

**AN INVESTIGATION INTO THE USE OF EXERCISE AS A
MEDIUM FOR MENTAL HEALTH PROMOTION AMONG
INSTITUTIONALISED CHILDREN**

by

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DECLARATION

I declare that: **An investigation into the use of exercise as a medium for mental health promotion among institutionalised children** is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references, and that this dissertation was not previously submitted by me for a degree at another university

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ABSTRACT

It is widely documented that institutionalised children represent a vulnerable sector of the population as they carry a high risk for the development of psychological problems.

Recently, there has been a surge of interest in the use of exercise as a medium for mental health promotion. Various studies have provided evidence that exercise improves general health, quality of life, mood, subjective well-being, self esteem, self perception and other attributes which influence mental health positively. However, there is little research done in the South African context with specific emphasis on children. It was against this backdrop that an investigation into the use of exercise as a medium of mental health promotion among institutionalised children was conducted.

This study was contextualised within the community psychological model of mental health promotion with mental health being conceptualised as a subset of physical activities aimed at improving health and well-being. A quasi-experimental control group research design, with pre and post testing on self report measures of physical self-perception, depression and paediatric symptoms, was used to investigate the effectiveness of physical exercise as a medium for mental health promotion among institutionalised children in local children's homes. Focus groups were held with children and caregivers to obtain qualitative data. The exercise intervention was associated with significant improvements in the physical self-perception of the children and caretakers' ratings of

children's behaviour. These findings provide a compelling argument for the value of exercise in the promotion of mental health in children's homes.

Key words: Mental health promotion, Children's homes, Exercise.

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CHAPTER ONE

INTRODUCTION

1.1) Background

Childhood is often perceived as a time free of worries and stress. However, contrary to this belief, research has shown that many children are experiencing significant stressful life events (Attar, Guerra, & Tolan, 1994; Jackson, & Frick, 1998; Jackson, & Warren, 2000). For example in 2005, the United Nations Children's Fund (UNICEF) reported that more than 1 billion children are denied a healthy and protected upbringing with half of the world's children being devastated by poverty, conflict and acquired immune deficiency syndrome (AIDS). UNICEF (2005) further reported that 640 million children do not have adequate shelter, 500 million children have no access to sanitation, 400 million children do not have access to safe water, 300 million children lack access to information, 270 million children have no access to health care services, 140 million children have never been to school and 90 million children are severely food-deprived. In addition to this, in 2002, the Joint United Nations Programme on HIV/AIDS (UNAIDS), UNICEF and the United States Agency for International Development (USAID) reported that according to the World Health Organization (WHO), child abuse including child labour, rape, neglect, and physical violence is increasingly recognised as a global public health problem. Moreover, South Africa has one of the highest rates of rape cases reported to the police in the world. There are over 20 000 cases of child rape and attempted rape reported to the police each year. One in five of all rape cases are of children under the age of 18. In addition to this, the HIV/AIDS epidemic is producing orphans on an unrivalled scale. In mid-2002, there were more than 13 million children under age 15 who had

lost one or both parents to AIDS, the vast majority of whom live in sub-Saharan Africa (UNAIDS, UNICEF, & USAID, 2002).. These harrowing statistics clearly reveal that childhood is under threat.

An important development for South African children, most of whom had suffered under apartheid for many years, was the inclusion of a special section on the rights of the child in the *Bill of Rights*. According to this constitution children need special protection because they are among the most vulnerable members of society as they depend on others, namely their parents and families for care and protection. The South African constitution further recognizes that some parents do not provide or are unable to provide for the care and protection of their children. In light of this, the Child Care Act 74 of 1983 has made it possible for institutions such as children's homes to provide accommodation and to take on the role of protecting and caring for children whose needs cannot be met by their parents or families as a result of child abuse, death of a parent or poverty.

This study is limited to the mental health promotion among children who have been institutionalised as a result of an inability of the family to take care for and protect them. As outlined above, children appear to be facing a great deal of adversity, therefore it is important to discuss the mental health outcomes of children who experience negative life events.

1.2) Mental health outcomes of institutionalised children

Children who are placed in children's homes' experience stressors or trauma resulting in their parents or families not being able to care for and protect them. These stressors or trauma often take the form of child abuse or death of parents. These adverse life experiences have far reaching ramifications on affective, cognitive, behavioural, and physiological development (Earl-Taylor & Thomas, 2003; UNICEF, 2004). Traumatic experiences in childhood increases the risk of developing a variety of neuropsychiatric symptoms in adolescence and adulthood (Davidson, & Smith, 1990; Famularo, Kinscherff, & Fenton, 1991; Ogata, Silk, Goodrich, Lohr, Westen, & Hill, 1990; Teicher, Glod, Surrey, & Swett, 1993). One of the most studied neuropsychiatric syndromes which develop following trauma is post-traumatic stress disorder (PTSD). The majority of this work has been with adult combat veterans (Krystal, Kosten, Perry, Mason, Southwick, & Giller, 1989; DaCosta, 1871). In the last five years, however, childhood PTSD has been widely observed in various populations of traumatized or maltreated children (McFarlane, 1987). Children exposed to trauma may have a range of PTSD symptoms, behaviour disorders, anxieties, phobias, and depressive disorders (Schwarz, & Perry, 1994). This includes children who were kidnapped (Terr, 1983), witnessed violent crime (Schwarz, & Kowalski, 1991); have been abused (Browne, & Finkelhor, 1986; Kiser, Heston, & Millsap, 1991) or survived other severe trauma (Kaufman, 1991). Specifically, negative life events have been associated with a variety of emotional and behavioural problems (Attar *et al.*, 1994). Some of the problems may include depression and anxiety in girls and aggression in boys (Attar *et al.*, 1994). In addition, these events and risk factors are not additive, but multiplicative (Attar *et al.*, 1994). Garmezy (1987) pointed out that, "Two risk

factors...provided a four-fold increase in the likelihood of a psychiatric disorder; four factors increased the risk ten-fold" (p. 165). Not only do stressful life events impact children's emotional and behavioural functioning, but they also appear to adversely affect school adjustment. For many children, stressful life events lead to school problems. Specifically, stressful life events have been significantly related to children's school maladjustment (Pryor-Brown, & Cowen, 1989), and school absenteeism (Reynolds, Weissberg, & Kaspro, 1992).

From the above discussion, it is clear that children who have suffered trauma or negative life experiences carry a significant risk for developing psychiatric problems. It is against this backdrop that the current study purports to use exercise as a medium of mental health promotion among institutionalised children.

1.3) Exercise and mental health promotion

Recent research and intervention programmes that have highlighted the value of different forms of physical activity, exercise and sport in the promotion of health and more especially mental health. Several authors including Hayes and Ross (1986); Morris and Summers (1995); Scully (1998); Weinberg and Gould (1999); Fox (2000) and Edwards (2001), have advocated the use of exercise as a medium for health promotion and have documented the general and mental health benefits of exercise or physical activity. Sinyor, Schwartz, Peronnet, Brisson, and Seraganian, (1983) were able to demonstrate that aerobically trained persons were able to

recover faster from experimentally induced psychosocial stress than untrained persons as measure on physiological, biochemical and psychological measures. Various other physiologically orientated studies have demonstrated similar effects (Anshel, 1996; Scully, 1998, Summers, 1999). Roth and Holmes (1985, 1987) conducted related studies and have found that physical fitness moderates the stress-illness relationship and that increasing fitness, through aerobic training, decreases the experience of stressful life events. Learning theory and Lazarus' (1993) model of stress as a transaction between persons and their environment predict that persons who engage in regular physical exercise will have more experience of and control over stress, as induced through such exercise and as generalized to other stressful life events, than those who do not exercise. Furthermore, Fox (2000) reported that appropriate exercise interventions improve general health, quality of life, subjective well-being, self esteem and self perception. Fox (2000) provides overwhelming evidence that both aerobic and resistance exercise are as effective as psychotherapy in the treatment of depression, anxiety and stress. Moreover, it has become evident over the years that the traditional individual approach to psychotherapy is not adequate to deal with psychological problems in the South African context (Pillay, 2003). Hence, it has become necessary to explore alternative approaches to promote mental health.

It is well documented in literature that exercise is an effective medium for mental health promotion. A vast majority of studies examining the role of exercise on psychological well being and mood, support the notion that exercise will improve well-being and mood states such as anxiety, stress, depression, tension and fatigue (Seraganian, 1993, p. 362). Research

concerning the benefits of physical exercise on health is well documented. In a general sense, physical fitness is defined as a set of abilities individuals possess in order to perform specific types of physical activity (William, 1996, p. 14). Berger (2001) contends that regular, moderate intensity, exercise interventions involving non- competitive activity, rhythmic abdominal breathing of twenty to thirty minutes' duration in comfortable, predictable contexts as with Tai, Chi, Yoga, aerobic exercise and weight training seem particularly meaningful, if the type, intensity and duration of the intervention are tailored to suit the particular exercisers.

Williams (1996, p.114) distinguishes between structured and unstructured physical activity: "Unstructured physical activity includes many of the usual activities of daily life such as walking, climbing stairs, cycling, dancing, gardening and yard work, various domestic and occupational activities. Structured physical activity is a planned program of physical activities usually designed to improve physical fitness". Although unstructured physical activity is usually of low intensity, it does help reduce the development of certain diseases. One should realize that both moderate unstructured physical activity and moderate structured physical activity, as exercise, independently convey health benefits (Williams, 1996).

Exercise can be used as a medium to promote physical self-worth and other important physical self-perceptions such as body image (Biddle, & Boutcher, 2000, p.157). These authors further argue that physical self-worth carries mental well-being properties in its own right and should be considered as a valuable end point of exercise programmes. Furthermore, exercise has been found to increase academic performance, assertiveness, confidence, emotional stability,

intellectual functioning, internal locus of control, memory perception, positive body image, self control, sexual satisfaction, well-being and work efficacy and decreases; absenteeism at school or work, alcohol abuse, anger, confusion, depression, headaches, hostility, phobias, psychotic behaviour, tension, type A behaviour and work errors (Weinberg, & Gould, 1999).

Having presented the argument in support of exercise as a medium of mental health promotion above, it is useful to discuss the possible mechanisms for the promotion of mental health through exercise. Below follows a brief discussion of possible mechanism and how they may operate.

1.4) Possible mechanisms for the promotion of mental health through exercise

A variety of mechanisms have been proposed to explain the positive impact of exercise and its potential to promote mental health. Research has found that factors associated with the process of being physically active rather than fitness itself is primarily responsible for the benefits in short term and long term mental well-being. In most studies where fitness changes have been noted, only weak relationships with changes in psychological well-being have been found.

Three main mechanisms have been researched namely biochemical, physiological and psychosocial (Donaldson, 2004). A brief discussion of each follows.

1.4.1) Biochemical

According to Donaldson (2004), the biochemical explanation is that physical activity releases endogenous opioid peptides in the blood during and after exercise may result in the positive benefits of exercise and that the release of central serotonin during exercise may serve as a mood enhancer.

1.4.2) Physiological

The physiological explanation is that increased core temperature and cerebral blood flow as well as reduced muscular tension and neurotransmitter efficiency during exercise may result in positive mental health (Donaldson, 2004).

1.4.3) Psychosocial

According to the psychosocial explanation, improvements in perceptions of physical competence, improvements in body image, body satisfaction and self acceptance as well as experiencing a sense of achievement, mastery and self-determination during exercise results in improvement of mental health (Donaldson,2004).

It has been more difficult to substantiate biochemical and physiological mechanisms than psychosocial mechanisms, due in part to difficulties researching in these areas. The research

base is still developing and has not systematically addressed the conditions under which each of the mechanisms operates. It is possible that multiple mechanisms operate in a given situation. It is argued that the dominance of any single mechanism will depend on the characteristics of the exercise (such as intensity and duration), the characteristics of the individual and environmental factors surrounding the exercise. Physiological and biochemical mechanisms are thought to be more dominant at higher intensity exercise levels (Donaldson, 2004).

1.5) Research question

With all the evidence presented on the use of exercise as a medium of mental health promotion, this study is essentially concerned with two questions. Firstly, the question of whether the positive benefits of exercise documented in literature will be also evident for children.

Kirkcaldy, Shephard, and Siefen (2002) report that much of the research in the area of exercise and mental health promotion has focused on the adult population with little emphasis on whether children who exercise display superior psychological health when compared to their less active counterparts. This study addresses this shortfall by focusing on children. Secondly this study is interested in whether exercise will be beneficial in promoting mental health among institutionalised children. Fox (2000) criticized research on exercise and mental health promotion by arguing that almost all research results were based on participants who have volunteered and remained in exercise research programmes which may have provided positively biased results. He further added that recruitment and retention of groups with mental disorders are difficult to research. The focus on institutionalised children may address this

question as these children carry a significant risk for developing mental health problems. Fox (2000) provides overwhelming evidence that both aerobic and resistance exercise are as effective as psychotherapy in the treatment of depression, anxiety and stress. This study will thus, examine if exercise will be effective in promoting mental health among institutionalised children. (Schwarz, & Perry, 1994).

1.6) Purpose of the study

To date very little research on exercise as medium of mental health promotion has been conducted in South Africa. Given that institutionalised children have been subjected to negative life experiences such as abuse, abandonment or death of parents, these children are at risk for developing psychological problems. Thus, the rationale for this study is that if mental health can be promoted by exercise programmes as asserted in previous research (Fox, 2000), then this study can be instrumental in providing a viable option to promote mental health where resources tend to be scarce and psychotherapy may not be available or possible.

1.7) Aims of the study

This study aims to investigate the impact of physical exercise on the mental health of institutionalized children. The mental health outcomes that will be focused upon will include self-esteem, affective states and problem behaviour. These outcomes were chosen as it is

documented in literature that children who experience trauma such as child abuse or death of a parent present with emotional, affective and behavioural symptoms (Schwarz, & Perry, 1994; Earl-Taylor, & Thomas, 2003; UNICEF, 2004). Consequently, the following hypotheses have been postulated:

H1: Those children who received the exercise intervention would display more favourable feelings about themselves, their lives and their relations with other people than those children that did not receive the exercise intervention.

H2: Those children who received the exercise intervention would perceive their physical self more positively than those that did not receive the exercise intervention.

H3: Those children who receive the exercise intervention would display less negative affective symptoms than those children that did not receive the exercise intervention.

H4: Those children that received the exercise intervention would display less behavioural difficulties than those children that did not receive the exercise intervention.

1.8) Clarification of terms

Definition and measurement of mental health or well being is fraught with difficulty. Defining physical activity presents a similar challenge. It is therefore important to define and clarify the important terms that will be used in the context of this research. Below follows a definition of key terms utilized in this study:

1.8.1) *Child*

According to the South African Child Care Act, No.74 of 1983, a child is defined as “any person under the age of 18 years”.

1.8.2) *Institution*

Institution refers to “a reform school, school of industries or a children's home established under section 29 or a children's home registered under section 30 (South African Child Care Act, No.74 of 1983).

1.8.3) *Children's Homes*

Children's Homes, as defined by the South African Child Care Act, No.74 of 1983, refer to "any residence or home maintained for the reception, protection, care and bringing-up of more than six children apart from their parents, but does not include any school of industries or reform school. For the purposes of this study, the term institutionalised children shall refer to those children placed in children's home excluding reform schools or school of industries.

1.8.4) *Exercise*

Physical activity is the broader umbrella term with exercise "forming a particular subset of activities that are planned and purposeful attempts to improve health and aspects of well-being" (Fox, 2000, p.5). Physical activity may be described as a "complex set of behaviors which could range from minor movements used in routine job or household tasks, through walking as a form of transport, to higher-intensity exercise or sport involvement" (Fox, 2000, p.5). For the purposes of this study physical exercise refers to planned and structured exercise programmes aimed at promoting mental health among institutionalized children.

1.8.5) *Mental Health Promotion*

The world health organization (WHO) defines health promotion as "the process of enabling people to increase control over, and improve their health" (WHO, 1986). Mental health is best described within the context of the WHO's definition of health where health is defined not

merely as the absence of disease, but also a state of complete physical, mental and social wellbeing (WHO, 1946). From this perspective, mental health has been defined as positive mental health in different contexts and cultures and not just the absence of mental illness. Hence, mental health promotion can be defined as any action or strategy to maximize mental health and well-being among populations and individuals (Saraceno & Saxena, 2002). Mental health promotion strategies are concerned with improving the quality of life and potential for health rather than amelioration of symptoms and deficits and often include prevention of mental disorders as one of its broader aims and outcomes (Saraceno, & Saxena, 2002).

1.9) Structure of the study

Chapter 1

This chapter gives an outline of the study. It includes awareness of the problem of investigation. The preliminary literature study gives a brief analysis of literature on the topic. In the statement of the problem, a question is formulated and the aims of the study are stated.

Chapter 2

Chapter 2 gives a theoretical background to the study. Literature review will be discussed on the work done in this field.

Chapter 3

The description of the empirical investigation is done in this chapter.

Chapter 4

The results of the investigation will be analysed and interpreted in this chapter.

Chapter 5

The main findings of the investigation will be discussed in this chapter. This chapter concludes *by making recommendations*.

The next chapter will give a theoretical background to the study and the literature review will be presented.

CHAPTER TWO

LITERATURE REVIEW

2.1) Introduction

From the previous chapter, it appears well documented that institutionalised children carry a significant risk for poor mental health (Earl-Taylor, & Thomas, 2003; UNICEF, 2004). Edwards, Ngcobo, and Pillay (2003) argue that mental health is influenced by personal, interpersonal and environmental factors and invariably changes within the context of life stages and developmental tasks. Edwards (2003) maintains that there are many routes to psychological wellness and various methods to promote it. The value of various forms of physical activity, exercise and sport for the promotion of public health in general and mental health in particular has been emphasized in recent research and intervention programmes, with recognition given to physical activity as a multi-faceted social enterprise (Edwards, 2004). The focus of this paper is on physical exercise with special interest on its impact on mental health promotion of institutionalized children. This chapter will give a theoretical background to the study and will also include a critical review of the work done in the field.

2.2) Theoretical developments

Recent years have seen a paradigm shift in health care whereby a pathogenically orientated medical model has been complemented and extended by a public health approach with an emphasis on both illness prevention and health promotion (Kuhn, 1962; Trent, 1995;

Oldenburg, 2000). This paradigm originated from the World Health Organization's (WHO's) definition of health where health is not viewed merely as the absence of disease but regards health as depicting a complete state of physical, mental and social well-being (WHO, 1946). Hence, according to Edwards (2003) health implies wholeness and integration of the different domains of well-being and that well-being or wellness can be conceived as the positive component of optimal health. The new wellness paradigm in which salutogenesis and fortigenesis have emerged as new perspectives have begun to answer questions as to the origins of psychological health, strength and well-being (Antonovsky, 1987; Strumpfer, 1995; Wissing, & van Eden, 1998; Edwards, 2001b). According to Edwards (2003), the term "wellness" is deemed appropriate for empirical and quantitative investigation as is the case in the present study. Wellness implies a theoretical construct measuring the integration of various dimensions of well-being. Psychological wellness relevant to the present study concerns the consideration that mental health implies some experience of psychological well-being or psychological wellness.

Based on general public health and community psychological approaches as well as views of Corben and Lindsey (1997); Wissing, and van Eden (1998); Pretorius (1998); Repucci, Woolhard and Fried (1999); Cohen (2000) and Conway and Macleod (2002); Edwards (2003) made the following assertions about psychological wellness:

- Wellness is best considered as an independent dimension which is distinct from illness.

- From the public health perspective, these dimensions are best viewed as reflecting the operation of two different systems which are concerned with prevention and promotion respectively.
- As distinct from preventing distressing experiences, wellness research is concerned with the promotion of positive experiences, health, strength, resources, supplies, competencies and skills.

Such a positive view of health as advocated by the WHO (1946) has led to a community psychological model of mental health as proposed by Edwards (1999).

2.3) Theoretical framework

This research will be contextualized within the community psychological model of mental health promotion and Erick Erikson's psycho-social model of child development. A discussion of these follows below:

2.3.1) Community psychological model of mental health promotion

Edwards (1999) proposed a holistic, integrative, community psychologically orientated model of mental health promotion which views mental health promotion as a form of general health promotion, with primary, secondary and tertiary components of both prevention and promotion. Although prevention and promotion are separate entities, they have overlapping

boundaries. Prevention is concerned with avoiding disease while promotion is about improving health and wellbeing (Tannahill, 1994). Prevention and promotion of health may involve similar activities, for example, physical exercise can be used as a preventive as well as promotional strategy. The target group determines whether the strategy to be employed is preventive or promotional.

Mrazek and Haggerty (1994) and Edwards (2002a) delineate the differences between primary, secondary and tertiary prevention and promotions as follows:

- Tertiary prevention refers to interventions aimed at preventing problems in living and reducing illness, disability, handicap and human right abuses in high risk populations in disempowering contexts, e.g., interventions to prevent child sex abuse in large foster homes.
- Secondary prevention refers to interventions aimed at preventing problems in living and reducing the prevalence of illness and handicap in persons at risk in disempowering contexts e.g., early detection of learning disorders in children.
- Primary prevention refers to universal interventions aimed at preventing problems in living and reducing incidence of illness in all persons in all contexts e.g., safe sex campaigns and smoking cessation interventions for the general public.

- Primary promotion refers to universal interventions to improve solutions for living and increase incidence of health in all persons in all contexts. Examples are walk/run for life and life skills programmes for the general public.
- Secondary promotion refers to selective interventions to improve solutions for living and increase prevalence of health, strength and skills in persons of potential health in empowering contexts. Examples include company worker life style and time management programmes.
- Tertiary promotion refers to interventions to improve solutions for living and increasing health, strength, skills and human rights for persons (individuals and groups) of much health potential in empowering contexts (high in health, wealth and/or power). Examples are further education conferences on caring resources for community leaders and/or creativity skills workshops for professional public health specialists.

Essentially, the community psychological model is phenomenological in orientation, approach and perspective and acknowledges that the conceptual differences made between illness and health, and various components such as physical, mental and social well-being are essentially arbitrary. From a systemic point of view, the model may be conceptualized as a dynamic sphere representing primary, secondary and tertiary dimensions of illness prevention and health promotion; physical, mental and spiritual, with the aim of promoting health as defined by the WHO(1946) in terms of a state of optimal physical, mental and social well-being.

a) Implications of the model

The model has various implications for health generally and mental health specifically.

Edwards (2002) outlined the implications of the model as follows:

- Health and illness are experiences and as such essentially psychological. Mental health in particular implies some experience of psychological well-being.
- Health may mean the absence of illness (negative definition of health on a continuum or spectrum with illness), as on the circumference of a circle.
- Health may mean the presence or state of well-being (positive definition of mental health not necessarily continuous with illness, as on dimensions at right angles to each other in a sphere.
- Like general health, mental health may be viewed as existing on a spectrum of many dimensions, physical, emotional, cognitive, social and spiritual. We can thus experience levels of mental health across a range of dimensions, such as being emotionally health while diagnosed schizophrenic or socially well-integrated while depressed.
- Health implies wholeness or some degree of integration of various dimensions of well-being.

The existential and ontological implications of the term “well-being” seem to be more suitable for qualitative investigations and may be replaced appropriately by the synonym “wellness” in more empirical and quantitative investigations. Wellness implies a theoretical construct measuring construct measuring the integration of various dimensions of being well.

- Health is a dynamic event. From a positive perspective, it implies a becoming whole or healing process. This means some form of transformation from being ill to being well, some change from illness to wellness, disorder to integrity.

2.3.2) Erick Erikson's psycho-social theory

This study will be grounded on Erik Erikson's (1950) psycho- social theory of development with a specific emphasis on emotional development. Adopting a developmental perspective means that there are two important factors which will underpin the understanding and interpretation of the data. Firstly, the effects of stress or trauma differ according to the stage of the child's development and secondly, adverse experience or happenings in early life alter the course of subsequent development and influences mental health.

Erickson's theory may be viewed as a crisis theory in that each stage presents the individual with a new growth crisis. Erickson believed in an epigenetic principle through which success and failures in each stage will influence development in the following stages (Bukayko & Daehler, 1995). Erickson's (1950) theory of psychological development is presented below.

i) Stage one: Trust vs. mistrust

The first stage usually extends through the first year of life. According to Erickson, the new dimension of social interaction that emerges during this period involves that of basic trust at

one extreme and mistrust at the other. The quality of care that a child receives will influence the degree to which the child will come to trust the world, other people and themselves. The infant whose needs are met when they arise, whose discomforts are quickly removed, who is cuddles, embraced and played with, will develop a sense of the world as being safe and will view people as being helpful and dependable. However, if the child experiences care that is inconsistent, inadequate or rejecting, basic mistrust will be fostered. This will result in an attitude of fear and suspicion towards the world in general, and people in particular that will be carried through to later development.

ii) Stage two: Autonomy vs. doubt

This stage spans the second and third years of life and heralds the emergence of autonomy. The autonomy dimension builds upon the child's new motor and mental abilities which include walking, climbing, opening, closing, dropping, pushing, pulling, holding and letting go. In this stage, the child will take pride in these new accomplishments and will want to do everything her or himself. If parents or caregivers acknowledge the young child's need to do what h/she is capable of doing at his/her own pace and in his/her own time, then the child develops a sense that s/he is able to control his/her muscles, impulses, self and environment resulting in a sense of autonomy. However, a sense of shame or doubt is reinforced if parents or caregivers tend to be impatient or do for the child what he or she is capable of accomplishing by himself or herself. When care taking is consistently overprotective or excessively critical and unthinking,

then the child is likely to develop a sense of shame with regard to other people and a sense of doubt about his/her own abilities to control the world and him/herself.

iii) Stage three: Initiative vs. guilt

This stage spans the fourth and fifth year of life. Children in this stage are usually capable of riding a tricycle, running, cutting and hitting and can therefore initiate various motor activities of their own accord and no longer need to respond to or imitate the actions of other children. According to Erickson the social dimension that appears at this stage has initiative at one end and guilt at the other. The ability of the child to leave this stage with a sense of initiative as opposed to guilt will largely depend on how the parents respond to the child's self initiated activities. Children who are given the opportunity and freedom to initiate physical activity such running, bike riding, tussling and wrestling have their sense of initiative reinforced. If a child is made to feel that his or her physical activity is bad then the child may develop a sense of guilt over self-initiated activities in general that will persist through later stages of life.

It is during this stage, that children begin to develop a self-concept, which is "the sum total of attributes, abilities, attitudes and values that an individual believes defines who he or she is" (Berk, 1998, p.247). Very young children's concepts of themselves tend to be very concrete. They will mention observable characteristics such as their names, physical appearance and their possessions. The stronger the child's self definition, the more possessive he or she will be about objects. Early struggles over objects signify a

developing “self”, an effort to clarify boundaries between self and others. The ability to distinguish self from others allows children to co-operate in playing games, solve simple problems and resolve disputes over objects (Berk, 1998).

Self-esteem is a special aspect of the self-concept and is the “judgments we make about our own worth and the feelings associated with those judgments” (Berk, 1998, p. 248). Self esteem forms an important part of self-development because how we appraise our competencies affects our emotional experiences, future behaviours and future psychological adjustment. At pre-school level, self-esteem is not very well defined and children tend to overestimate their abilities and underestimate their difficulties. A high sense of self-esteem contributes to the pre-scholars’ initiative in which they master many new skills (Berk, 1998).

iv) Stage four: Industry vs. inferiority

This stage occurs from about age six to eleven years. Many changes in self-understanding take place in middle childhood. Firstly children describe themselves in terms of psychological traits and secondly, they compare their own characteristics to those of their peers. As the child moves into middle childhood, they receive more feedback about their performance in the activities they engage in. This results in the child’s self-esteem being adjusted to a more realistic level. By age 7-8 years, children have formed at least three different self-esteems

namely, academic, social and physical. Most children tend to appraise their characteristics and competencies realistically and maintain an attitude of self-acceptance and respect. From the 4th – 6th grade self-esteem increases for many, especially those who feel good about peer relations and athletic capabilities (Berk, 1998).

v) Stage five: Identity vs. role confusion

During adolescence, the young person's vision of the self is more complex, organized and consistent as a result of cognitive advances. The changes in self-concept and self-esteem set the stage for development of a unified personal identity. At the end of middle childhood, children describe themselves in terms of personality traits e.g. I am shy and honest. The self-statements of early adolescents are not interconnected and may include contradictory descriptions. By middle to late adolescents, teenagers combine their different traits into an organized system and are able to make sense of contradictions e.g., "around my friends, I am talkative because they think what I have to say is important but around my family, I'm quiet because they are never interested enough to listen to me". Self-esteem continues to differentiate during adolescence. Besides, close friendships, romantic appeal and job competence are important concerns (Berk, 1998).

The new interpersonal dimension that emerges during this period is ego identity at one end and role confusion at the other end. The task of the adolescent is to bring together all that he has

learnt about himself or herself such as student, athlete, and friend and integrate these different images of himself or herself into a whole that makes sense and that shows continuity with the past while preparing for the future. Success in this endeavour results in a sense of psychological identity (i.e., a sense of who he or she is, where he or she has been and where he or she is going). However, when the young person cannot attain a sense of personal identity, either because of unfortunate childhood or difficult social circumstances, role confusion (i.e., a sense of not knowing what he or she is, where he or she belongs or whom he belongs to) is likely to emerge. For example institutionalized children may have a fragmented sense of ego identity as result of their early traumatic life experiences.

From the preceding discussion, it is clear that the primary care-givers are the major mediators of emotional, cognitive and the social environment, and, therefore, learning during infancy. It can be further understood that healthy development in all domains can be severely disrupted if these primary relationships are compromised. It is therefore almost inevitable that emotional, behavioural, and cognitive development will be arrested by early traumatic experience as in the case of institutionalized children who have a disrupted relationship with their primary care-givers. Focus, now turns to mental health outcomes of trauma on child development.

a) Implication for child development

Researchers argue that a theoretical variation in the expression of psychiatric symptoms exists for different developmental age groups. This has not been exhaustively studied, but some

patterns appear clear. For example, Tyler (2002), reported that early childhood (3- 5 years) is associated with internalizing, externalizing and inappropriate sexual behaviour. Middle childhood (6-12 years) emotional associations include depression, suicidal thoughts, PTSD and other early childhood expressions. The adolescent child is more likely to engage in risky sexual and criminal behaviour, be depressed, suicidal, conduct disordered (truant, gangs), have unwanted pregnancies, abuse substances and have low self-esteem. PTSD and depression result in 30-40% of survivors of childhood abuse. The severity of childhood trauma is a significant predictor of the number and severity of PTSD and depressive symptoms. Childhood neglect, often said to be of lower traumatic intensity, is also significantly associated with later development of depression and PTSD.

Fear, worries, observing and caring for ill parents in pain, stigmatization, hospital visitations, shattered hope and eventual loss are all experienced by children affected by HIV/AIDS at various times over several years. The effect of parental illness and death on a child's mental health and ability to cope is complex, and depends upon the child's developmental stage, resilience and culture. Consequently, psychological and emotional effects are less obvious and often go unnoticed or neglected. Changed behaviour may be dismissed as a mere transitional stage, a temporary disorder that will pass, rather than an indicator of psychological trauma with possible long-term implications. In a study conducted in Uganda, orphans were found to internalize behaviour changes, such as depression, anxiety and decreased self-esteem, rather than to exhibit acting out or sociopathic behaviour such as stealing, truancy, aggression, and running away from home or school (Foster, Makufa, Drew, & Kralovec, 1997).

Having discussed the potential mental health outcomes for institutionalized children, attention will now be given to the chosen intervention strategy. The use of physical exercise as a medium for health promotion is based upon international research evidence for the general and mental health benefits of physical activity, exercise and fitness intervention (Edwards, 1999; 2001b; Fox, 2000; Williams, 1996). Hence, for the purposes of this study, physical exercise was chosen as a medium of mental health promotion.

2.4) Exercise as a medium for mental health promotion

Research concerning the benefits of physical exercise on health is well documented. A vast majority of studies examining the role of exercise on mental health support the notion that exercise will improve well-being and mood states such as anxiety, stress, depression, tension and fatigue (Seraganian, 1993). In a general sense, physical fitness is defined as a set of abilities individuals possess in order to perform specific types of physical activity (Williams, 1996, p. 14). Berger (2001) contends that regular moderate intensity, exercise interventions involving non competitive activity, rhythmic abdominal breathing of twenty to thirty minutes' duration in comfortable, predictable contexts as with Tai, Chi, Yoga, aerobic exercise and weight training seem particularly meaningful, if the type intensity and the duration of intervention are tailored to suit the particular exercisers.

Williams (1996, p.114) distinguishes between structured and unstructured physical activity: “Unstructured physical activity includes many of the usual activities of daily life such as walking, climbing stairs, cycling, dancing, gardening and yard work, various domestic and occupational activities. Structured physical activity is a planned program of physical activities usually designed to improve physical fitness”. Although unstructured physical activity is usually of low intensity it does help reduce the development of certain diseases. We should realize that both moderate unstructured physical activity and moderate structured physical activity as exercise independently convey health benefits (Williams, 1996).

Exercise can be used as a medium to promote physical self-worth and other important physical self-perceptions such as body image (Biddle *et al*, 2000, p.157). Recently there has been a surge of interest in its potential for treating and preventing mental illness as well as the promotion of mental well-being in the general public. (Fox, 2000). The topic is now widely researched. Below follows a brief discussion of international and South African exercise and mental health promotion research.

2.4.1) International research

Many international researchers have established the use of exercise as a medium for general health as well as mental health promotion (Hayes & Ross, 1986; Morris & Summers, 1999; Scully, 1998; Weinberg & Gould, 1999; Fox 2000). International research has tended to focus on a range of mental health outcomes. Particular emphasis has been placed on depression,

anxiety and stress, mood and affect, self-esteem and self-perceptions and cognitive functions. For example, controlled studies reported convincing evidence that both aerobic and resistance exercise are as effective as psychotherapy in the treatment of depression, anxiety and stress. Fox (2000) also reported that there is clear evidence that appropriate exercise interventions improve general health, quality of life, subjective well-being, self-esteem and self-perception.

On reviewing the work done in the area of exercise and mental health promotion, it was concluded that studies tended to focus on the treatment of depression, mental illness prevention, exercise as a medium of promoting mental health promotion among the otherwise healthy, self esteem and self-perception and cognitive functioning. Some of the major findings are presented below.

a) Treatment of depression

Physical activity has been shown to be effective in the reduction of clinical symptoms in those diagnosed as severely, moderately or mildly depressed (Donaldson, 2004). Craft and Landers (1998) conducted a meta-analysis of all published and unpublished intervention studies where exercise had been used as a treatment for clinical depression. A large mean effect size from the 30 studies of -0.72, which is indicative of a moderately strong impact, was reported. Mutrie (in press) focused on the best possible evidence and summarized ten key randomized controlled studies. She made the following conclusions. Firstly, aerobic and resistance exercise are both effective in treating depression and secondly, that the effect is of the same magnitude as

psychotherapeutic interventions. In summary, these studies provide convincing evidence that exercise can provide a useful alternative or adjunct treatment of clinical depression.

b) Mental illness prevention

Much of the exercise research has been based on physical health benefits. According to Fox (2000) there are only four studies of this type which focus on mental health outcomes. For example, Camacho, Robert, Lazarus, Kaplan and Cohen (1991) found that the odds ratio for depression over a period of nine years for those who remained low in activity was 1.22, and for those who became inactive was 1.61, against a baseline of high activity on both occasions. Paffenbarger, Lee and Leung (1994) reported a close response relationship for subsequent incidence of depression in men over a 23-27-year period, with those engaged in high activity (>2,500kcal/week) at 28% reduced risk, moderate activity (1,000-2,499 kcal/week) at 17% risk for becoming depressed compared with those low in activity.

There is also a body of literature that addressed the effect of exercise on reductions in anxiety, which is considered to be a manifestation of stress, and also resilience to stress (Fox, 2000).

Several narrative and meta-analytic reviews have been conducted in this area including Calfas and Taylor (1994), McDonald and Hodgdon (1991) and Petruzzello Landers, Hatfield, Kubitz and Salazaret (1991). Three basic approaches have been utilized. Firstly, the effect of a single bout of exercise on state anxiety (acute or right-now feelings) has been addressed. The literature has indicated moderate effects for reduction in anxiety post-exercise, with most

studies testing the effects of aerobic forms of exercise such as running. Secondly, the effects of engaging in several weeks of an exercise programme on both state and trait anxiety (predisposition to react anxiously) have been studied. Evidence from self-report and biological markers such as skin conductivity, heart rate and blood pressure indicate small to moderate effects ranging from 0.23 to 0.69 depending on population and exercise characteristics. There is some evidence for a dose-response effect, exercise for longer duration (40 minutes or more) and exercise programs lasting nine weeks or more, producing stronger results.

In addition, the effect of both single exercise sessions and completion of aerobic exercise programmes of several weeks on the psycho-physiological reactivity to psychological stress. Many of these studies have been laboratory based using a complex mental task and often under time constraints. Only half of the studies show a benefit from exercise training or improved fitness. However, positive findings are supported by a large scale national survey in North America showing that among those who experience high stress, the higher fitness sector suffers fewer symptoms of ill-health and depression than those who are low in fitness (Stephens, 1988). Fox (2000) reported that there is direct evidence that maintenance of regular exercise can reduce the risk of depression. Furthermore, he reported that exercise can help individuals reduce anxiety in the short term and help people become more resilient to stress. Consequently, this may help them prevent mild episodes and tendencies developing into more serious mental debilitation.

c) *Exercise as a medium of mental health promotion among the otherwise healthy*

There is strong and consistent evidence showing that physical activity makes people feel better, and feel better about themselves (Donaldson, 2004). Studies have confirmed the relationship between activity and indicators of well-being (Fox, 2000; 2004). Higher levels of physical activity are associated with higher subjective well-being, mood and emotions, life satisfaction and quality of life. A large number of experimental studies, most of which use aerobic forms of exercise indicate that a single bout of physical exercise can result in improved mood and vigour (Donaldson, 2004).

d) *Self-esteem and self-perception*

According to reports (Donaldson, 2004; Fox, 2000) physical activity helps people to feel more positive about themselves. These positive changes in self-perceptions have been seen in randomized controlled trials in all age groups including children. Positive changes are seen in overall physical self-worth as well as specific aspects of physical self-perceptions such as body image, perceived fitness and strength. These are important factors as they tend to have a direct independent association with mental health indicators. The degree to which changes in physical self-perceptions changes in physical self-perceptions are accompanied by improvements in overall feelings of worth or general self-esteem is variable. The effect of activity is stronger

for those with initially low self-esteem such as special needs groups. For example, positive results have been achieved with special needs populations, such as adults with learning problems, depressed females, youth offenders, obese males and problem drinkers (Donaldson, 2004).

e) Cognitive functioning

There have been studies addressing the role of exercise in improving mental functioning. Most of the research has focused on maintaining cognitive function in older adults and on academic performance in children. Fox (2000) reports that fit older adults show cognitive performance superior to that of unfit older adults. Out of fourteen experimental studies, only five demonstrated significant improvements. Fox (2000) maintains that the view that activity helps people retain mental alertness still needs to be substantiated by research.

2.4.2) South African research

The field of exercise research in South Africa is still in its infancy stage. Below follows a discussion of the research that has been conducted within the South African context. Studies conducted in South Africa e.g., Edwards (2001a; b) have emphasized the value of physical activity and exercise interventions in promoting mental health and supports previous international qualitative studies (including Berger, 1996, 2001, Stelter 2000) on the value of

the exercise experience in enhancing positive mood states and satisfaction with life. Edwards (2002b) investigated the relationship between regular physical exercise and psychological wellness among health club members and university students. The wellness profile was administered to 106 exercisers from gyms in the Richards Bay area of South Africa and 110 first year psychology students. The correlations among wellness components were almost all highly significant. Edwards (2002b) reported a highly significant influence of regular exercise on the various components of wellness profile and the final composite wellness percentage itself. These findings rendered further support for regular exercise in the promotion of mental health and wellness. Edward, Edwards and Basson (2004) compared the psychological well-being and physical self-perception of regular exercisers in individual resistance exercise and team aerobic sports with a control group of students who exercise irregularly and do not participate in organized sport. Comparisons between 60 university hockey players, 27 health club members and 111 non-exercising students revealed that both hockey players and health club members were generally more psychologically well and had more positive physical self-perception than non-exercising students. These finding support earlier studies on the beneficial effects of exercise on mental health promotion.

2.4.3) Critique of existing literature

The field of exercise and mental health promotion research is new and according to Fox (2000), the following limitations are evident:

- The quality of the design of the studies have not been high with few truly randomized controlled studies.
- Most of the research has been conducted within the exercise and sport sciences which in itself is an emerging area, relatively inexperienced in research.
- The field of exercise and mental health promotion is poorly researched as it is not seen as a serious area of medical or health research.
- Measurement has posed difficulties in the past. However, the quality of measures has improved and more recent research is likely to be more reliable and informative.
- The majority of the results are from those participants who have volunteered and have remained in an exercise research programme. This is likely to provide positively biased results.
- Recruitment and retention of groups with mental disorders is difficult so research in this area is limited.
- Little is known about the mechanisms by which exercise might influence well-being. Biochemical, physiological and psychosocial mechanisms have been proposed, however, further evidence is needed to support the existence and operation of each mechanism.
- Furthermore, on reviewing the literature, it is evident that much of research has focused on the adult population with little or no focus on children.

2.5) Resume

Both international as well as studies carried out locally support the notion that exercise promotes mental health. The findings generally support beneficial effects of physical activity on mental and psychological well-being. Fox (2000) asserts that while the body of existing knowledge on the benefits of exercise on mental health is still in its early stages of development, it is clear that exercise can be used as an effective treatment of depression and anxiety and it may also prevent mental illness and improve general well-being through improved mood, self-perceptions, subjective well-being, social interaction and quality of life. Furthermore, physical exercise is an effective medium for developing a positive self-concept in children. Self esteem is widely recognized as a critical indicator of mental health. An individual with high self-esteem is more likely to be emotionally stable, and to cope better with life demands, and is likely to be less dependent on support services (Biddle *et al*, 2000). Fox (2000) further argued that while there are limitations to studies that have been carried out in the area of physical activity and mental health promotion (such as quality of research design and few truly randomized studies), there is sufficient evidence to show that physical activity should be promoted regardless of its impact on mental health. He maintains that the reductions in suffering from illness and premature death will reduce the mental distress experienced by the victims and those close to them. It is against this backdrop that the current study investigated exercise as medium of mental health promotion among in institutionalised children. The next chapter will describe methodological considerations including research design, participants, instruments and data analysis techniques.

CHAPTER THREE

DESCRIPTION OF THE EMPIRICAL INVESTIGATION

3.1) Introduction

The previous chapter was concerned with a literature review on physical exercise and mental health promotion. This chapter will focus on the rationale for the empirical investigation, the purpose of the empirical investigation and the method of the investigation.

3.2) Rationale for the empirical investigation

The literature study revealed that:

- ◀ The experience of early trauma carries a high risk for poor mental health.
- ◀ From a developmental perspective, it appears that early trauma affects future development in all domains including emotional, behavioural and cognitive.
- ◀ Various researchers agree that physical exercise may be used as a medium of mental health promotion.

In order to explore the relationship between physical exercise and mental health promotion among institutionalized children it was necessary to launch an empirical investigation.

3.3) Purpose of the empirical investigation

It has been well documented in literature that children who experience early trauma carry a significant risk for poor mental health outcomes (e.g., Pryor-Brown & Cowen, 1989). It has further been asserted that physical exercise can be used to promote mental health. However, this was not tested among institutionalised children in the South African context. Hence, the purpose of this study was to explore the impact of physical exercise on the mental health promotion among institutionalized children. It was specifically intended that participants explore their experience of exercise for group inferences with regard to psychological effects the experience might have on these children.

3.4) Method

3.4.1) Research design

The approach to this empirical investigation was both quantitative and qualitative in nature. A quasi-experimental, non-equivalent control group research design was employed. A pre and post test measure was included. This research design consists of an experimental and control group without random assignment. The advantage of a non-equivalent control design is that it adds a comparison to the design; ethical problems are addressed and the research is conducted in real life settings (i.e. ecological validity is maintained). The disadvantage of a pre-post test design is that there is no control over alternative explanations to the outcomes and there are

regression artefacts (i.e., if the matches are drawn from non-equivalent populations, the results are flawed unless the measure on which the individuals are matched provides a perfectly reliable and valid representation of the dimensions on which the individuals are selected (Sarceno, & Saxena, 2002).

Qualitative data was obtained by conducting a focus group with the participants and the caregivers. Powell, and Single (1996) define a focus group as “a group of individuals selected and assembled by researchers to discuss and comment on, from personal experience, the topic that is the subject of the research” (p.499). Focus groups can be used after a programme has been completed in order to evaluate its impact or to generate further areas of research. They can be used either as a method in their own right or as a complement to other methods, especially for triangulation and validity checking (Morgan, 1988). The main purpose of focus group research is to draw upon respondents’ attitudes, feelings, beliefs, experiences and reactions in a way which would not be feasible using other methods, for example observation, one-to-one interviewing, or questionnaire surveys (Morgan, & Kreuger 1993).

3.4.2) Participants

The participants of this study consisted of a sample of institutionalised children. Sampling refers to the selection of units of analysis of a study (Seale, 1999). For this study, the purposive sampling method was used. Purposive sampling is concerned with providing a sample of

information-rich participants. This means that the participants manifest certain characteristics that the researcher is interested in (Struwig, & Stead, 2001). Purposive sampling increases the likelihood that variability common in any social phenomenon will be represented in the data, instead of trying to achieve variation through random selection. Convenience sampling, as one of the strategies of purposeful sampling was also utilised in this study. According to Struwig and Stead (2001), in convenience sampling, there is a need to consider the purpose and the goals of the study. Thus, this study was conducted at two children's homes in Kwa-Zulu Natal situated in the Richards Bay area and the outskirts of Empangeni. Children's homes are registered under section 30 of the child care act and are defined as any residence or home maintained for the reception, protection, care and bringing-up of more than six children apart from their parents. This definition does not include any school of industries or reform school (Child Care Act Number 74 of 1983). The participants of this study consisted of all school going children at the respective children's homes. The experimental group was chosen on the basis of convenience of access and location in which to implement the exercise intervention. The experimental group consisted of 20 children (6 males and 14 females) while the control group consisted of 13 children (8 males and 5 females). The average age was 11 years 9 months. A larger sample could not be drawn as the numbers in these homes are limited.

3.5) Psychological assessment techniques

During discussions with the directors of the children's homes, it became apparent that the children at both homes are *isiZulu*-speaking; of different educational levels and age groups and

many experienced scholastic problems. It was therefore anticipated that they would experience difficulty in reading and responding to questionnaires. Mguni (2005) experienced similar difficulties in her study and consequently developed simplified questionnaires to elicit the necessary information. Thus, it was decided to utilize the Feeling Profile questionnaire and the Physical Self Perception questionnaires that she administered in her study. In addition to these questionnaires, the Depression Checklist and Paediatric Symptom Checklist were also administered. Below follows a brief discussion of the questionnaires used.

3.5.1) Biographical questionnaire

A biographical questionnaire was utilised to gather demographic information. It was translated into *IsiZulu* as the participants were *IsiZulu* speaking and many attended *IsiZulu* medium schools. Refer to Appendix A.

3.5.2) Feelings Profile

Mguni (2005) constructed a Feelings Profile from various questionnaires. Participants had to respond to questions on how they felt about themselves, their lives and their relations with other people. Respondents had to answer 10 true or false questions; four negative items and six positive items. The respondent's correct answers ('true' to positive item and 'false' to negative items) were tallied out of 10. This indicated how the respondent felt about a certain item, which may be indicative of their self-esteem. Refer to Appendix B.

3.5.3) Physical Self Perception Profile

Mguni (2005) constructed the Physical Self Perception Profile from various questionnaires. Participants had to respond to ten ‘true’ or ‘false’ questions on *sports competence, physical condition, body attractiveness, physical self-worth* and *physical strength*. Again respondents’ correct answers (‘true’ to positive items and ‘false’ to negative items) were tallied out of 10. Refer to Appendix C.

3.5.4) Depression Checklist

The depression checklist consisted of eight questions that Weeks, Anderson, Harmaon, and Michaels (2005) suggest is useful in screening for depression in children and adolescents. The respondents had to answer “yes” or “no” to the questions. The correct answer (“no” to each of the items) was tallied out of 8. Refer to Appendix D.

3.5.5) Paediatric Symptoms Checklist

The Paediatric Symptom Checklist (PSC) is a psychosocial screen designed to assist in the recognition of cognitive, emotional and behavioural problems. The parent-completed version (PSC) was employed in this study. The PSC consists of 35 items that are rated as “never”, “sometimes” or “often” present, which are scored 0, 1 and 2 respectively. The total score is calculated by adding together the score for each of the 35 items. For children and adolescents

ages 6 to 16, a cut-off score of 28 or higher indicates psychological impairment (Jellinek, & Murphy, 1988). Refer to Appendix E.

3.6) Procedure

3.6.1) Gaining entry

The relevant directors of the childrens' homes were contacted and a meeting was held to discuss the study and the intervention. Both homes gave consent to participate in the study. A schedule was worked out and the intervention was put into place.

3.6.2) Informed consent

A session was held with the participants of the study to explain the nature of the study. They were also informed of their right to decline to participate as well as that all information obtained will remain confidential.

3.6.3) The exercise intervention

The children were given a choice as to what physical activity they wanted to engage in. The girls opted for netball and the boys opted for soccer.

- ❖ The exercise programme ran for 12weeks

- ✦ It ran for one hour three times a week (16H00 –17H00)
- ✦ Caregivers were assigned to assist in the program

3.7) Data collection

- Prior to starting the program, baseline (pre-test) data were obtained from both homes. The children were asked to complete the questionnaires in a group testing format at the respective homes. The researcher and caregivers were available to assist with difficulties in answering the questions. The caregivers were also briefed on the questionnaires they had to complete. Once the preliminary data were collected, the exercise program was implemented for a period of 12 weeks after which the instruments were administered to gather post test data.
- A focus group was held with the experimental group to obtain qualitative data.

3.8) Analysis

The quantitative data was analysed using the SPSS program. Multivariate analysis was conducted and post hoc *t* tests were run to clarify significant results. The qualitative data were analysed using the constant comparative method of data analysis as proposed by Maykut, and Morehouse (1994). This method combined inductive coding with a simultaneous comparison of all units of meaning obtained. Firstly, the participants' responses were transcribed and unitised. This means that units of meaning in the data were identified by carefully reading through the participant's responses. The units of meaning acted as a basis for defining larger categories of meaning. This was followed by assigning a word or phrase to demonstrate the

unit's meaning. Thereafter the common concepts and ideas were reviewed and themes were developed. These themes were then used to determine the exercise experience of the participants. The results of this study are presented in the next chapter.

CHAPTER FOUR

RESULTS

4.1) Introduction

This study was both quantitative and qualitative in nature. Firstly, the quantitative results will be presented followed by qualitative findings.

4.2) Quantitative Results

Table 1. Pre and post test means and standard deviation for Feelings Profile (FP), Physical Self-perception (PSP), Depression Checklist (DC) and Paediatric Symptom Checklist (PSC).

Condition		FP		PSP		DC		PSC	
		Pre	Post	Pre test	Post	Pre test	Post	Pre test	Post
		test	test		test		test		test
Experimental Mean		7.4	8.4	6.7	7.1	4.6	5.3	23.5	5.6
Group	N	20	20	20	20	20	20	20	20
	Std. Dev.	2.80	2.67	1.96	.80	1.50	.89	1.83	1.76
Control Mean		7.3	8.6	6.5	6.5	4.7	5.3	17.9	23.2
Group	N	13	13	13	13	13	13	13	13
	Std. Dev.	2.55	2.4	1.46	1.27	1.61	1.61	1.62	1.67

From inspection of Table 1 pre and post test mean scores it is clear that there were improvements in scores for FP, PSP, DC and PSC in the experimental group. For the control group, improvement in FP, DC was found, while the mean for PSP showed no change and deterioration in PSC was noted. Separate one way analyses of variance were run to investigate differences between the experimental and control groups on the dependent variables. Significant differences were found for physical self perception post test ($F= 4.3$ $p =0.49$). These findings indicate particularly significant changes with respect to Physical Self Perception in the experimental group only. Multivariate analysis indicated no significant differences between groups with regard to PSC before intervention ($F=1.36$ $p=0.254$) yet highly significantly different at post testing ($F=9.49$ $p=0.005$). This implies that there were no significant pre-test differences between the groups but highly significant post-test difference in the experimental group. This suggests that the caregivers noted significant changes in behaviour in the experimental group following the intervention.

The analyses of results inclusively indicate an improvement in the four dependent variables in the post test of the experimental group. Even if not all analysis was significant, trends were in the expected direction. The qualitative results will be presented next.

4.3) Qualitative results

Two focus groups were held to determine the exercise experience. The first was with the participants of the exercise intervention whereby the participants had to explore and report on

their experience of the exercise intervention. The second focus group was held with the caregivers whereby they had to explore the impact of the exercise intervention on the children.

4.3.1) Participants' responses

The great variety of positive themes emerged including positive changes in mood, positive affect, a sense of feeling healthy and well, enhanced self-esteem, social bonding, unity, enjoyment, fun and distraction from problems. Some negative aspects were also reported. These included hostility between teams, fighting and teasing among teams.

4.3.2) Caregivers' responses

The caregivers reported that they felt the exercise intervention was good for the children. They reported that children felt better emotionally and that they noticed favourable behaviour changes. The caregivers further reported that the children looked forward to it and enjoyed going out on the grounds and playing sport.

4.4) Conclusion

Table 1 is a comparison of the means and standard deviations of thirty three institutionalized children exposed to an exercise programmed and thirty institutionalized children who were not

exposed to an exercise programme. The conclusions from the analysis reveal that the institutionalized children who were exposed to the programme show improvements for feelings about the self, physical self-perceptions, affective states and behaviour. There was a significant improvement indicated for physical self perception for children who were in the experimental condition. This suggests that after the programme, the children appreciated their bodies more than they did before the programme and/or saw themselves as physically fit after the programme. It also suggests that they were happier with their bodies than before the programme.

There was also a significant improvement in behavioural symptoms in those children that were exposed to the exercise programme. This implies that the caregivers found that the children displayed significantly less behavioural problems after the programme. Those children that were not exposed to the intervention also showed improvement in feelings and affective state. Interestingly, no significant change was noticed for physical self-perception and deterioration in behavioural symptoms was found.

The assessment instruments used in this study required that participants answer yes/no or true/false to the statements about personal qualities and abilities. Rosenberg (1979) argues that simply to add up the parts in order to assess the whole is to ignore the fact that the global attitude is the product of an enormously complex synthesis of elements which goes on in the individual's phenomenal field. It is not simply the element per se but their relationship,

weighting, and combination that is responsible for the final outcome. However, even with the problem as highlighted above, this data does provide information with which to compare exercising and non exercising children regarding psychological well being.

Quantitative as well as qualitative results in this research support earlier studies emphasizing the value of physical activity and exercise interventions in promoting mental health (Edwards, 2001a; Fox, 2000; Morehouse, & Gross, 1977; Noakes, & Granger, 1995). The findings support and extend earlier studies on the effects of physical exercise on mental health and psychological well being in general (Biddle, Fox, & Boucher, 2000; Fox 2000; Hayes, & Ross; Scully, 1998; 1986, Stephens, 1988). Findings were in the expected direction in that participants' scored better on the feelings profile, physical self perception, depression checklist and paediatric symptom checklist. There was a significant difference in scores for physical self perception and paediatric symptoms checklist. While no significant difference was found for feelings profile and depression, improvement was noted. Moreover, qualitative data provided further evidence for the beneficial effect of the exercise intervention.

CHAPTER 5

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1) Introduction

Having presented the results of the study in the previous chapter, a discussion of the results in relation to the aims and the hypothesis of the study follow below.

5.2) Aims

The aim of this study was to:

- Investigate the impact of physical exercise on the mental health of institutionalized children. The mental health outcomes that were focused upon included physical self-perception (as measured on the Physical Self-perception Profile, depression (as measured using the depression checklist) and problem behaviour (as measured on the Paediatric symptom checklist). The following hypotheses were postulated:

H1: Those children who receive the exercise intervention will display significantly more favourable feelings about themselves, their lives and their relations with other people than those children that do not receive the exercise intervention.

H2: Those children who receive the exercise intervention will perceive their physical self significantly more positively than those that do not receive the exercise intervention.

H3: Those children who receive the exercise intervention will display significantly less negative affective symptoms than those children that do not receive the exercise intervention.

H4: Those children that receive the exercise intervention will display significantly less behavioural difficulties than those children that do not receive the exercise intervention.

This chapter will discuss the following:

- Findings
- Value of the study
- Limitations
- Recommendations and
- Conclusion

5.3) Findings

The findings of this study will be discussed in relation to the hypothesis postulated and will be organized in accordance with the psychological measuring instrument used.

5.3.1) Feelings Profile

It was hypothesized that those children who received the exercise intervention would display significantly more favourable feelings about themselves, their lives and their relations with

other people than those children that did not receive the exercise intervention. Findings indicated that while there were improvements for feelings over time, a significant post test difference between control and experimental group was not found. Both the experimental and control group showed improvement over time. This result may be explained by the fact that there are many routes to mental health promotion and exercise is but one. It came to light that the control group had received major donations of food and clothing and were also given larger living quarters which may have resulted in improved feelings over time. Edwards *et al.* (2003) argued that psychological well-being is influenced by personal, interpersonal and environmental factors. Thus, the positive changes in their environment may serve to explain the improvement in feelings for the control group.

5.3.2) Physical Self-Perception Profile

It was hypothesised that those children who received the exercise intervention would perceive their physical self significantly more positively than those that did not receive the exercise intervention. Post test results revealed significant differences between the control and experimental group with regard to physical self perception. This implies that the children felt good about their bodies after having been exposed to the programme. The focus group interviews revealed that the children experienced enhanced self-esteem and a sense of health during the programme. These attributes contribute to a sense of mastery and mental well-being (Tannahill, 2000). This finding follows trends in previous research. For example, Edwards, Edwards, and Basson (2004) found exercising students were generally more psychologically

well and had more positive physical self-perception than non-exercising students. Further Fox, (2000) argued that positive changes are seen in overall physical self-worth as well as specific aspects of physical self-perceptions such as body image, perceived fitness and strength. These are important factors as they tend to have a direct independent association with mental health indicators. Physical activity helps people to feel more positive about themselves. Fox (2000) reported that appropriate exercise interventions improve general health, quality of life, subjective well-being, self esteem and self perception.

5.3.3) Depression Checklist

It was hypothesised that those children who received the exercise intervention would display significantly less negative affective symptoms than those children that did not receive the exercise intervention. Pre-and post test results indicated improvements in depression scores. However, the differences in the experimental and control group were not significant. This result may be explained by Garmezy's (1987) argument that , "Two risk factors...provided a four-fold increase in the likelihood of a psychiatric disorder; four factors increased the risk ten-fold" (p. 165). In addition, these events and risk factors are not additive, but multiplicative (Attar *et al.*, 1994). Given that the children at these children's homes have experienced numerous risk factors such as , being raped, being infected with HIV as well as abandonment or loss of a parent, it is possible that the depressive symptoms are so severe that a short exercise intervention was not enough to bring about significant changes. This line of argument follows Attar *et al* (1994) assertion that traumatic events and risk factors are not additive, but

multiplicative and the severity of childhood trauma is a significant predictor of the number and severity depressive symptoms (Tyler, 2002).

5.3.4) Paediatric Symptom Checklist

It was hypothesized those children that received the exercise intervention would display significantly less behavioural difficulties than those children that did not receive the exercise intervention. Post test results revealed that there were improvements in paediatric symptom checklist scores. This implied that the caregivers experienced the children as exhibiting fewer negative behaviours or behavioural problems after the programme. This finding is supported in literature, for example Weinberg, & Gould (1999) asserted that exercise increases emotional stability. In addition to this, the British Department of Health (Donaldson, 2004) reported that higher levels of physical activity are associated with higher subjective well-being, mood and emotions, life satisfaction and quality of life. Furthermore, Mnguni (2005) also reported significant improvement in behaviour for those adolescents that participated in an exercise program.

5.4) Value of the study

The area of exercise as a medium for mental promotion among vulnerable groups is a neglected area of study. The focus of the current study was to investigate the use of exercise as

a medium for mental health promotion among institutionalized children in South Africa. It was revealed that the exercise intervention did promote mental health. This is especially valuable as resources in South Africa are scarce and the services of mental health service are not easily assessable. Hence, exercise can and should be utilized as a cost-effective medium of promoting mental health in future interventions.

5.5) Limitations

The findings of this study should be treated cautiously as they contain the following shortcomings which may limit the generalisability of the findings. The sample was limited in size and population representativeness due to the relatively small number of children that could be accommodated in the children's homes. Hence, results in this research can not be generalized to other children institutionalised in children's homes. There were also confounding variables which may have distorted the results. Furthermore, the exercise intervention was implemented for a short period (eight weeks) to affect desired results.

5.6) Recommendations

Future research should include larger and more diverse samples to improve generalisability of findings. Exercise programmes should be run for longer periods and be implemented on an ongoing basis. Further quantitative as well as qualitative research is needed to extend on

previous and this study's findings on the benefits of physical exercise on psychological well-being with special reference to institutionalized children. Given that the present research provided clear support for the public health benefits of regular exercise in terms of an association with mental health promotion among institutionalised children, exercise as an intervention strategy should be endorsed more vigorously among the relevant stakeholders.

5.7) Conclusion

The literature review reveals that institutionalised children are vulnerable to developing psychological problems. Previous studies indicated that physical exercise was associated with many positive benefits and was instrumental in promoting mental health. This thesis was aimed at exploring physical exercise as an intervention strategy to promote psychological wellbeing among institutionalized children. A psychologically well_institutionalized child was conceptualized as one who displays positive feelings about self, has favourable physical self perception, and has few depressive symptoms and exhibits few behavioural problems. Results of this study reveal that children who were involved in the physical exercise programme showed improved feelings about themselves, favourable physical self perceptions, positive affect and improved behavioural patterns. These attributes are ranked highly in contributing to a positive mental well being. Hence, it suggests that the exercise intervention was instrumental in promoting mental health among institutionalised children. This research does provide evidence for the use of exercise as medium of mental health promotion in institutionalised children. However, this line of research is still in its infancy stage and further research into

physical activity, exercise, and sport with special reference to children who are institutionalised is needed.

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Appendix A: Biographical Questionnaire

Imibuzo ngckwenkambu yomuntu kanye nokuzivocavoca

Igama:.....

Ibanga:.....

Iminyaka:.....

Ubulil:.....

Ngabe uyazivoxavoxa okanye kukhona ezemidlalo obambe iqhaza kuzona? Yebo/Qha

Uma kunguyebo, ukuzivocavoca ngayiphi indlela noma yiluphi uhlobo iwezemidlalo

olwenzayo.....

Uzivocavoca noma udlale kangaki esontweni?.....

Okudlalayo ukwenza imizuzu emingaki?.....

Appendix B: Feelings Profile (FP)

Iqoqo lemibuzo elandelayo imaqondana nokuthi uzizwa unjani ngobuwena kanye nempilo yakho.

1. Ngiyazithanda.....
2. Ngithanda ukuba nabantu engiqala ukubabona ukuze ngifunde izinto ezintsha.....
3. Angicabangi ngekusasa ngokuyikhona.....
4. Ngifunda izinto ezintsha nsukzonke ngokwempilo.....
5. Kuyangithokozisa.....
6. Ngiyakuthokozela ukudlala nabanye.....
7. Abantu abangiphathi kahle.....
8. Angisanandaba ukuthi kwenzekani kimi.....
9. Ngizosebenza kanzima ukwenza impilo yami ibengcono.....
10. Sengizaume konke empilweni kodwa akukho okulungayo.....

Appendix C: Physical Self-Perception Profile (PSP)

Umcabango ngesingawe ngokwezinga lokwakheka komzimba

Letitatimende zichaza abantu, uma isitatimende sichaza wean, phendula ngoYebo uma singakuchazi phendula ngoQha. Khumbula azikho izimpendulo okuyizonazona okanye ezingeyizone.

1. Nginguumuntu okahle kwezemidlal.....
2. Ngiqinile ngokomzimba.....
3. Nginomzimba omuhle.....
4. Nginamandla kunabangani bami.....
5. Ngingawudlala umdlala okhahlayo.....
6. Angithandi ukuzivocavoca.....
7. Nginezinyama ezinkulu.....
8. Angiziqhenyi ngomzimba wami.....
9. Ngigijima kahle.....
10. Ngiyakujabulela lokho engiyikhona.....

Appendix D: Depression Checklist (DC)

Uhla ngokokuhlola ingcindezi emqondweni

Khetha impendulo engcono, esho ukuhti ubuzizwa unjani estontweni eledlule

- | | |
|--|----------|
| 1) Uzuzwela udabukile ngokwejwayelekile? | Yebo/Qha |
| 2) Ngabe uyacasuka ngokuvamileyo? | Yebo/Qha |
| 3) Ngabe akusekho ongadlala ngakho? | Yebo/Qha |
| 4) Ngabe ukhetha ukuba wedwa kunokuba nabangani? | Yebo/Qha |
| 5) Ngabe ulala kakhulu noma ngokwenele? | Yebo/Qha |
| 6) Ngabe uzizwela unesiyaluyalu noma ukhathele isikhathi esiningi? | Yebo/Qha |
| 7) Ngabe udla njalo noma ngokwenele? | Yebo/Qha |
| 8) Ngabe uthola kunzima ukwenza isinqumo? | Yebo/Qha |

Appendix E: Pediatric Symptom Checklist(PSC)

Please mark under the heading that best describes the child:

	NEVER	SOMETIMES	OFTEN
1) Complains of aches and pains	_____	_____	_____
2) Spends more time alone	_____	_____	_____
3) Tires easily, has little energy	_____	_____	_____
4) Fidgety, unable to sit still	_____	_____	_____
5) Has trouble with teacher	_____	_____	_____
6) Less interested in school	_____	_____	_____
7) Acts as if driven by a motor	_____	_____	_____
8) Daydreams too much	_____	_____	_____
9) Distracted easily	_____	_____	_____
10) Is afraid of new situations	_____	_____	_____
11) Feels sad, unhappy	_____	_____	_____
12) Is irritable, angry	_____	_____	_____
13) Feels hopeless	_____	_____	_____
14) Has trouble concentrating	_____	_____	_____
15) Less interested in friends	_____	_____	_____
16) Fights with other children	_____	_____	_____
17) Absent from school	_____	_____	_____

	NEVER	SOMETIMES	OFTEN
18) School grades dropping	_____	_____	_____
19) Is down on him or herself	_____	_____	_____
20) Visits the doctor with doctor finding nothing wrong	_____	_____	_____
21) Has trouble sleeping	_____	_____	_____
22) Worries a lot	_____	_____	_____
23) Wants to be with you more than before	_____	_____	_____
24) Feels he or she is bad	_____	_____	_____
25) Takes unnecessary risks	_____	_____	_____
26) Gets hurt frequently	_____	_____	_____
27) Seems to having less fun	_____	_____	_____
28) Acts younger than children his or her age	_____	_____	_____
29) Does not listen to rules	_____	_____	_____
30) Does not show feelings	_____	_____	_____
31) Does not understand other people's feelings	_____	_____	_____
32) Teases others	_____	_____	_____
33) Blames others for his or her troubles	_____	_____	_____
34) Takes things that do not belong to him or her	_____	_____	_____
35) Refuses to share	_____	_____	_____

ABSTRACT

An investigation into the use of exercise as a medium for mental health promotion among institutionalised children

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Abstract

This study was contextualised within the community psychological model of mental health promotion and Erick Erikson's psycho-social theory with mental health promotion being conceptualised as the positive components of mental health and exercise conceptualised as a subset of physical activities aimed at improving health and well-being. The research investigated the use of exercise as a medium for mental health promotion among institutionalised children. The participants of this study comprised children institutionalised in children's homes in the Richards Bay and Empangeni area. Children's homes are registered under section 30 of the child care act and are defined as any residence or home maintained for the reception, protection, care and bringing-up of more than six children apart from their parents. This definition does not include any school of industries or reform school (Child Care Act Number 74 of 1983).

The research design comprised an experimental and control group. An exercise intervention was implemented and the psychological assessment techniques used to measure the mental health outcomes included; a Feelings Profile (FP), Physical Self Perception Profile (PSP),

Depression Checklist (DC) and Paediatric Symptom Checklist (PSC). Focus groups were held with the participants and the caregivers to obtain qualitative data. Significant post test differences were found for Physical Self Perception in the experimental group only.

Multivariate analysis indicated no significant differences between groups with regard to scores on the Paediatric Symptom Checklist before intervention yet highly significantly difference at post testing, which suggested that the caregivers noted significant improvements in behaviour in the experimental group following the intervention.

Key Words: Mental health promotion, Children's homes, Exercise.

Introduction

Recent research and intervention programmes have highlighted the value of different forms of physical activity, exercise and sport in the promotion of health and more especially mental health. Several authors including Hayes, and Ross (1986); Morris and Summers (1995); Scully (1998); Weinberg, and Gould (1999); Fox (2000) and Edwards (2001a), have advocated the use of exercise as a medium for health promotion and have documented the general and mental health benefits of exercise or physical activity. Sinyor, Schwartz, Peronnet, Brisson, and Seraganian, (1983) were able to demonstrate that aerobically trained persons were able to recover faster from experimentally induced psychosocial stress than untrained persons as measured on physiological, biochemical and psychological measures. Various other physiologically orientated studies have demonstrated similar effects (Anshel, 1996; Scully, 1998, Summers, 1999). Roth, and Holmes (1985, 1987) found that physical fitness moderates

the stress-illness relationship and that increasing fitness, through aerobic training, decreases the experience of stressful life events. Learning theory and Lazarus' (1993) model of stress as a transaction between persons and their environment predict that persons who engage in regular physical exercise will have more experience of and control over stress, as induced through such exercise and as generalized to other stressful life events, than those who do not exercise.

Furthermore, Fox (2000) reported that appropriate exercise interventions improve general health, quality of life, subjective well-being, self esteem and self perception. Moreover, it has become evident over the years that the traditional individual approach to psychotherapy is not adequate to deal with psychological problems in the South African context (Pillay, 2003).

Hence, it has become necessary to explore alternative approaches to promote mental health.

It is well documented in literature that exercise is an effective medium for mental health promotion. A vast majority of studies examining the role of exercise on psychological well being and mood, support the notion that exercise will improve well-being and mood states such as anxiety, stress, depression, tension and fatigue (Seraganian, 1993). Berger (2001) contends that regular, moderate intensity, exercise interventions involving non- competitive activity, rhythmic abdominal breathing of twenty to thirty minutes' duration in comfortable, predictable contexts as with Tai, Chi, Yoga, aerobic exercise and weight training seem particularly meaningful, if the type, intensity and duration of the intervention are tailored to suit the particular exercisers.

Williams (1996, p.114) distinguishes between structured and unstructured physical activity:

“Unstructured physical activity includes many of the usual activities of daily life such as

walking, climbing stairs, cycling, dancing, gardening and yard work, various domestic and occupational activities. Structured physical activity is a planned program of physical activities usually designed to improve physical fitness". Although unstructured physical activity is usually of low intensity, it does help reduce the development of certain diseases. We should realize that both moderate unstructured physical activity and moderate structured physical activity, as exercise, independently convey health benefits (Williams, 1996).

Exercise can be used as a medium to promote physical self-worth and other important physical self-perceptions such as body image (Biddle, Fox, & Boutcher, 2000, p.157). These authors further argue that physical self-worth carries mental well-being properties in its own right and should be considered as a valuable end point of exercise programmes. Furthermore, exercise has been found to increase academic performance, assertiveness, confidence, emotional stability, intellectual functioning, internal locus of control, memory perception, positive body image, self control, sexual satisfaction, well-being and work efficacy and decreases; absenteeism at school or work, alcohol abuse, anger, confusion, depression, headaches, hostility, phobias, psychotic behaviour, tension, type A behaviour and work errors (Weinberg, & Gould, 1999).

With all the evidence presented on the use of exercise as a medium for mental health promotion, this study was essentially concerned with two questions. Firstly, the question of whether the positive benefits of exercise documented in literature will be also evident for children. Kirkcaldy, Shephard, and Siefen (2002) reported that much of the research in the area of exercise and mental health promotion has focused on the adult population with little emphasis on whether children who exercise display superior psychological health when

compared to their less active counterparts. This study addressed this shortfall by focusing on children. Secondly, this study was interested in whether exercise would be beneficial in promoting mental health among institutionalised children. Fox (2000) criticized research on exercise and mental health promotion by arguing that almost all research results were based on participants who have volunteered and remained in exercise research programmes which may have provided positively biased results. He further added that recruitment and retention of groups with mental disorders are difficult to research. The focus on institutionalised children may address this shortcoming as institutionalised children carry a significant risk for developing mental health problems due to the adverse circumstances to which they have been exposed. Research indicates that traumatic experiences in childhood increase the risk of developing a variety of neuropsychiatric symptoms in adolescence and adulthood (Davidson, & Smith, 1990; Famularo, Kinscherff, & Fenton, 1991; Ogata, Silk, Goodrich, Lohr, Westen & Hill, 1990; Teicher, Glod, Surrey, & Swett, 1993). One of the most studied neuropsychiatric syndromes which develop following trauma is post-traumatic stress disorder (PTSD). In the last five years, childhood PTSD has been widely observed in various populations of traumatized or maltreated children (McFarlane, 1987). Children exposed to trauma may have a range of PTSD symptoms, behaviour disorders, anxieties, phobias, and depressive disorders (Schwarz, & Perry, 1994). This includes children who were kidnapped (Terr, 1983), witnessed violent crime (Schwarz, & Kowalski, 1991); have been abused (Browne & Finkelhor, 1986; Kiser, Heston, & Millsap, 1991) or survived other severe trauma (Kaufman, 1991). Specifically, negative life events have been associated with a variety of emotional and behavioural problems (Attar, Guerra, & Tolan, 1994). Some of the problems may include depression and anxiety in girls and aggression in boys (Attar *et al.*, 1994). In addition, these

events and risk factors are not additive, but multiplicative (Attar *et al.*, 1994). Garmezy (1987) pointed out that, "Two risk factors...provided a four-fold increase in the likelihood of a psychiatric disorder; four factors increased the risk ten-fold" (p. 165). Not only do stressful life events impact children's emotional and behavioural functioning, but they also appear to adversely affect school adjustment. For many children, stressful life events lead to school problems. Specifically, stressful life events have been significantly related to children's school maladjustment (Pryor-Brown, & Cowen, 1989), and school absenteeism (Reynolds, Weissberg, & Kaspro, 1992).

In light of the above, the aim of the present paper was to investigate the use of exercise as a medium for mental health promotion among institutionalised with the following hypotheses postulated:

H1: Those children who received the exercise intervention would display more favourable feelings about themselves, their lives and their relations with other people than those children that did not receive the exercise intervention.

H2: Those children who received the exercise intervention would perceive their physical self more positively than those that did not receive the exercise intervention.

H3: Those children who received the exercise intervention would display less negative affective symptoms than those children that did not receive the exercise intervention.

H4: Those children that received the exercise intervention would display less behavioural difficulties than those children that did not receive the exercise intervention.

Method

The approach to this empirical investigation was both quantitative and qualitative in nature. A quasi-experimental, non-equivalent control group research design, with pre and post test measures, was employed. This research design consists of an experimental and control group without random assignment. Qualitative data was obtained by conducting a focus group with the participants and the caregivers. The main purpose of focus group research is to draw upon respondents' attitudes, feelings, beliefs, experiences and reactions about the exercise intervention.

The study was conducted at two children's homes in Kwa-Zulu Natal situated in the Richards Bay area and Empangeni area. The participants of this study consisted of all school going children. The experimental group consisted of 20 children (6 males and 14 females) while the control group consisted of 13 children (8 males and 5 females). The average age was 11 years 9 months. A larger sample could not be drawn as the numbers in these homes are limited.

The psychological assessment techniques comprised a Biographical questionnaire, Feelings Profile (FP), Physical Self Perception Profile (PSP), Depression Checklist (DC) and Paediatric Symptoms Checklist (PSC).

Biographical questionnaire

A biographical questionnaire was utilised to gather demographic information. It was translated into *IsiZulu* as the participants were *IsiZulu* speaking and many attended *IsiZulu* medium schools.

Feelings Profile

This profile was based on research by Mguni (2005), and constructed from various questionnaires. Participants had to respond to questions on how they felt about themselves, their lives and their relations with other people. Respondents had to answer 10 true or false questions; four negative items and six positive items. The respondent's correct answers ('true' to positive item and 'false' to negative items) were tallied out of 10. This indicated how the respondent felt about a certain item, which may be indicative of their self-esteem.

Physical Self Perception Profile

This profile was also based on research by Mguni (2005), and constructed from various questionnaires. Participants had to respond to ten 'true' or 'false' questions on *sports competence, physical condition, body attractiveness, physical self-worth* and *physical strength*. Again respondents' correct answers ('true' to positive items and 'false' to negative items) were tallied out of 10.

Depression Checklist

The depression checklist consisted of eight questions that Weeks, Anderson, Harmaon and Michaels (2005) suggest is useful in screening for depression in children and adolescents. The respondents had to answer “yes” or “no” to the questions. The correct answer (“no” to each of the items) was tallied out of 8.

Paediatric Symptoms Checklist

The Paediatric Symptom Checklist (PSC) is a psychosocial screen designed to assist in the recognition of cognitive, emotional and behavioural problems. The parent-completed version (PSC) was employed in this study. The PSC consists of 35 items that are rated as “never”, “sometimes” or “often” present, which are scored 0, 1 and 2 respectively. The total score is calculated by adding together the score for each of the 35 items. For children and adolescents ages 6 to 16, a cut-off score of 28 or higher indicates psychological impairment (Jellinek & Murphy, 1988).

The exercise intervention

The exercise intervention ran for 12 weeks. Prior to starting the program, pre-test data were obtained from both homes. Once the preliminary data were collected, the exercise program was implemented and on termination, post test data were collected. A focus group was held with the experimental group to obtain qualitative data about their experiences of the exercise intervention.

Data Analysis

The quantitative data was analysed using the SPSS program. Analysis of variance and multivariate analysis with post hoc tests were run to clarify significant results. The qualitative data were analysed using the constant comparative method of data analysis as proposed by Maykut and Morehouse (1994). The themes that emerged were used to determine the exercise experience of the participants.

Quantitative Results

The pre and post test mean scores showed improvements in FP, PSP, DC and PSC in the experimental group. For the control group, improvement in FP and DC was found, while the mean for PSP showed no change and deterioration in PSC was noted. Separate one way analyses of variance were run to investigate differences between the experimental and control groups on the dependent variables. Significant differences were found for physical self perception ($F=4.3$ $p=0.049$). These findings indicated particularly significant changes with respect to Physical Self Perception in the experimental group only. Multivariate analysis indicated no significant differences between groups with regard to PSC before intervention ($F=1.36$ $p=0.254$) yet highly significantly different at post testing ($F=9.49$ $p=0.005$). This suggests that the caregivers noted significant improvements in behaviour in the experimental group following the intervention.

The analyses of results inclusively indicate an improvement in the four dependent variables in the post test of the experimental group. Even if not all analyses were significant, trends were in the expected direction. The qualitative results will be presented next.

Qualitative results

Two focus groups were held to determine the exercise experience. In the first group participants had to explore and report on their experience of the exercise intervention. The second focus group with caregivers required them to explore the impact of the exercise intervention on the children.

Participants' responses

The great variety of positive themes emerged including positive changes in mood, positive affect, a sense of feeling healthy and well, enhanced self-esteem, social bonding, unity, enjoyment, fun and distraction from problems. Some negative aspects were also reported. These included hostility between teams, fighting and teasing among teams.

Caregivers' responses

The caregivers reported that they felt the exercise intervention was good for the children who reported that they felt better emotionally. Caregivers noticed favourable behaviour changes. They reported that the children looked forward to the intervention, enjoying going out on the grounds and playing sport.

Discussion

The findings of this study are discussed in relation to the hypothesis postulated and organized in accordance with the psychological measuring instrument used.

Feelings Profile

It was hypothesized that those children who received the exercise intervention would display significantly more favourable feelings about themselves, their lives and their relations with other people than those children that did not receive the exercise intervention. Findings indicated that while there were improvements for feelings over time, a significant post test difference between control and experimental group was not found. Both the experimental and control group showed improvement over time. This result may be explained by the fact that there are many routes to mental health promotion and exercise is but one. It also came to light that the control group had received major donations of food and clothing and were also given larger living quarters which may have resulted in improved feelings over time. Edwards, Ngcobo & Pillay (2003) argued that psychological well-being is influenced by personal, interpersonal and environmental factors. Thus, the positive changes in their environment may serve to explain the improvement in feelings for the control group.

Physical Self-Perception Profile

It was hypothesised that those children who received the exercise intervention would perceive their physical self significantly more positively than those that did not receive the exercise

intervention. Post test results revealed significant differences between the control and experimental group with regard to physical self perception. This implies that the children felt good about their bodies after having been exposed to the programme. The focus group interviews revealed that the children experienced enhanced self-esteem and a sense of health during the programme. These attributes contribute to a sense of mastery and mental well-being (Tannahill, 1994). This finding follows trends in previous research. For example, Edwards, Edwards and Basson (2004) found exercising students were generally more psychologically well and had more positive physical self-perception than non-exercising students. Further Fox, (2000) argued that positive changes are seen in overall physical self-worth as well as specific aspects of physical self-perceptions such as body image, perceived fitness and strength. These are important factors as they tend to have a direct independent association with mental health indicators. Physical activity helps people to feel more positive about themselves. Fox (2000) reported that appropriate exercise interventions improve general health, quality of life, subjective well-being, self esteem and self perception.

Depression Checklist

It was hypothesised that those children who received the exercise intervention would display significantly less negative affective symptoms than those children that did not receive the exercise intervention. Pre-and post test results indicated improvements in depression scores. However, the differences in the experimental and control group were not significant. This result may be explained by Garmezy's (1987) argument that , "Two risk factors...provided a four-fold increase in the likelihood of a psychiatric disorder; four factors increased the risk ten-fold" (p. 165). Given that the children at these children's homes have experienced numerous

risk factors such as being raped, being infected with HIV as well as abandonment or loss of a parent, it is possible that the depressive symptoms are so severe that a short exercise intervention was not enough to bring about significant changes. This line of argument follows the assertion by Attar *et al* (1994) that traumatic events and risk factors are not additive, but multiplicative and the severity of childhood trauma is a significant predictor of the number and severity depressive symptoms (Taylor, 2002).

Paediatric Symptom Checklist

It was hypothesized those children that received the exercise intervention would display significantly less behavioural difficulties than those children who did not receive the exercise intervention. Post test results revealed that there were improvements in paediatric symptom checklist scores. This implied that the caregivers experienced the children as exhibiting fewer negative behaviours or behavioural problems after the programme. This finding is supported in literature, for example Weinberg & Gould (1999) asserted that exercise increases emotional stability. In addition to this, the British department of health (Donaldson, 2004) reported that higher levels of physical activity are associated with higher subjective well-being, mood and emotions, life satisfaction and quality of life. In addition to this Mnguni (2005) also reported significant improvement in behaviour for those adolescents that participated in an exercise program in an industrial school.

Conclusion

The literature review reveals that institutionalised children are vulnerable to developing psychological problems. Previous studies indicated that physical exercise was associated with many positive benefits and was instrumental in promoting mental health. This thesis was aimed at exploring physical exercise as an intervention strategy to promote psychological wellbeing among institutionalized children. A psychologically well_institutionalized child was conceptualized as one who displays positive feelings about self, has favourable physical self perception, has few depressive symptoms and exhibits few behavioural problems. Results of this study reveal that children who were involved in the physical exercise programme showed improved feelings about themselves, favourable physical self perceptions, positive affect and improved behavioural patterns. These attributes are ranked highly in contributing to a positive mental well being. Hence, it suggests that the exercise intervention was instrumental in promoting mental health among institutionalised children. This research does provide evidence for the use of exercise as medium of mental health promotion in institutionalised children. However, this line of research is still in its infancy stage and further research into physical activity, exercise, and sport with special reference to children who are institutionalised is needed.