9

"I was thinking about how the wires were going to be around my head and maybe something can get like, bombing or shooting my brain, something like that…" Participant 1

"My initial thoughts were I thought a lot of needles is going to be in your head and then somebody will make you sleep and talk with you and you must say what happened in your life… then afterwards I thought, no, it's something nice…maybe this thing will work" Participant 2

This finding concurs with Fisher (2014), who shares that there are complex issues to consider when introducing Neurofeedback. Swingle (2015) states that it is normal for clients to have anxieties and fears around a new treatment that is different to traditional methods of treatment. The finding of the study therefore highlights that Neurofeedback has raised some debates and that there needs to be an awareness of this if the method is to be introduced successfully.

4.4.1.2.3 Uncertain perceptions of Neurofeedback:

Due to feelings of uncertainties, some participants were unsure as to how to respond to the possibility of Neurofeedback as a treatment model.

"My first thought was I need to know, and I was like, what is this? Is this to do with your like brain? I actually didn't know… I didn't realize, like you will have this, what you call it? Plugs on your head…" (Participant 3)

"I didn't know what it was so I laughed at it" (Participant 9).

Wanberg and Banas (2000) confirm that people fear the unknown as they are uncertain as to how change will impact on them personally. Laumer et. al. (2015) found that employees are generally resistant to change because of this fear of uncertainty. The uncertainties that the participants face regarding the introduction of Neurofeedback do produce fears amongst some, but despite these fears, participants were still in favour of introducing this method of intervention. This finding encourages organisations and clincians to be mindful of the perceptions that clients may have of Neurofeedback when introducing this form of treatment and acknowledging their uncertainties through their behaviour.

4.4.2 Objective 2: What do participants perceive to be the benefits of Neurofeedback as a treatment method?

Three main areas were identified where participants felt Neurofeedback could help children with developmental disorders. These included improving behaviour, stabilising emotions and skills development.

4.4.2.1 Improving Behaviour

The participants are of the opinion that Neurofeedback could improve behaviour by teaching children to think before acting. They are predicting that Neurofeedback could address hyperactive and impulsive behaviour and thus improve the symptoms of children with ADHD.

"…this method can help them think for themselves and know when to react…before reacting, first think!" (Participant 2)

"You see they will be thinking before they do" (Participant 15)

"So I feel the Neurofeedback can help the child, it helps the brain to get the child like calm, more relaxed" (Participant 8)

This finding is supported by Thompson and Thompson's (2015) research which indicates that Neurofeedback can improve cognitive performance. The Biopsychosocial Model also links holistic treatment with cognitive development. These tasks range from processing incoming information in multiple sensory forms to interpreting, integrating, and relating the information in order to formulate appropriate responses (Thompson and Thompson, 2015). It is evident from these findings that Neurofeedback could have beneficial outcomes on children's behaviour, in particular in addressing impulsive behaviour and improving attention.

4.4.2.2 Stabilising Emotions

Many of the participants indicated that depression, emotional trauma and suicidal intentions are emotional issues the child and youth care workers are dealing with. The participants indicated that they think that Neurofeedback could address these emotional difficulties. Several participants raised concerns that trauma related emotions result in the lack of concentration and therefore poor school performance.

"Because we get children with different backgrounds and sometimes they are too much traumatised and then they can't cope at school or they can't cope in group sessions, that's why we need it."(Participant 14)

"My personal feelings about that is trauma relates to emotional defects…Tension and the child is like hyper, you know, and anxious, just not stable, so I feel Neurofeedback can help the child, it helps the brain to get the child like calm and more relaxed." (Participant 8)

This correlates with Van der Kolk (2016) statement that Neurofeedback can help traumatised children to normalise their brain waves so that they can control their emotions, concentrate and stay focused on playing, learning, making friends and pursuing goals. Various studies have indicated that Neurofeedback can enhance emotional stability (Kerson et al. 2009; Peeters et al. 2014; Cheon et al. 2016; and Mennella et al. 2017). This study highlights that the benefits of Neurofeedback could form part of a holistic treatment method which would also address emotional and psychological difficulties experienced by children and youth.

4.4.2.3 Skills Development

Some of the participants indicated that they thought Neurofeedback could assist the children develop skills to help them cope with daily life challenges. These skills included learning coping mechanisms and life skills such as problem-solving and decision making skills.

"It can help them a lot in terms of their coping, in terms of what they want to be in life..." (Participant 3)

"…getting the child to then start thinking and help him to cope." (Participant 13)

"It could help them… to maybe focus and help them deal with things" (Participant 1)

This is confirmed in the study undertaken by Lingenfelter (2001) which indicated that Neurofeedback can potentially enhance IQ scores, academic improvement, pro-social behaviours, and decrease behavioural and cognitive difficulties. Williams

(2006) adds that benefits of this method include improving attention/concentration, imagery, arousal level, and decreasing worry and rumination.

The findings discussed under Objective Two, indicate that participants identify the improvement in behaviour, emotional stability and the development of skills as three potential benefits to introducing Neurofeedback as a treatment method in the child and youth care centre. Discussions around the third objective will now be presented.

4.4.3 Objective 3: Challenges to introducing Neurofeedback as an intervention method.

The study identified four main challenges to introducing Neurofeedback as an intervention method. These include, staff perceptions; perceptions of children, technical and financial constraints and the uncertainty of the outcomes of a new intervention method.

4.4.3.1 Staff Perceptions of Neurofeedback

A few of the participants identified that the attitude and inconsistency of staff's willingness to engage in new methods could result in challenges while introducing Neurofeedback as new intervention. Feelings such as being suspicious or fearful of this method could challenge the introduction of this method.

"Some child and youth care workers won't be positive about this… I think not all of us are consistent" (Participant 11)

"I think educating the staff so they don't look down on it and then get fed up and let the children then also have an attitude towards it" (Participant 13)

"…maybe some of them, they would not understand what it is for, or maybe something they fear" (Participant 15)

These findings are confirmed within the Theory of Change by Edmonds (2011) who states that the resistance to change in organisations is largely as a result of the fear of the unknown. Folger and Skarlicki (1999) explain that resistance is the employee's natural reaction to organisational change and is often a prime reason why most change does not succeed or get implemented (Egan and Fjermestad, 2005).

4.4.3.2 Participants perceptions of Children's responses to NF intervention

Most of the participants were concerned about the manner in which children would perceive Neurofeedback as a treatment method. These perceptions included children being scared/frightened of a new treatment, that their brain would be damaged, that the machine would be able to reveal secrets and that it would discriminate them for needing this form of intervention.

"Sometimes they are coming out of a lot of trauma and they don't want to go back into it, or they scared you are going to open the closet" (Participant 14)

"I think they will think we are going to damage the brain or we are going to scratch where we don't need to scratch…" (Participant 4)

"…they can feel it is bad because it is something that is going to discriminate the child…for example if you go to this machine they put that thing on for you, you are maybe stupid" (Participant 7)

These findings are supported by Fisher (2014) who state that some children will fear mind control where as others will be afraid of the power in the hands of the Neurofeedback practioners. This validates and confirms the challenges identified by the participants in introducing this method. Demos (2005) argues that motivation is essential in children undergoing Neurofeedback training and to avoid discrimination, they should have a choice in wanting to participate. These findings therefore support the inclusion of children's participation in decision making regarding the treatment of Neurofeedback as a treatment method.

4.4.3.3. Technical and Financial Limitations

A small amount of participants mentioned that the financial and technical implications are a challenge to the implementation of Neurofeedback. These perceptions included seeing a technological approach to therapy as being too advanced, too costly and too new.

"I think it's more not having the knowledge or understanding of it, I mean technology is going so fast today that nobody can actually keep up with it…" (Participant 5)

"If we look at maybe financial, there will be a challenge because I think it is like something expensive although there is a need for it." (Participant 8)

These concerns are supported by Edgett (1994) who recommends implementing a thorough preliminary assessment of the financial situation before valuable resources are consumed. The equipment is costly and may not be affordable for a non-profit organisations such a child and youth care centres. These findings highlight the importance of considering the availability of human and financial resources available before undertaking a decision to implement Neurofeedback as an intervention.

4.4.3.4 Uncertainties of a new intervention model

The participants shared their concerns over uncertainties resulting from introducing a new intervention model. These concerns included difficulties in adapting to something new and not having the knowledge with how to deal with the outcomes.

"Everything that is new, it's like everybody is questioning it" (Participant 8)

"It's going to be a struggle because no one has ever put something on their heads so why now? So, there is going to be difficulty for them to adapt" (Participant 12)

"A challenge for me is how I help these kids also, I don't always understand at all times how to help the children" (Participant 6)

These uncertainties are explained and supported by Edmonds (2011) who states that the resistance to change in organisations is largely as a result of the fear of the unknown but if handled correctly, using known and tested change management techniques, change can be brought about successfully. Gitlin (2013) provides a model which assists organisations such as the Durbanville Children's Home, in addressing uncertainties and anxieties through periods of change.

The findings regarding objective three indicate that the main challenges in introducing Neurofeedback as a treatment model lies in the uncertainties and anxieties of both staff and children. Further challenges include the financial costs and technological advancements of the treatment and how all the above aspects would impact the organisation.

4.4.4 Objective 4: Recommendations made by Child and Youth Care Workers when introducing Neurofeedback as a treatment method.

The following recommendations were identified and are divided into the following categories; recommendations for implementing Neurofeedback at a child and youth care centre, recommendations when introducing children to Neurofeedback, recommendations for staff when introducing Neurofeedback as a treatment method (managers, social workers and child and youth care workers) and recommendations for other child and youth care centres when considering implementing Neurofeedback as a treatment method.

4.4.4.1 Recommendations for the implementation of Neurofeedback at a Child and Youth Care Centre:

All of the participants were positive that Neurofeedback should be implemented at the Durbanville Children's Home. Some participants suggested doing a pilot study with selected house units as an initial step in introducing the method and other recommended that the treatment should be available on the grounds of the children's home.

"…let us take hands with the person who is DOIng the Neurofeedbak for our children and we will be able to take it far here in the Durbanville Children's Home." (Participant 11)

"Do a small pilot project, maybe just focus on one house, two or three….do an evaluation..."Participant 13)

"see how a trial run goes" (Participant 9)

The recommendations as given by the participants, link in agreeably with the intervention proposed by Gitlin (2013). The process includes a feasibility phase, aimed at developing and testing outcomes first. This is further supported within the theory of change which promotes a "pilot study" or "trial run" with the aim of reviewing the appropriateness, comprehensiveness and accuracy of a new intervention first (Clark and Taplin, 2012). This finding highlights the importance of

examining the feasibility of Neurofeedback in testing the method and procedures before ultimately implementing it to a larger population.

4.4.4.2 Recommendations regarding introducing Neurofeedback to children:

Most of the participants recommended that the children receive sufficient information, explanations and preparations before implementing the treatment. Other recommendations included careful selection of the children who would receive the treatment, and ensure the child's opinion, participation and consent is obtained.

"...but before we start with doing it, we need to explain to them and we must explain why it is….why we're doing that to them, I think they will understand and they will allow us to do that…" (Participant 15)

"I think especially some of our children who have behavioural problems and stuff like ADHD…I think the bigger children maybe won't be so lekker with it…" (Participant 10)

"…I think it can help certain children, maybe not everybody, but certain children" (Participant 10)

These findings are supported by Salmon (2006) who states that preparing the child for treatment will enhanced and encourage the child's active participation in the intervention. Johannisen (2014) further supports these recommendations by stating that children should have a right to participate in the form of treatment they receive. The recommendations by the child and youth care workers regarding the careful selection of children is supported by Demos (2005) who warns that Neurofeedback is not a "cure" for all disorders and will not fix all problems associated with the brain. This finding confirms the recommendation that introducing Neurofeedback needs careful preparation of the child/youth and that consideration should be given to the appropriateness of the intervention to a particular disorder.

4.4.4.3 Recommendations regarding staff

These recommendations will be subcategorised according to staff's roles and function within the multi-professional team. These subcategories include the child and youth care workers, social workers and managers of the residential setting.

a) Child and Youth Care Workers

The majority of participants emphasised the role the child and youth care worker would need to play in preparing children for Neurofeedback. This role included having a positive attitude towards the treatment, working together as a team, taking responsibility in getting further training, and being open to experience it themselves.

"I think we as child care workers have to go through it first and to explain to them what it's all about" (Participant 4)

"… get the team on your side." (Participant 13)

"…I think staff need to be educated more so that we can relay the message…" (Participant 3)

Schwartz (2017) supports these finding in stating the child and youth care workers have a responsibility to balance the task of guiding children in matters pertaining to them. Samson (2010) also supports the finding that all staff should receive the necessary training and be committed to effective practices and keep abreast of the latest findings in research. This finding encourages the importance of care givers having a good understanding and knowledge of Neurofeedback in order to support and motivate the implementation of such an intervention.

b) Social Workers

All participants recommended that social workers should assist in the preparation and explanation of Neurofeedback to the children. Consent was discussed as part of the preparation for the treatment and recommendations were made to include the families in this aspect. Most of the participants recommended that the social workers select the children to receive Neurofeedback based on the trust that they, as child care workers as well as the children, have in their judgement. Some participants also recommended that the social workers experience it for themselves.

"They know the child, the history of the children and I think they will make the right decisions … I don't think you guys will go wrong in making decisions and I mean we must just support you in the matters and go forward" (Participant 8)

"…and even our kids'parents or families, inform them too…because I think for a parent hearing that your child is going to do this, or going through this, it must be quite traumatising , even to the parent, even if there isn't a relationship" (Participant 5)

"I think they must also go through it, they can then explain it to the kids because the kids won't believe in we as child care workers, but like if the social workers explain to them, then they will understand better" (Participant 4)

Husby (2018) and Cossar, Brandon and Jordan (2016) confirm that the social worker has a key responsibility to provide a platform for children's participation in decision-making. This is based on the trusting relationship social workers have with the children. Another responsibility of the social worker is to determine the capacity of young people to participate in treatment (McCarthy, 2016). Research undertaken by Geurts, Boddy, Noom and Knorth (2012), also support the finding that social workers should include family involvement which could improve long-term outcomes of the treatment. These finding highlights the responsibility social workers have when deciding to implement Neurofeedback as a treatment intervention for children in residential care. It also confirms the important role of the social worker in ensuring the active participation of all role players in the decision making of Neurofeedback as a treatment intervention.

c) Management Team

All the participants recommended that the management team should consider making Neurofeedback part of the treatment programme at the Durbanville Children's Home. Some members suggested that management provide more therapeutic tools in order to address the children's needs. Another recommendation was that management should include staff thought allowing them to experience Neurofeedback in order to understand themselves better.

"I would say that if there is something that can help the children they must really try it, don't just scrap it off and say no we're not going to try it, first try because there's a lot of children here that I think really needs stuff like this, a new set of treatment or something" (Participant 10)

"I will tell them that I think all of us must go through it to understand ourselves, to get a better understanding of ourselves" (Participant 4)

"I think the staff also needs some Neurofeedback" (Participant 9)

Furst and Cable (2008) confirms these finding by suggesting that managers should offer employees the opportunity provide suggestions and ideas in facilitating change. By promoting employees participation in the change process, they gain a greater sense of control over their work. This is supported by Edgett (1994) who also recommends that management should have a strong presence in the process while ensuring a high level of coordination and cooperation amongst the people and departments involved. This confirms that the management team is an important role player in allowing staff members to contribute to decisions and feel supported through the process of implementing Neurofeedback in an organisation.

d) Other child and youth care centres

Most the child and youth care workers recommended that other child and youth care centres should get the necessary training and exposure to Neurofeedback. Suggestions were made that workshops, group sessions and forums should be held to inform the other child and youth care centres about this treatment method. Some child and youth care workers were concerned that the high costs would limit other centres from benefiting from this intervention and recommended that Durbanville Children's Home should be a resource to others in the community.

"Have a workshop then at other children's homes, and at forums like NACCW and then we can explain it there" (Participant 6)

"Well obviously the cost of it will come in with other children's homes that's smaller or not so… economically stable like us, but I mean there is also ways around it where we can expose them more to it by opening the facility to other children's homes and other facilities to use it and come and see how it works with workshops and training" (Participant 5)

The recommendations made by the child and youth care workers to provide other child and youth care centres with resources such as Neurofeedback can, according

to Sudbeck and Bradley (2018) and Jones et. al. 2017, help the organisation develop credibility within the community and industry sector.

The findings obtained in Objective four, conclude that according to the participants, Neurofeedback should be implemented as a treatment method in the Durbanville Children's Home. In order to ensure the successful introduction of this treatment method, participants felt that careful attention should be given to the explanation of this method to the children and that this role should jointly be the responsibility of the social workers and child and youth care workers. Participants also recommended that management play a key role in supporting the staff by considering their participation in the implementation of this treatment. Finally it was recommended that child and youth care centres provide partnerships to ensure affordable and sustainable ways of accessing this treatment and in return the organisation will develop credibility within the community and industry sector.

4.5 CONCLUSION

The research goal and objectives were achieved and the research questionS answered through a qualitative analysis which was considered the best research approach for this study as it acquired rich inclusive data. The findings of the study provided a better understanding of the perceptions of child and youth care workers on Neurofeedback as a treatment intervention. The final chapter discusses the conclusions and recommendations of the study.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The final chapter presents the conclusions drawn from the study's findings. Recommendations for further research and practice are provided at the end of the chapter.

5.2 Conclusions

The conclusions will be discussed under each research object

5.2.1 Objective 1: To explore the Child and Youth Care Workers perceptions of Neurofeedback as a treatment model for developmental Trauma

All the participants had a basic understanding of what Neurofeedback is. This was evident in their descriptions which described it as a treatment method that is focused on the brain/brain waves and that it includes equipment or a machine which is connected to a person's head. These basic descriptions indicated and confirmed the need for further training in this model in order to gain a better and more in-depth understanding of this treatment method. The need for further training was suggested by most participants.

Despite initial fears and concerns which participants admitted to experiencing, all of the participants felt that this was a treatment method which should be implemented at the Durbanville Children's Home. Some participants shared both negative and positive opinions of Neurofeedback. Positive opinions of the method included viewing Neurofeedback as tool or intervention which could help the children to address various problems as a result of their traumatic backgrounds. Some of the participants, highlighted the possibility that Neurofeedback could assist in improving cognitive development, in order to improve concentration and academic progress at school. Most participants also felt that Neurofeedback could help them as child and youth care workers in better understanding the children they are working with.

Negative opinions around Neurofeedback were connected to concerns over the treatment being potentially harmful to the brain; being too advanced for the children to understand and that the children would find the treatment too anxiety-provoking.

Although the dominant opinion was that Neurofeedback was a helpful and positive intervention which should be implemented, feelings of uncertainties are acknowledged and recognised due to participants experiencing a combination of both positive and negative thoughts and feelings.

5.2.2 Objective 2: To identify what child and youth care workers perceive to be the benefits of Neurofeedback?

The participants identified three core areas where Neurofeedback was perceived to be beneficial. These included the improvement in behaviour, the stabilising of emotions and the development of skills. Behaviour in children with developmental trauma was often described as impulsive and reactive. Participants were of the opinion that Neurofeedback would help calm the children and allow them to think before acting.

On an emotional level, participants described children in the residential setting as experiencing symptoms of trauma related disorders including depression, anxiety and emotional instability. Participants were of the opinion that Neurofeedback could assist in addressing these difficulties.

Neurofeedback was also perceived to be a tool to assist children in developing coping skills. Although the participants were unsure about the methods involved in

this process, most participants were positive that it could address negative thinking patterns. The literature study explored and confirmed the ability of Neurofeedback to improve optimal performance including improvement in concentration, memory and attention-span.

Neurofeedback was therefore identified as an intervention method which would benefit various aspects of the child's functioning and add to the holistic growth and development of children experiencing developmental trauma.

5.2.3 Objective 3: To identify challenges in introducing Neurofeedback as an intervention model in child and youth care centres.

The study identified four key areas where challenges were identified in introducing Neurofeedback as a treatment method. The first area was around staff perceptions and the concern that negative attitudes, feelings of fear and suspicion, as well as a trend in inconsistent willingness among staff members to engage in new interventions, would make the implementation of this intervention challenging. It is noted that these concerns are specific to the Durbanville Children's Home and outcomes in this area could vary from other child and youth care centres.

The second area identified as a challenge was negative perceptions that children may have towards Neurofeedback. Concerns included the children feeling anxious around a treatment that would involve their brain, fears that the treatment would reveal personal secrets and that they would feel discriminated as needing this form of therapy while others didn't. As explored in the literature study, these concerns are validated with the omission of children not being given the opportunity to participate in the decision making around receiving this form of treatment. These challenges would be intensified if children did not receive comprehensive preparation, explanations and exposure to the process and benefits of the treatment.

The third area identified the technical and financial implications of implementing this method. Some of the child and youth care workers raised concerns over the technological approach to therapy as being too advanced for children to appreciate and understand this method. The costs involved in purchasing both hard and software equipment needed to implement Neurofeedback is high. Concerns arose

whether this would be a sustainable treatment method for residential child and youth care centres.

Uncertainties related to staff attitudes were identified as the fourth challenge in the introduction of Neurofeedback. This pertained mainly around child and youth care workers experiencing a sense of anxiety around a new form of treatment and feelings of inadequacy around managing potential outcomes of the treatment method.

5.2.4 Objective 4: To learn about the recommendations child and youth care workers would make when implementing Neurofeedback as a treatment method.

Four categories were identified by the child and youth care workers in making recommendations. These included recommendations for the implementation of Neurofeedback, recommendations regarding children and Neurofeedback, recommendations for staff (managers, social workers and child and youth care workers) and recommendations for other child and youth care centres

When considering the introduction of Neurofeedback as a treatment method, it was recommended by the child care workers that sufficient planning and preparation of the staff and children are made. This includes providing staff with extensive training and children with sufficient information before implementation to ensure that both parties have a good understanding of the process and feel comfortable with the intervention. Further recommendations regarding children included promoting children's right to participation and encouraging family member's to support and give consent to the treatment. Children should also be carefully selected to receive the treatment to discourage feelings of discrimination. Ethical considerations such as confidentiality should also be considered and adhered too.

It is recommended that managers and support staff such as social workers consider implementing Neurofeedback as an additional tool in the treatment programme offered at the child and youth care centre. A feasibility study including a pilot study was recommended to the management team to ensure a successful implementation and to safeguard against potential barriers and challenges to implementation.

Recommendations made to other child and youth care centres included attending workshops/forums and training on Neurofeedback and the implications, benefits and challenges of this treatment method. All participants recommended that other child and youth care centres could also benefit from this treatment. Given the high financial costs, it was recommended that Durbanville Children's Home offer both training and treatment to other organisations as a community resource. This would make the treatment more accessible and affordable to other child and youth care centres.

5.3 Recommendations:

This research study was specifically aimed at the Durbanville Children's Home, and therefore, recommendations regarding the implementation of Neurofeedback are primarily aimed to this specific child and youth care centre. This is followed by recommendations for future research.

5.3.1 Recommendations for Child and Youth Care Centres when implementing Neurofeedback:

5.3.1.1 Staying informed of new research

Neurofeedback is one of many models which have gained recent attention and focus as a new treatment method for traumatised children and youth. It is therefore recommended that staff stay informed of current research/ trends and outcomes within this treatment option by attending regular training workshops and obtaining new literature studies on this form of intervention. Ongoing research is being undertaken in this method with traumatised children and youth and it is recommended that Durbanville Children's Home remain informed of these outcomes through regular network meetings with professionals practising this form of intervention.

5.3.1.2 Engaging with further Training Opportunities in Neurofeedback

In order to reduce anxiety and fears in staff, it is recommended that staff receive further training and exposure in Neurofeedback. This would involve having follow up workshops and experiential opportunities for staff to familiarise themselves with the process and equipment involved in this form of treatment. More detailed information

should be provided in a hard copy such as a manual, which staff can take home and read at their own pace. The researcher is aware of the additional financial implication of such a suggestion and recommends funding applications be submitted to institutions willing to support this initiative.

5.3.1.3 Organisational preparations for introducing a new treatment method:

To ensure a smooth and easy transition, the Durbanville Children's Home should follow a structured plan such as the Intervention Development Plan proposed by Gitlin (2013). This will assist in avoiding negative attitudes amongst staff and other departments and will minimise staff resistance within the Home. This plan allows staff to feel included, heard and supported and thus ultimately ensures a successful implementation of new methods and changes. Managers should provide opportunities and forums for child and youth care workers to voice their suggestions and ideas regarding the introduction of this treatment method and should follow the guidance of the social workers in identifying the children and youth who would benefit from this treatment. This process should also include a platform for the beneficiaries (children and youth) to participate in these decision making tasks.

5.3.1.4 Partnerships amongst Child and Youth Care Centres

In order to address the high financial and technological costs, it is recommended that Durbanville Children's Home consider partnering with other child and youth care centres to share the costs and logistical implications linked with this treatment. This would include sharing costs involved in purchasing the equipment as well as having practioners trained and accredited. Through this process an added benefit would be that more children are able to access this form of treatment if more child and youth care centres are engaged in this process.

5.3.2 Recommendations for future Research

This study focused on a small sample of the population of child and youth care workers. As little research is found on this topic both nationally and internationally, further research would be valuable, especially given the limited evidence-based practices in this field. Future studies could expand on this study with a greater number of participants as well as including other professionals perceptions such as social workers.

A comparative study of the perceptions of child and youth care workers at other child and youth care centres can highlight differences and inconsistencies to those identified in this study. This information could be valuable in providing alternative recommendations to the implementation of Neurofeedback in such settings.

As this study served as feasibility study to introducing Neurofeedback at the Durbanville Children's Home, it only included the perceptions of the staff at this organisation. Further studies could include the perceptions of the potential beneficiaries i.e. the children and youth on receiving this form of treatment.

5.4 Conclusion:

Guided by the frameworks of the Theory of Change and the Biopsychosocial Model, this study has explored and considered the various aspects of introducing a new treatment method, namely Neurofeedback, to a child and youth care centre. Through the interviewing of fifteen child and youth care workers employed at the Durbanville Children's Home, the benefits and challenges of introducing this method were explored. Conclusions reached were that all participants supported the implementation of this treatment method despite anxieties, fears and uncertainties. The roles of the various staff members including social workers and managers were considered to be important in ensuring the successful implementation of this new treatment intervention. Recommendations were provided regarding the careful preparation and training of both staff and beneficiaries. While the financial and technical advances were considered limitations and challenges, recommendations were made for child and youth care centres to form partnerships in order to address these challenges. Recommendations for further research were also suggested.

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APPENDIX A:

CONSENT FORM FOR CHILD AND YOUTH CARE WORKER PARTICIPANTS

I would like to invite you to participate in a research study.

Title of Dissertation: Exploring the perceptions of child and youth care workers on the feasibility of introducing Neurofeedback as a treatment method at BADISA Child and Youth Care Centres

Important information regarding the research:

- My name is Alicia van Vuuren and I am currently completing my master's degree in Clinical Social Work at the University of Cape Town.
- The purpose of the study is to explore child and youth care workers perceptions on Neurofeedback as a treatment method of children in Child and Youth Care Centres.
- The manager of the child and youth care centre gave written permission for you to take part in this study.
- The interview will take place at a time convenient to you.
- Whatever will be discussed, will always be kept confidential and your name will never be mentioned. I will use pseudo names in the study, for example if your name is Peter I could use the name *John. The name will not have any similarity to your own name, therefore making it impossible to trace your real name, protecting your identity.
- It's important to remember that you need not discuss anything if you are not comfortable with it, and that you have the right to withdraw from the study whenever you want to.

I, ……. have read through the information regarding the study and give consent to voluntarily take part in the study.

Participant signature

Date: ……..

APPENDIX B

Semi-Structured Interview Schedule:

Opening Questions
1. How long have you been a CYCW?
2. Why did you chose a career in CYCW ?

3. How long have you have you been employed at DCH?
4. Why did you choose to work at DCH?
Research Question 1
1.1 What do you think of Neurofeedback as a treatment to be?
1.2 What were your initial thoughts about this method as a treatment option for children having experienced trauma?
1.3 Developmental trauma is described as traumatic events which children experience from a young age. What are your thoughts around children in DCH receiving this form of treatment?
Research Question 2
2.1 What value do you think Neurofeedback can have for children at DCH?
2.2 What are your thoughts about how the children will feel about attending Neurofeedback sessions?
2.3 How do you see Neurofeedback becoming a part of the DCH Treatment Program, if at all?
2.4 Would you consider referring a child for NF (Explore)
Research Question 3
3.1 What are some of the challenges that you think may occur in implementing Neurofeedback
3.2 What would be the reasons for these challenges
3.3 What are your thoughts about how these challenges can be managed?
Research Question 4
4.1 What recommendations would you make to the management team about Neurofeedback?
4.2 What recommendations would make to the Case Managers/Social Workers about implementing Neurofeedback?
4.3 What recommendations would you make to other Children's Homes when implementing Neurofeedback?