

## **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 (1950) psychosocial theory with mental health promotion being conceptualised as a positive component 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. In an experimental and control group design, an exercise intervention was implemented and psychological assessment techniques used to measure the mental health outcomes. Analyses of variance with repeated measures were run to investigate differences between the experimental and control groups on the dependent variables. Significant differences were found for improvement in caretakers' ratings of paediatric symptoms. Although not statistically significant other trends were in the expected direction of improvements in participants' perceptions of personal feelings and physical self and caretakers' ratings of children's depression. Qualitative focus group data supported and amplified these findings.*

**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 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 *et al.* (1983) were able to demonstrate that aerobically trained persons were able to recover faster from experimentally induced psychosocial stress than untrained persons as evaluated on physiological, biochemical and psychological measures. Various other physiologically orientated studies have demonstrated similar effects (Ansel, 1996; Scully, 1998; Summers, 1999). Roth and Holmes (1985) 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: 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) 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 of 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 clearly evident for children. Kirkcaldy 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 groups with mental disorders are difficult to research due to problems with recruitment and retention. 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 are 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; Ogata *et al.*, 1990; Famularo *et al.*, 1991; Teicher *et al.*, 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 as they include those who were kidnapped, abused, witnessed violent crime and/or survived other severe trauma (Kaufman, 1991; Kiser *et al.*, 1991; Schwarz & Kowalski, 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). Garnezy (1987: 165) 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". 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 *et al.*, 1992).

In light of the above, the goal of this article was to investigate the use of exercise as a medium for mental health promotion among institutionalised children. Particular aims were to improve feelings, personal and physical self-esteem and decrease negative affective symptoms and behavioural problems. It was expected that these aims would be achieved significantly more in an experimental than control group of institutionalised children.

## **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. 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 a normally distributed sample of all the school going children in the homes. The experimental group consisted of 20 children (six males and 14 females) while the control group consisted of 13 children (eight males and five females). Age ranged from seven to 15 years. The mean age was 10 years eight months.

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 derived from research by Mnguni (2005), where standardised questionnaires items were adapted to suit a sample of institutionalised children. 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.

### **Physical Self Perception Profile**

This profile also derived from research by Mnguni (2005), where standardised questionnaires items were adapted to suit a sample of institutionalised children. 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 *et al.*, (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. The intervention consisted of a one hour physical activity session twice weekly, consisting of a structured soccer game for boys and netball for girls. Once the preliminary data were collected, the exercise intervention 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 thematic content analysis (Terreblanche *et al.*, 2006). The themes that emerged were used to determine the exercise experience of the participants.

## QUANTITATIVE RESULTS

**TABLE 1. PRE AND POST TEST MEANS AND STANDARD DEVIATIONS FOR FEELINGS PROFILE (FP), PHYSICAL SELF-PERCEPTION (PSP), DEPRESSION CHECKLIST (DC) AND PAEDIATRIC SYMPTOM CHECKLIST (PSC).**

Condition		FP		PSP		DC		PSC	
		Pre test	Post test	Pre test	Post test	Pre test	Post test	Pre test	Post test
Experimental Group	Mean	7.4	8.4	6.7	7.1	4.6	5.3	23.5	5.6
	Std. Dev.	2.80	2.67	1.96	.80	1.50	.89	1.83	1.76
Control Group	Mean	7.3	8.6	6.5	6.5	4.7	5.3	17.9	23.2
	Std. Dev.	2.55	2.4	1.46	1.27	1.61	1.61	1.62	1.67
ANOVA with repeated measures		$F=.04$	$P=.89$	$F=.02$	$P=.89$	$F=.02$	$P=.89$	$F=9.4$	$P=.00$

The pre- and post test mean scores indicated improvements in the Feelings Profile, Physical Self Perception, Depression Checklist and Pediatric Symptom Checklist in the experimental group. See Table 1. For the control group, improvement in Feelings Profile and Depression Checklist was found, while the mean for Physical Self Perception showed no change and deterioration in the Pediatric Symptom Checklist was noted. Separate analyses of variance with repeated measures were run to investigate differences between the experimental and control groups on the dependent variables. Significant differences were only found for paediatric symptoms ( $F=9.4$ ,  $p=0.00$ ). Although not all analyses were significant, as indicated in Table 1, trends were in the expected direction of experimental group improvements in participants' perceptions of personal feelings and physical self and caretakers' ratings of depression and paediatric symptoms.

## 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**

Participants' responses amplified the quantitative findings and concurred with previous research on physical activity being associated with experiences of improved psychological well being and physical self perception, particularly with regard to a great variety of positive themes which emerged, including positive changes in mood, affect, a sense of feeling healthy and well, 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**

Caregivers' responses supported the quantitative findings and concurred with previous research on physical activity being associated with improvements in depression and paediatric symptoms. In particular, caregivers reported that they felt the exercise intervention was good for the children who reported that they felt better emotionally. Caregivers also noticed positive 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 aims and organized in accordance with the psychological measuring instrument used.

### **Feelings Profile**

It was expected 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 *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.

### **Physical Self-Perception Profile**

It was expected 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 mean 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 supported this trend in revealing 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). Other research indicates similar trends. For example, Edwards *et al.* (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 expected 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 Garnezy's (1987: 165) argument that, "Two risk factors...provided a four-fold increase in the likelihood of a psychiatric disorder; four factors increased the risk ten-fold". 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 (Tyler, 2002).

### **Paediatric Symptom Checklist**

It was expected those children who 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 significant 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 and Gould (1999) asserted that exercise increases emotional stability. In addition, 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, 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 research was aimed at exploring physical exercise as an intervention strategy to promote psychological wellbeing among institutionalised children. A psychologically well, institutionalised 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 generally showed improved feelings about themselves, favourable physical self perceptions,

positive affect and improved behavioural patterns. These attributes are ranked highly in contributing to 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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