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THE EFFECT OF AN ADVENTURE-BASED RECREATION PROGRAMME (ROPES COURSE) ON THE DEVELOPMENT OF RESILIENCY IN AT-RISK ADOLESCENT BOYS CONFINED TO A REHABILITATION CENTRE

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ABSTRACT

The quality of recreation programmes can be instrumental in mastering certain life skills that facilitate successful transition into adulthood. Due to the increasing pressure to serve at-risk adolescents in this transition process into adulthood, schools and educational centres are faced with the major challenge of providing interventions appropriate to their needs. The purpose of this study is to examine the effect of an outdoor adventure-based recreation programme (ropes course) on the resiliency of at-risk adolescent boys confined to a rehabilitation centre. A ropes course programme was offered to 46 adolescent boys with an average age of 16. These boys experienced behavioural and/or emotional problems, and were referred to the centre in terms of the stipulations of the Child Care Act (1983). The control group consisted of 60 boys, and averaged 15.4 years of age. The research instrument was a questionnaire (The Shortened Protective Factor Scale), developed and piloted by Witt et al. (1996). This questionnaire assesses resiliency through the improvement of "protective factors". The questionnaire was administered in the form of pre- and post-tests to both groups. Results showed that the post-test scores of the experimental group increased highly significantly ($p<0.01$) for seven of the ten protective factors. The post-test scores for one protective factor improved significantly ($p<0.05$). The findings of this study demonstrate the potential power of adventure-based recreation programming in developing resiliency in at-risk adolescent boys.

Key words: Adventure-based recreation; At-risk adolescent boys; Resiliency; Protective factors.

INTRODUCTION

Recreation experiences can often be either a life raft or a cement block during adolescence (King, 2000). The quality of the recreation programme can be instrumental in mastering certain life skills that facilitate successful transition into adulthood. However, recreation-based youth initiatives can be merely diversionary, or a "band-aid" approach to the plethora of risks youth is facing today (Mundy, 1996).

The components required for successful life skills programmes appear to be inherent to adventure-based learning. Adventure-based learning, adventure education, adventure-based programming and other similar terms describe a wide variety of approaches that appear to encourage and facilitate the development of life skills in adolescents in innovative and engaging ways (Moote & Wodarski, 1997). Gass (1993) suggests that the main premise of

outdoor adventure-based programmes is to effect attitudinal or behavioural changes through a series of challenging tasks in a natural environment.

Many recreation programmes target "at-risk" adolescents (Green *et al*., 2000; Long, 2001; Bruyere, 2002). The terms "at-risk" and "high-risk" are often used synonymously (King, 2000) to denote youths who are exposed to environmental stressors (risk factors) such as poverty, poor health care, poor parental supervision and interaction, overcrowding or large family size, parental alcoholism and/or criminality, absence of one parent and poor housing (Rutter, 1987; Rak & Patterson, 1996; King, 2000). The term "youth at risk" is also widely used in reference to adolescents who "are delinquent or in trouble" (Long, 2001). Cross (2002) maintains that "at-risk" can encompass any adolescents who have lost their sense of belonging. "This included virtually all adolescents at some point of their lives" (Cross, 2002: 248). Although biological and psychological risk factors may result in related outcomes (diabetes may lead to heart disease), they may also result in familial (parental stress), societal (increased cost of welfare) or environmental outcomes (increased crime) (Jessor, 1993). An overwhelming challenge to professionals in the health care system and recreation field is determining and providing appropriate prevention techniques, as well as effective treatment modalities, for adolescents at risk (Long, 2001).

While risk implies the potential to lose something of value, which could be physical, mental, social or financial (Priest, 1990), it also suggests that negative outcomes may be avoided (Rak & Patterson, 1996; Brendtro *et al*., 1998). This is indicated by the fact that, despite being exposed to severe and often multiple risk factors, some youths demonstrate little or no signs of developmental impairment. They overcome the risks and avoid negative outcomes such as delinquency and behavioural problems. These youths are referred to as "resilient" (Rutter, 1987). Resiliency in children can be defined as the capacity of those who are exposed to identifiable risk factors to overcome such risks and avoid negative outcomes such as delinquency and behavioural problems, psychological maladjustment, academic difficulties and physical complications (Rak & Patterson, 1996). Literature supports a buffering hypothesis that the availability of social support structures (that act as protective factors) modifies the impact of environmental and biological stressors, thus reducing damage (Rutter, 1987; Jessor, 1993; Rak & Patterson, 1996; Green *et al*., 2000). Protective factors are assets that act as individual and environmental safeguards to alleviate or buffer the negative impacts of risk, while fostering successful adaptation and competence (Rutter, 1987; Green *et al*., 2000). This results in a minority of such children experiencing unusual difficulty in the process of maturing into coping adults (Rak & Patterson, 1996).

Jessor (1993; 1995) identified five interrelated conceptual domains of risk factors and related protective factors. These domains are genetics, social environment, perceived environment, personality and behaviour. The genetics domain (or biology) relates to one protective factor, namely intelligence. The social environment domain contains two protective factors, namely neighbourhood resources and interested and caring adults. The perceived environment domain contains three protective factors: sense of acceptance and belonging, models for conventional behaviour and high levels of control against deviant behaviour. The personality domain contains two protective factors, namely positive attitude towards the future and value attached to achievement. The behaviour domain contains three protective factors: ability to work with others, ability to resolve problems in non-violent ways and enjoyment of and/or perceived competency in activity. The importance of identifying protective factors is that such

information can be used to help design more effective intervention programmes (Cicchetti & Garmezy (1993), in Green *et al*., 2000). More effective intervention programmes will then facilitate application and transference to future learning situations (Ewert, 1990).

PURPOSE

Research indicates that some adventure programmes can foster the development of protective factors or resilience in at-risk youths (Moote & Wodarski, 1997; Green *et al.*, 2000). However, the impact of ropes course activities as a treatment modality to foster resilience in high-risk adolescent boys has not been tested. Therefore, the goal of this research is to determine the influence of an outdoor adventure-based recreation programme (ropes course) on the resilience of high-risk adolescent boys confined to a rehabilitation centre.

METHODS AND PROCEDURES

A pre-test/post-test research design was utilised. The study contained an experimental and a control group. All groups completed the same questionnaire as a pre-test and again as a post-test.

Participants

Participants in this study were selected from two "educational youth care centres", formerly labelled reform schools or schools of industry. The goal of these centres is to "provide a safe haven for high-risk learners and learners with behavioural problems" and to "give each learner the opportunity to reach his full potential in a safe, accepting environment" (Erlank, 2004). The learners experienced behavioural and/or emotional problems, and were referred to these centres in terms of the stipulations of the Child Care Act (1983). The treatment group was selected from one centre and the non-treatment group from the other. Both the treatment and non-treatment groups were randomly selected. The treatment group consisted of 46 boys with an average age of 16 years. The non-treatment group consisted of 60 boys, and averaged 15.4 years of age.

Experimental Treatment

A growing number of private and public adventure programmes are utilising artificial environments such as ropes courses to conduct adventure activities and experiences offering recreational, educational and developmental opportunities to participants (Attarian, 2002). The experimental treatment consisted of participation in three high elements of a ropes course (the balance beam, the two-line bridge and the multi vine). The author, who has nine years' experience in ropes course instruction, conducted the course. The elements require individual participants to perform tasks while receiving emotional support from the remainder of the group. Group sizes varied between 15 and 20 adolescents per intervention. The duration of the once-off intervention was approximately four hours. It was a first-time experience for all the participants.

Dependent variables

Ten protective factors from four conceptual domains, identified by Jessor (1993), constituted the dependent variables for this study. They were neighbourhood resources, interested adults, sense of acceptance, levels of control against deviant behaviour, models for conventional behaviour, positive attitude towards the future, value attached to achievement, ability to work with others, ability to work out conflicts and enjoyment of and/or perceived competency in activity. The fifth domain (genetics), identified by Jessor (1993), was not included, since the treatment could not affect this domain or its protective factors. The resiliency domains, protective factors and statements relating to the protective factors are indicated in Table 1.

TABLE 1. **RESILIENCE DOMAINS, PROTECTIVE FACTORS AND STATEMENTS RELATING TO PROTECTIVE FACTORS**

RESILIENCE DOMAINS	PROTECTIVE FACTORS	STATEMENTS RELATING TO PROTECTIVE FACTORS
Social Environment	Neighbourhood resources	I know lots of safe places to hang out I know a lot of activities in my community I am interested in participating in programmes in my community
	Interested and caring adults	I can turn to adults for help There are adults who look out for me Adults are willing to help me with my problems
Perceived Environment	Sense of acceptance and belonging	I am able to get along with friends There are other children who like me I am an O.K. person
	High levels of control against deviant behaviour	I must stay out of trouble I must obey the rules I must follow the rules if I want to participate
	Models for conventional behaviour	I respect authority figures I respect adults I respect people in charge
Personality	Positive attitude towards the future	I am creative I can set goals I can deal with problems that might arise in the future
	Value attached to achievements	I can succeed in life It is important for me to always do my best It is important for me to do well at school
Behaviour	Ability to work with others	I try to treat other children with respect Teamwork is important All players need a chance to play
	Ability to work out conflicts	I try to solve problems in a positive manner I try to control my anger I can settle arguments without fighting
	Enjoyment of / perceived competency in activity	I want to continue with sport / recreation I want to improve my sport / recreation skills I am interested in sport / recreation

Instrumentation

The research instrument was a questionnaire (The Shortened Protective Factors Scale), developed and piloted by Witt *et al.* (1996). The development was based on research conducted by Jessor (1993), on resilience domains and protective factors. The Shortened Protective Factors Scale contains 30 statements relating to the discussed protective factors (see Table 1). Participants must judge their level of agreement on a five-point Likert Scale. Results from several studies demonstrate that the Shortened Protective Factor Scale is a reliable and valid measure of protective factors (Green *et al.*, 2000). The latter part of the questionnaire contained demographic questions.

Data collection

The treatment group (N=46) received the pre-test in a classroom directly before the intervention. The post-test was also administered in the same classroom, directly after completion of the ropes course. The non-treatment comparison group (N=60) completed the post-test four hours after the pre-test during normal class hours. The questionnaires were distributed by the author between July and August 2004.

Analysis of data

A paired T-test was done to determine the equality of pre-test scores between the treatment and the non-treatment group. Two dependent variables (interested and caring adults and levels of control against deviant behaviour) differed significantly ($p<0.05$). The analysis of covariance (ANCOVA) was therefore applied using the initial (pre-test) score for a given dependent variable (e.g. neighbourhood resources) as the covariate for the analysis, to check for any initial differences between the groups.

RESULTS

The results for the ANCOVA are reported in Table 2. The post-test scores of two dependent variables (interested and caring adults and levels of control against deviant behaviour) do not differ significantly from the post-test scores of the non-treatment group. The post-test scores of the treatment group with regard to the dependent variable value for achievement differ significantly ($p<0.05$) from the post-test scores of the non-treatment group. The post-test scores of the remaining seven dependent variables (neighbourhood resources, sense of acceptance, models for conventional behaviour, positive attitude towards the future, ability to work with others, ability to work out conflicts and enjoyment of/perceived competence in activity) differ highly significantly ($p<0.01$) from the post-test scores of the non-treatment group.

TABLE 2. **ANACOVA RESULTS (F- AND P-VALUES) AMONG THE EXPERIMENTAL GROUP (GROUP 1) AND CONTROL GROUP (GROUP 2)**

Dependent variable	Sample size (n)	Average Pre-test Score (standard deviation)	Average Post-test Score (standard deviation)	F-value	p-value
Neighbour-hood resources	$n_1 = 46$ $n_2 = 60$	$\bar{x}_1$ =3.6232 (0.88502) $\bar{x}_2$ =3.9056 (0.78376)	$\bar{x}_1$ =3.9783 (0.89829) $\bar{x}_2$ =3.7611 (0.84393)	5.936**	0.003**
Interested & caring adults	$n_1 = 46$ $n_2 = 60$	$\bar{x}_1$ =4.0000 (0.88611) $\bar{x}_2$ =4.0611 (0.85148)	$\bar{x}_1$ =4.2101 (0.93587) $\bar{x}_2$ =4.0778 (0.87089)	2.629	0.076
Sense of acceptance	$n_1 = 46$ $n_2 = 60$	$\bar{x}_1$ =3.6957 (0.83983) $\bar{x}_2$ =3.4444 (0.74830)	$\bar{x}_1$ =3.6377 (0.89945) $\bar{x}_2$ =3.4944 (0.78712)	8.722**	0.000**
Levels of control against deviant behaviour	$n_1 = 46$ $n_2 = 60$	$\bar{x}_1$ =4.1522 (0.71563) $\bar{x}_2$ =4.0222 (0.77110)	$\bar{x}_1$ =4.2681 (0.73575) $\bar{x}_2$ =4.2000 (0.85964)	2.155	0.119
Models for conventional behaviour	$n_1 = 46$ $n_2 = 60$	$\bar{x}_1$ =3.8877 (0.70102) $\bar{x}_2$ =3.9444 (0.64416)	$\bar{x}_1$ =4.1884 (0.63887) $\bar{x}_2$ =4.0167 (0.76512)	5.055**	0.008**
Positive attitude towards the future	$n_1 = 46$ $n_2 = 60$	$\bar{x}_1$ =3.4275 (0.68010) $\bar{x}_2$ =3.7667 (0.70591)	$\bar{x}_1$ =3.6558 (0.76207) $\bar{x}_2$ =3.7833 (0.68842)	8.556**	0.000**
Value attached to achievement	$n_1 = 46$ $n_2 = 60$	$\bar{x}_1$ =4.0362 (0.65255) $\bar{x}_2$ =4.3000 (0.66582)	$\bar{x}_1$ =4.2971 (0.70001) $\bar{x}_2$ =4.3528 (0.73267)	3.170*	0.045*
Ability to work with others	$n_1 = 46$ $n_2 = 60$	$\bar{x}_1$ =3.9783 (0.75491) $\bar{x}_2$ =3.6500 (0.75020)	$\bar{x}_1$ =4.0870 (0.70074) $\bar{x}_2$ =3.6611 (0.85589)	8.362**	0.000**
Ability to work out conflicts	$n_1 = 46$ $n_2 = 60$	$\bar{x}_1$ =3.0725 (0.79478) $\bar{x}_2$ =3.1222 (0.87649)	$\bar{x}_1$ =3.2899 (0.96253) $\bar{x}_2$ =3.0778 (0.93351)	6.729**	0.002**
Enjoyment of/perceived competence in activity	$n_1 = 46$ $n_2 = 60$	$\bar{x}_1$ =3.0435 (0.87095) $\bar{x}_2$ =3.0111 (0.69425)	$\bar{x}_1$ =3.2464 (0.76153) $\bar{x}_2$ =3.0278 (0.67311)	10.162**	0.000**

* $p<0.05$ ** $p<0.01$

DISCUSSION

Adolescents are increasingly being exposed to environmental stressors that place them at risk. It has been established that many of these risks have diverse detrimental effects that may continue well into adulthood. As a result, institutional structures such as schools, youth care centres, churches and various non-profit youth-serving organisations are being called upon to provide programmes and services that could assist in ameliorating possible problems associated with at-risk children (Witt, 2002). Witt (2002) also points out that many recreation programmes for at-risk adolescents are loosely constructed efforts to occupy children's time, without a concrete plan for developing skills or helping to foster or change attitudes in order to reduce risk behaviour.

Due to increasing pressure to serve at-risk youths, schools and educational youth care centres are faced with the major challenge of providing interventions appropriate to their needs (Brendtro *et al*., 1998). According to Laurence and Stuart (1990), statistical indicators suggest that traditional intervention methods are not very effective. Rak and Patterson (1996) remark that, as the understanding of risk, protective factors and resilience versus vulnerability becomes clearer, it is incumbent on the responsible authorities to incorporate assessment and intervention strategies that will help at-risk adolescents to become more resilient. Providers of recreation programmes are thus increasingly under pressure to provide evidence that their programmes are making a difference in the lives of at-risk adolescents (Witt, 2002).

In examining the effect of an adventure-based recreation programme (ropes course) on the development of resiliency in at-risk adolescent boys confined to a rehabilitation centre, the post-test scores of interested and caring adults and high levels of control against deviant behaviour did not increase significantly. Interested and caring adults refers to the network of family members or other adults to whom adolescents can turn for counselling and support (Jessor, 1993). The lack of a significant increase in the post-test scores of interested and caring adults differs from the results of Green *et al.* (2000). They found that participation in an adventure-based recreation programme resulted in the most significant change occurring within this protective factor. This difference could be attributed to the use of trained facilitators in their study who spend more time interacting and generally working with individual or small groups in their programme. In this study, facilitators were not used and group sizes varied between 15 and 20 participants per group. In addition, the author was the instructor, and was unfamiliar to the participants.

High levels of control against deviant behaviour refer to regular attendance of programmes that adolescents recognise, and that set standards for staying out of trouble (Green *et al.*, 2000). Introducing adolescents to clubs or structured recreation programmes provides them with the opportunity to develop a sense of belonging and integration into prosocial situations (Mundy, 1996) that serve as a buffer against deviant behaviour. The duration of this once-off intervention was approximately four hours, as opposed to the regular attendance of programmes. This may contribute to the absence of significant differences in the post-test scores of this protective factor.

Value attached to achievement relates to the adolescent's interest in understanding the importance of doing well in any area of involvement (Witt *et al.*, 1996). The post-test scores of this protective factor differ significantly ($p<0.05$). This is not surprising, in view of the fact

that participants must respond to seemingly insurmountable challenges. By succeeding, they are able to turn perceived limitations into abilities (Priest, 1990). In doing so, they experience success and the value of achievement is enhanced. This may also explain why the post-test scores of the protective factor enjoyment of and/or perceived competency in activity increased highly significantly ($p<0.01$). It can be assumed that participants experienced "states" of flow. Csikszentmihalyi and Csikszentmihalyi (1990) describe flow as a state of experience that is engrossing and intrinsically rewarding, and lies outside the parameters of worry and boredom. Studies of flow suggest that people participate in adventure-based activities because of the intrinsic feelings of enjoyment, well-being and personal competency they experience (Priest & Gass, 1997).

Positive attitude towards the future relates to the adolescent's willingness to set goals and work towards achieving those goals (Gass, 1993; Witt *et al.*, 1996). Gass (1993) also suggests that positive attitudes are indicated by the ability of youths to be creative when dealing with unexpected problems. The highly significant ($p<0.01$) increase in post-test scores is not surprising, since the ability to "set and achieve goals", as well as "creative problem-solving skills", are skills and insights gained from participation in ropes courses (Weider, 1990: 37).

Neighbourhood resources refer to a safe environment (facilities or programmes) within the community where adolescents can spend a significant part of their time (Jessor, 1993). Safe environments are crucial to the overall well-being of adolescents who lack caring, supportive homes (Mundy, 1996). It is thus not surprising that the introduction to a structured ropes course programme on the premises of the centre resulted in a highly significant ($p<0.01$) increase in post-test scores.

Sense of acceptance refers to the extent to which adolescents perceive themselves to be popular among peers, and are happy with the way they are leading their lives (for instance self-concept) (Rak & Patterson, 1996). The highly significant ($p<0.01$) increase in the post-test scores for this protective factor adds credibility to studies where self-esteem was "shown to increase significantly after participation in activities that encourage clients to challenge themselves and achieve physically as they have not done in the past" (Gillis & Simpson, 1993: 344). Weider (1990: 37) also identifies "a more positive self-image and enhanced self-esteem" as benefits that can be derived from ropes courses. Models for conventional behaviour refer to an adult outside the adolescent's existing family (for instance a teacher or school counsellor) who acts as a role model to reinforce appropriate behaviour (Green *et al*., 2000). The highly significant ($p<0.01$) increase in the post-test scores is surprising, since the programme was conducted by the author and lasted for approximately four hours.

Adolescents who learn to work with others and to participate in challenges experience heightened self-esteem, enhanced moral development and an increased ability to maintain complex social relations (Mundy, 1996). This relates to the protective factor ability to work with others, and explains why the post-test scores increased highly significantly ($p<0.01$). In relation to the ability to work with others, ability to work out or resolve conflicts refers to adolescents' need to resolve their problems in non-violent ways (Witt *et al*., 1996). This learning process requires at-risk adolescents to examine their feelings of anger and aggression and to channel these feelings into more positive avenues of expression. The ropes course provided this learning opportunity, and the post-test scores in this protective factor increased highly significantly ($p<0.01$).

The findings of this study demonstrate the potential power of adventure-based recreation programmes with regard to developing resiliency in at-risk adolescent boys. The application range of such programmes is enormous, in view of the fact that virtually all adolescents could be considered at-risk in one way or another (Weston & Tinsley, 1999) or at one time or another (Cross, 2002). In order to succeed, however, structured adventure programme activities should be adapted in order to maximise transference of meaning to the social environment (Ewert, 1990). The desired outcomes must first be determined (Bruyere, 2002) in order to ensure that interference that enhances the likelihood of resiliency takes place (Rak & Patterson, 1996).

The impact of the research is limited. While positive outcomes are reported for adolescent boys, girls were not part of the project. In addition, longitudinal programmes and resulting research are lacking, thus eroding the potential long-term positive effects of adventure-based recreation programmes. Most of the goals recreation programmes seek to achieve are long-term, yet programmes are often offered on a short-term basis. "Programs that are long-term and provide regular and frequent contacts are more likely to be successful" (Bruyere, 2002: 211). Durgin and McEwen (1993: 330) regard follow-up support programmes as "absolutely essential". Research in this regard is currently being undertaken.

CONCLUSION

Increasing numbers of youth are considered at-risk (Sprouse & Klitzing, 2005). This study indicates that the future of at-risk adolescent boys need not be bleak. Resilient adolescents have the ability to develop or draw upon protective factors, so that they can alleviate or buffer the negative influence of environmental stressors. The main premise of adventure-based recreation programmes is to effect attitudinal and behavioural changes in participants (much needed by at-risk adolescents) by exposing them to a series of challenging tasks. Participation in ropes course programmes has the potential to strengthen protective factors that enhance resiliency. Such adventure-based programmes can be a major contributing factor towards increasing the percentage of at-risk adolescent boys who ultimately succeed in life.

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