



# Adventure based experiential learning and adolescents' self-reported levels of self-regulation and positive mental health

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MA CLINICAL PSYCHOLOGY

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### Summary

The aim of this study was to determine self-reported levels of self-regulation and positive mental health within a group of adolescents before and after participation in an adventure based programme. It also intended to deepen our understanding of the relationship between self-regulation and positive mental health within this group of participants. Researchers have indicated that mental disorders amongst adolescents are significantly prevalent and on the increase across the globe (Keyes, 2006; Patel, Flisher, Hetrick & McGorry, 2007). A body of literature has shown that both adventure programmes (Lane, 1997) and successful self-regulation (Schmeichel & Baumeister, 2004) may positively affect adolescent developmental outcomes and mental health (Lane, 1997; Perkins, Cortina, Smith-Darden & Graham-Bermann, 2011). Despite the crucial role that self-regulation plays in these developmental outcomes, very little literature could be found regarding the significance of self-regulation in such programmes in order to facilitate the positive mental health of adolescents.

This study forms part of the overarching TREA (Training Resilience through Eco-Adventure) project, conceptualized by a team of researchers from the North-West University and representatives from Outward Bound South Africa (OBSA). The TREA project's long-term objective is to contribute to the development of eco-adventure group intervention programmes, and to determine its impact on the facilitation of resilience, and the restoration and promotion of the bio-psycho-social health and well-being of individuals in Southern Africa. The proposed study forms part of the first phase of the TREA project, which aims to determine the impact of existing adventure programmes and interventions.

Ethical permission for the TREA project and for the current sub-study was obtained from the Health Research Ethics Committee (NWU-00109-13-A1) before commencement of

data collection. Individual written consent was sought from all the participants and their parents/legal guardians before the collection of data. The data was collected by means of three self-report questionnaires: (1) Short Self-Regulation Questionnaire (Carey, Neill & Collins, 2004); (2) Mental Health Continuum- Short Form (Keyes, 2006); and (3) General Health Questionnaire-28 (Goldberg & Hiller, 1979). The questionnaires were presented in booklet format during a formal visit to the participating schools about six weeks prior to the intervention, on site directly after the completion of the programme in order to collect posttest data, and approximately six weeks after the intervention to determine the longevity of any changes that may have been observed in the participants' levels of self-regulation and mental health.

The results of this study showed significant increases in the participants' self-reported levels of self-regulation and positive mental health after participating in the OBSA adventure programme. The most significant increases were observed in participants' Social Well-being with the most significant decreases seen in Anxiety and Insomnia, and Social Dysfunction. Furthermore, it was found that the male subgroup reported significantly higher levels of mental health than their female peers after participating in the adventure programme. Finally the results indicated a strong positive correlation between participants' self-regulation and mental health and a strong negative correlation between their self-regulation and symptomatology. This strong association between self-regulation and mental health as well as the possible role that the adventure programme had in this regard, can play an important role in future attempts toward health promotion amongst adolescents.

### **Keywords**

Self-regulation, adolescents, mental health, adventure programmes, South African context.

### Opsomming

Die doelwit van hierdie studie was om self-gerapporteerde vlakke van selfregulering en positiewe geestesgesondheid binne 'n groep adolessente voor en ná deelname aan 'n avontuur-gebaseerde program te bepaal. Dit het ook ten doel gehad om ons verstaan van die verhouding tussen self-regulering en positiewe geestesgesondheid binne die groep deelnemers te versterk. Daar is reeds deur middel van voorafgaande navorsing (soos gedoen deur Keyes, 2006; Patel, Flisher, Hetrick & McGorry, 2007) bevind dat adolessente geestesversteurings ervaar en dat die voorkoms daarvan besig is om wêreldwyd te verhoog. 'n Literatuuroorsig het getoon dat beide avontuurprogramme (Lane, 1997) en suksesvolle selfregulering (Schmeichel & Baumeister, 2004) die adolessent se ontwikkelingsdoelwitte en geestesgesondheid positief kan beïnvloed (Lane, 1997; Perkins, Cortina, Smith-Darden & Graham-Bermann, 2011). Ten spyte van die noodsaaklike rol wat selfregulering in hierdie ontwikkelingsdoelwitte speel, kon betreklik min bestaande navorsing gevind word oor die rol wat selfregulering in hierdie programme speel om positiewe geestesgesondheid by adolessente te fasiliteer.

Hierdie studie vorm deel van die oorkoepelende TREA-projek (Training Resilience through Eco-Adventure) wat deur 'n span navorsers van die Noordwes-Universiteit en verteenwoordigers van Outward Bound South Africa (OBSA) gekonseptualiseer is. Die TREA-projek se doel is om oor die langtermyn 'n bydrae te lewer tot die ontwikkeling van eko-avontuur groepsintervensieprogramme, en om die impak daarvan op die fasilitering van veerkragtigheid te bepaal, asook die herstel en bevordering van die bio-psigo-sosiale gesondheid en welstand van individue in Suid-Afrika. Die voorgestelde studie vorm deel van die eerste fase van die TREA-projek, wat ten doel het om die impak van bestaande avontuurprogramme en intervensies te bepaal.

Etiese goedkeuring vir die TREA-projek en die huidige substudie was verkry vanaf die Health Research Ethics Committee (NWU-00109-13-A1) voordat daar met die data-versamelingsfase begin is. Verder is individuele geskrewe toestemming ook verkry vanaf alle deelnemers, asook hul ouers/wettige voogde alvorens data versamel is. Die data was deur middel van drie self-gerapporteerde vraelyste ingesamel: (1) Short Self-Regulation Questionnaire (Carey, Neill & Collins, 2004); (2) Mental Health Continuum- Short Form (Keyes, 2006); and (3) General Health Questionnaire-28 (Goldberg & Hiller, 1979). Die vraelyste is in boekieformaat aan die deelnemers gebied gedurende 'n formele besoek aan die onderskeie skole, ongeveer ses weke voor die intervensie sou plaasvind; direk ná die afhandeling van die program om na-toets data te versamel, en ongeveer ses weke ná die intervensie om die duur van enige veranderings wat waargeneem is in die deelnemers se vlakke van selfregulering en geestesgesondheid te bepaal.

Die resultate van hierdie studie het 'n beduidende toename in die deelnemers se self-gerapporteerde vlakke van selfregulering en positiewe geestesgesondheid ná deelname aan die OBSA-avontuurprogram getoon. Die mees beduidende toename was waargeneem in deelnemers se Sosiale Welstand en die mees beduidende afname is in Angstigheid en Slapeloosheid, asook Sosiale Wanfunksionering waargeneem. Verder is daar ook gevind dat die manlike subgroep aansienlike hoër vlakke van geestesgesondheid aangedui het as hul vroulike eweknieë ná deelname in die avontuurprogram. Uiteindelik het die resultate 'n sterk positiewe korrelasie tussen deelnemers se selfregulering en geestesgesondheid, asook 'n sterk negatiewe korrelasie tussen hul selfregulering en simptomatologie getoon. Hierdie sterk assosiasie tussen selfregulering en geestesgesondheid, sowel as die moontlike effektiwiteit van die avontuurprogram kan 'n belangrike rol speel in toekomstige pogings om positiewe geestesgesondheid onder adolessente te bevorder.



**Sleutelwoorde**

Selfregulering, adolessente, geestesgesondheid, avontuurprogramme, Suid-Afrikaanse konteks.

## **Preface**

### **Article Format**

This mini-dissertation will follow the article format as described by General Regulation A 4.4.2.3 of the North-West University in partial fulfilment of the requirements for a professional Master's degree.

### **Intended Journal**

The Journal of Psychology in Africa is the intended journal for publication. The research manuscript and reference lists have been written in accordance to the specifications of the American Psychological Association (APA), 6<sup>th</sup> edition publication guidelines for the purpose of examination. Appropriate amendments which differ from the APA publication guidelines will be made before submission for publication.

### **Page numbers**

For examination purposes the pages will be numbered from the title page and numbering will follow accordingly.

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***Manuscript Format.*** All pages must be numbered consecutively, including those containing the references, tables and figures. The typescript of a manuscript should be arranged as follows: Title: this should be brief, sufficiently informative for retrieval by automatic searching techniques and should contain important keywords (preferably <13). Author(s) and Address(es) of author(s): The corresponding author must be indicated. The author's respective addresses where the work was done must be indicated. An e-mail address, telephone number and fax number for the corresponding author must be provided. Abstract: Articles and abstracts must be in English. Submission of abstracts translated to French,

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*Journal article*

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*Book*

Gore, A. (2006). *An inconvenient truth: The planetary emergency of global warming and what we can do about it*. Emmaus, PA: Rodale.

*Edited book*

Galley, K. E. (Ed.). (2004). *Global climate change and wildlife in North America*. Bethesda, MD: Wildlife Society.

*Chapter in a book*

Cook, D. A., & Wiley, C. Y. (2000). Psychotherapy with members of the African American churches and spiritual traditions. In P. S. Richards & A. E. Bergin (Ed.), *Handbook of psychotherapy and religiosity diversity* (pp 369–396). Washington, DC: American Psychological Association.

*Magazine article*

Begley, S., & Murr, A. (2007, July 2). Which of these is not causing global warming? A. Sport utility vehicles; B. Rice fields; C. Increased solar output. *Newsweek*, 150 (2), 48–50.

*Newspaper article (unsigned)*

College officials agree to cut greenhouse gases. (2007, June 13). *Albany Times Union*, p. A4.

*Newspaper article (signed)*

Landler, M. (2007, June 2). Bush's Greenhouse Gas Plan Throws Europe Off Guard. *New York Times*, p. A7.

*Unpublished thesis*

Appoh, L. (1995). The effects of parental attitudes, beliefs and values on the nutritional status of their children in two communities in Ghana (Unpublished master's thesis). University of Trondheim, Norway.

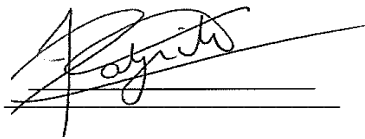
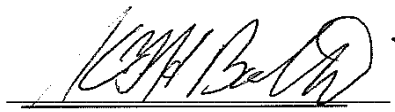
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**Letter of Consent**

We, the supervisors of this study, hereby give consent that Chinique Barnard may submit the manuscript for examination purposes in fulfilment of the requirements for the degree Magister Artium in Clinical Psychology. The article may also be submitted to the Journal of Psychology in Africa for publication.

**Prof. J.C. Potgieter****Supervisor****Prof K.F.H. Botha****Co-supervisor**

## Literature Review

### Introduction

Research indicates that mental disorders amongst adolescents are significantly prevalent and on the increase across the globe (Keyes, 2006; Patel, Flisher, Hetrick, & McGorry, 2007). Several studies have explored the reasons and possible risk factors accounting for this. In a study conducted by Patel et al. (2007) multiple risk factors were found to contribute to a decline in adolescent mental health, including biological (HIV, substance abuse, genetic vulnerability, malnutrition), psychological (maladaptive personality traits, difficult temperament, abuse), and social (inconsistent caregiving, academic failure, bullying, poor financial circumstances, exposure to violence) factors. In a South African study conducted by Cluver and Orkin (2009) poverty, stigma, and bullying were found to have strong detrimental effects on child and adolescent mental health.

According to Barnes (2014) low levels of self-regulation is at the root of most forms of disordered mental health. Gendolla, Tops and Koole (2014) are of the opinion that adequate self-regulation exerts positive effects on mental health. Self-regulation can therefore be viewed as a critical factor in the maintenance of optimal mental health. It has also been identified as an important element of successful progression during the crucial developmental stage of adolescence (Perkins, Cortina, Smith-Darden & Graham-Bermann, 2011).

One intervention that has shown promise with regard to the promotion of adolescent mental health is that of adventure programmes (Burls, 2007; Epstein, 2004; Ritchie, Wabano, Russell, Enosse, & Young, 2013). Originally developed in the 1800's, this form of intervention draws on the natural environment as a means of enhancing mental health and personal growth through a series of outdoor challenges (Anthonissen, 2011; Gass, Gills & Russel, 2012). This study aimed to explore the role of adventure based experiential learning



programmes in the self-regulation and positive mental health of a group of South African adolescents. Each of the terms central to these aims will henceforth receive explicit attention.

### **Adolescence**

Adolescence can be defined as the transitional stage between childhood and adulthood which occurs between the ages of 10 and 19 years (Ayers et al., 2007; World Health Organization, 2015). Over the past decade, there has been a significant increase in the attention paid to adolescence due to the many changes that occur during this period. These changes include pubertal development, cognitive improvement, social role redefinition, school transition, and the rise of sexuality (Eccles et al., 1993). Adolescence has consequently been studied from a variety of theoretical perspectives including biological, psychological, ecological, behavioural, cognitive, and anthropological, all of which identify adolescence as a distinctive period in an individual's life that has characteristic features (Choudhary, 2014). From a psycho-social perspective, Sawyer et al. (2012) view adolescence as a period of growth in physical, cognitive, and social/emotional dimensions, including the emergence of puberty, growth in capacity for abstract thoughts, self-esteem, and identity formation. From a biological perspective, recent neuroscientific studies have proven that the brain experiences a continual cycle of growth during which billions of neural networks – that affect emotional, physical and mental abilities – are drastically being reorganized (The United Nations Children's Fund, 2002). Steinberg (2014) infers that this plasticity in the brain makes adolescence a period of incredible opportunity, but also a period of great risk, as the brain is particularly sensitive to its environment during this time. This implies that when adolescents are exposed to supportive environments that facilitate positive development, they will flourish, but when the environment is toxic, they will suffer in many ways (Steinberg,

2014). It is therefore clear that adolescence should ideally represent a period of fundamental growth and development.

Papalia, Olds and Feldman (2009) view the main developmental task during adolescence as the formation of identity, involving the resolution of three key issues: choosing an occupation, adopting values to live by, and developing an adequate sexual identity (as cited in Erikson, 1973). According to Busch and Hofer (2012) identity formation will be easier resolved when an adolescent's self-regulatory abilities are high. Self-regulation therefore plays a critical role in adolescents' development (Farley & Kim-Spoon, 2014; Geldhof, Bowers, Gestsdottir, Napolitano & Lerner, 2015).

### **Self-Regulation**

Researchers started studying the role of self-regulation in human development as early as the 1960's and 1970's (Zimmerman & Schunk, 2011). Self-regulation refers broadly to self-generated thoughts, feelings, and actions that are intentionally modified to optimize the achievement of personal goals (Zimmerman, 2000). According to Vohs et al. (2008) self-regulation form parts of the self's executive functioning, involving the capacity to exercise control over the self in order to attain personal goals. This capacity consists of cognitive, behavioural, and emotional regulatory processes (Berking & Wupperman, 2012; Carlo, Crockett, Wolff & Beal, 2012). *Cognitive regulatory processes* involve skills relating to attention shifting, focusing, and planning and monitoring one's own problem solving procedures (Carlo et al., 2012; Zimmerman & Schunk, 2011). *Behavioural regulatory processes* involve the inhibition of unwanted behavioural responses, and activation of positive and desired behavioural responses (Vohs & Baumeister, 2011). In line with this, Fiske and Taylor (2013) assert that individuals have two motivational systems which help them to regulate behaviour. These systems are referred to as the behavioural activation

system (BAS), based on motivation to achieve a desired goal, and the behavioural inhibition system (BIS), which functions as a means to avoid an undesirable goal (Morgan, Sternberg & Zimbardo, 2009). Finally, *emotional regulatory processes* refer to goal-directed processes which aim to influence the intensity, duration and type of emotion experienced (Gross & Thompson, 2007). Self-regulation is therefore a critical element in all facets of human functioning, and according to Schmeidel and Baumeister (2004) it enables individuals to cope more effectively in their social and physical environments.

Various instruments have been developed to measure self-regulation. For the current study the Short Self-Regulation Questionnaire (SSRQ) was used. This measure was developed by Neal and Carey (2005) and is based on their conceptualization of self-regulation as the capacity to develop, implement, and maintain planned behaviour in order to attain one's objectives.

In a study conducted by Tagney, Baumeister and Boone (2004), they found that adolescents with higher self-regulatory capacities are likely to experience more positive outcomes including better adjustment, higher academic performance, fewer instances of psychopathology, as well as enhanced relationships and interpersonal skills. Consequently, successful self-regulation plays an important role in healthy development during adolescence as well as maintaining optimal mental health (Perkins et al., 2011).

### **Positive Mental Health**

The topic of positive mental health has drawn increased research attention since the emergence of the positive psychology movement more than a decade ago. Positive psychology involves the scientific study of strengths and virtues that enable individuals to lead a meaningful and fulfilling life, and subsequently allowing them to thrive in all areas of functioning (Efklides & Moraitou, 2013; Seligman & Csikszentmihalyi, 2000). Positive

mental health can be defined in terms of several qualities such as coping with daily routines and unexpected events and stressors, enjoying everyday life, self-knowledge, managing emotions, and exercising control over the self (Barry, 2007). The latter reinforces the important role that self-regulation plays in maintaining positive mental health. Keyes's (2002) definition of positive mental health will be used to conceptualize and measure mental health in the present study. According to Keyes (2002) positive mental health consist of a combination of emotional, psychological, and social well-being. Keyes (2013) viewed mental health on a continuum ranging from pathology to optimal functioning. In his Complete Mental Health (CMH) model, Keyes differentiates between three categories of mental health:

(1) *Languishing.*

Languishing refers to low levels of social, emotional, and psychological well-being. Languishing may thus be regarded as emptiness and stagnation, living a life which can be described as a person experiencing quiet despair, hollowness, and emptiness (Keyes, 2002). Although it is not thought of as mental disorder, it can still negatively impact an individual's life (Hefferon, 2013).

(2) *Moderate mental health.*

Moderate mental health is a concept used to describe individuals who are neither languishing nor flourishing in life.

(3) *Flourishing.*

Flourishing originated from the Latin word 'flor' which represents a state of growth and development (Hefferon, 2013). In contrast to languishing, flourishing refers to high levels of social, emotional and psychological well-being. According to Keyes (as cited in Wissing, 2013) flourishing individuals report high levels of perceived control in life, the ability to identify future goals, resilience, self-determination, positive relations, and high levels of intimacy.

In a study conducted in South Australia, Venning, Wilson, Kettler and Elliott (2012) found that less than 50% of adolescents were flourishing in life. In a similar study conducted by Keyes (2006) in the United States, he found that only 38.3% of the adolescent participants experienced optimal mental health or flourishing. Obtaining and maintaining optimal mental health seems to be challenging in the South African context where the occurrence of crime, poverty, neglect, and abuse are extremely prevalent. According to Wissing (2013), these factors have resulted in an increase in emotional and behavioural problems amongst adolescents in South Africa. Van Schalkwyk and Wissing (2010) conducted a study in South Africa regarding adolescent mental health, and found that only 40% of adolescents could be considered to be flourishing, therefore highlighting the increasing need for adolescent well-being strategies aimed at strength building (Wissing, 2013). One such strategy aimed at strength building and which has gained great attention because of its potential in the enhancement of positive mental health is that of adventure programmes (Ritchie et al, 2013).

### **Adventure Based Programmes**

Adventure based programming first began in the 1800's in the United States with camps for young children and adolescents, initially aimed at the physical and mental growth of youngsters, under the direction of healthy adult role models (Gass et al., 2012). During the 1800's until the early 1900's, summer camps thrived around the world, and in the 1920's the first therapeutic camps that were specifically designed for psychologically challenged youth started to emerge (Gass et al., 2012). Outward Bound International is arguably the leading service provider in the adventure programming industry, offering a diversity of challenging programmes to foster positive change and personal growth (Fletcher & Hinkle, 2002; Ritchie et al., 2013, p. 3). Adventure programmes are seen as challenging due to the perceived risk they pose, which potentially evokes anxiety, uncertainty, and tension (Lee & Ewert, 2013).

Recent research suggests that learning and change occurs when people are in a state of dynamic tension (Berman & Davis-Berman, 2005; Fletcher & Hinkle, 2002). The challenging nature of adventure activities therefore represents an important underlying aspect of outdoor adventure programmes fostering growth and change. Nadler et al. (as cited in Durr, 2009) propose that adventure activities facilitate these processes of change by taking individuals out of their comfort zones to experience a sense of anxiety, and propelling them to develop new coping mechanisms to return to a state of equilibrium. Busch and Hofer (2012) have recently indicated that, in order to successfully return to a state of equilibrium after experiencing anxiety, high levels of self-regulation are crucial to maintain focused attention to make the necessary behavioural and emotional changes. Despite this the role that self-regulation plays in adventure based programmes has not yet received explicit research attention.

### **Relevance of the Study**

Researchers have found that adventure programmes, and especially Outward Bound programmes, may positively affect adolescent developmental outcomes (Lane, 1997). Despite the crucial role that self-regulation plays in these developmental outcomes (Schmeichel & Baumeister, 2004), there is a lack of research focusing on the role that self-regulation plays in the outcomes of adventure based programming. In addition, evidence regarding the efficacy of these programmes in adolescent mental health is limited, especially in the South African context. Therefore, this study aims to determine the possible changes in adolescents' self-reported levels of self-regulation and positive mental health after participation in an OBSA adventure programme. It also intends to deepen our understanding of the relationship between self-regulation and positive mental health within a group of adolescents participating in an OBSA adventure programme.

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**Manuscript for Examination**

**Manuscript Title, Authors and Addresses**

Adventure based experiential learning and adolescents' self-reported levels of self-regulation and positive mental health.

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### **Abstract**

The aim of this study was to determine the possible changes in adolescents' self-reported levels of self-regulation and mental health after participation in an adventure based programme. It also intended to deepen our understanding of the relationship between self-regulation and positive mental health within a group of adolescents participating in an adventure based programme. Forming part of the overarching TREA (Training Resilience through Eco-Adventure) project, this study used a one group pretest- multiple posttest design, and included grade 10 learners from a private boys' school in Gauteng (n=39) and a semi-private girls' school in the Eastern Cape (n=66). The General Health Questionnaire-28 (GHQ-28), the Mental Health Continuum- Short Form (MHC-SF) and the Short Self-Regulation Questionnaire (SSRQ) were completed by all participants. Results revealed that the male group reported higher scores in overall mental health than the females. The results of the SSRQ revealed a difference of small practical significance from pre- to post-testing, however, moderate changes were observed in participants' levels of Social Well-being, Anxiety, Insomnia, and Social Dysfunction. A strong positive correlation was found between self-regulation and mental health, as well as a strong negative correlation between self-regulation and symptomatology. These results provide information that can potentially be used in the prevention of mental illness in individuals and groups, and/or the enhancement of their overall well-being.

### **Keywords**

Self-regulation, adolescents, mental health, adventure programmes, South African context.

## Introduction

Adolescence can be defined as a critical developmental fulcrum which separates childhood from adulthood (Watts, Cockcroft, & Duncan, 2009), typically falling between the ages of 10 and 19 years (World Health Organization, 2015). Papalia, Olds and Feldman (2009) view this developmental period as one of growth in physical and cognitive dimensions, social competence, autonomy, self-esteem, and intimacy, and see the formation of identity as the main developmental task during this period. According to Busch and Hofer (2012), these developmental challenges faced by adolescents are more likely to be successfully resolved when an adolescent's self-regulatory capacities are high. Self-regulation can therefore be seen as an important predictor of crucial developmental outcomes during adolescence (Farley & Kim-Spoon, 2014).

According to Fujita (2011) self-regulation is an extremely important executive function, which involves processes individuals use to manage their behaviour, thoughts, and emotions. Schmeichel and Baumeister (2004) inferred that self-regulation enables individuals to adapt more easily to their social and physical environment. For the purpose of this study, self-regulation will be defined as the capacity to exert control over the self by the self (Muvaren & Baumeister, as cited in Farley & Kim-Spoon, 2014). This capacity includes cognitive (attention shifting and focusing), behavioural (inhibitory control, activation), and emotional (monitoring, evaluating, and modifying emotional reactions) regulatory processes (Berking & Wupperman, 2012; Carlo, Crockett, Wolff & Beal, 2012).

In a study conducted by Tagney, Baumeister and Boone (2004), higher scores on self-regulation amongst adolescents was found to correlate with a range of positive outcomes, including better adjustment, higher academic performance, fewer reports of psychopathology, better relationships and interpersonal skills, higher self-esteem, and optimal emotional responses. Consequently, self-regulation can be viewed as a critical factor, not only for the

successful progression of the developmental process, but also for the maintenance of optimal mental health during the critical developmental period of adolescence (Perkins, Cortina, Smith-Darden & Graham-Bermann, 2011).

With the emergence of positive psychology, which sparked renewed research interest in the topic of optimal mental health, a number of conceptualizations thereof have been developed. Barry (2007) defines positive mental health in terms of various attributes including efficient perception of reality, self-knowledge and self-acceptance, the ability to form relationships, and the exercise of voluntary control over own behaviour. The latter indicates the important role self-regulation plays in obtaining positive mental health. Keyes's (2002) conceptualization of positive mental health, which has recently gained prominence in psychological research, states that positive mental health requires a combination of emotional, psychological, and social well-being. According to Keyes (2013), mental health can be viewed on a continuum ranging from pathology to optimal functioning. In his Complete Mental Health (CMH) model, Keyes distinguishes between three categories of mental health: (1) languishing (low levels of social, emotional and psychological well-being), (2) moderate mental health, and (3) flourishing (high levels of social, emotional and psychological well-being). In a study conducted in America, Keyes (2006) found that flourishing youth function better than moderately mentally healthy youth, who in turn function better than languishing youth, and that only 38.3% of the adolescent participants included in his research could be classified as experiencing optimal mental health (Keyes, 2006).

In the South African context, the maintenance of optimal mental health amongst adolescents can be particularly challenging. Changes in the social environment over the last three decades have led to increased emotional and behavioural problems, specifically amongst adolescents (Wissing, 2013). In a South African study conducted by Cluver and

Orkin (2009), they found that poverty, stigma, and bullying have strong detrimental effects on child and adolescent mental health. Kleintjies et al. (2006) found that the overall prevalence of mental disorders among children and adolescents in the Western Cape was 17.0%. Hall and Torres (as cited in Wissing, 2013) therefore highlight the growing need for research focused on adolescent well-being.

One intervention that has shown promise with regard to the promotion of adolescent mental health is that of adventure programmes (Burls, 2007; Epstein, 2004; Ritchie, Wabano, Russell, Enosse, & Young, 2013). Adventure based programming first began in the United States with camps for young children and adolescents, and has since developed into a multi-billion dollar international industry, with Outward Bound International arguably the most recognizable service provider (Fletcher & Hinkle, 2002). The diversity of programmes offered by Outward Bound International (OBI) and its South African affiliate (OBSA) all have the general aim according to Ritchie et al. (2013) of “achieving positive change and personal growth by progressing through a series of challenges in a supportive small group environment where successive problems are addressed, solved, and then reorganized into learning that may transfer to life beyond the outdoor experience” (p. 3).

Adventure programmes commonly involve an element of perceived challenge or risk. Although this potentially evokes feelings of anxiety, uncertainty and tension (Lee & Ewert, 2013), this also creates the potential for growth, as research suggests that learning and change is optimized when people are in a state of dynamic tension (Berman & Davis-Berman, 2005; Fletcher & Hinkle, 2002). This state of tension can be referred to as eustress, which is a positive form of stress usually related to desirable events in a person’s life (Gupta, 2013). According to Sharpe (2011) eustress is a productive type of tension that helps facilitate coping abilities and efforts, while producing feelings of mastery and control.



These descriptions of the rationale for change brought about by adventure based programmes contain a strong link to self-regulation theory. As stated by Busch and Hofer (2012), high levels of self-regulation enable individuals to cope successfully in challenging environments by keeping focused attention, despite distracting stimuli, or making behavioural changes in the face of obstacles. Despite the implicit role that self-regulatory processes play in the outcomes of adventure programmes, and the fact that self-regulation is a key process in healthy psychological functioning (Schmeichel & Baumeister, 2004), there is a lack of research regarding the role that self-regulation plays in the outcomes of adventure based programming. In addition, empirical evidence to determine the effectiveness of these programmes in terms of the promotion of well-being remains scant (Li, Chung, & Ho, 2012) especially within the South African context. No research could be found which aimed to determine the role that self-regulation plays in such programmes to facilitate the positive mental health of adolescents. The proposed study therefore aims at answering the following research question: What changes are observed in the positive mental health and self-regulation of a group of South African adolescents participating in an adventure based programme?

### **Aim of the Research Study**

The general aim of this study was to explore the role of adventure based experiential learning programmes in the self-regulation and positive mental health of a group of South African adolescents. More specifically the study aimed to:

1. Describe self-reported levels of self-regulation and positive mental health of a group of adolescents before and after participation in and OBSA adventure based programme.

2. Explore possible gender differences in terms of self-reported levels of self-regulation and positive mental health in a group of adolescents before and after participating in an OBSA adventure based programme.
3. Determine the relationship between self-regulation and positive mental health within a group of adolescents participating in an OBSA adventure based programme.

## **Method of Investigation**

### **Context of the Current Study**

The current study forms part of the overarching TREA (Training Resilience through Eco-Adventure) project, conceptualized by a team of researchers from the North-West University and representatives from OBSA. The TREA project's long term objective is to contribute to the development of eco-adventure group intervention programmes, and to determine its impact on the facilitation of resilience, and the restoration and promotion of the bio-psycho-social health and well-being of individuals in South Africa. This study forms part of the first phase of the TREA project, which aims to determine the impact of existing adventure programmes and interventions.

### **Research Design**

A one-group pretest- multiple posttest design was used for the study. In this pre-experimental design, learners from two schools (one girls' and one boys' school) who attended an OBSA course were assigned to an experimental group. These participants were observed at three different points, as the design involved observation of participants approximately six weeks prior to attending the OBSA course (pretest), followed by a second

observation conducted in the form of a posttest (Salkind, 2010) immediately after completion of the course. For this study a post-posttest was also included after a time interval of approximately six weeks. The dependent variables (i.e. self-regulation and mental health) were therefore assessed before and after the intervention was introduced.

This pre-experimental design poses one significant shortcoming, as it is often difficult to rule out alternative explanations for changes that may have occurred from pre-test to post-test (Salkind, 2010). However, Cam (2014) states that, in spite of the limitations of the pre-experimental method, the advantage of using this design is that it is a cost-effective way to determine whether a potential research study or explanation is worthy of further investigation (Cam, 2014). The one group pretest-multiple posttest design was therefore deemed appropriate for this first phase of the TREA project.

## **Participants**

For this study the researcher was not able to randomly select participants, as predetermined groups of individuals partaking in an Outward Bound program were used as participants. The researcher therefore made use of convenience sampling, which involves selecting participants on the basis of availability or accessibility (Ellison, Farrant & Barwick, 2009). The participant groups were identified in consultation with the OBSA liaison officer, and recruitment of participants was done by the TREA research team, at two identified schools. These two groups of participants consisted of both male (n=39) and female (n=66) grade 10 learners whose ages ranged from 15-17 years. The participants were from a private boys' school in the Johannesburg area of the Gauteng province, and a semi-private girls' school in the Eastern Cape. In both these schools the vast majority (more than 70%) of participants indicated English to be their home language. With all participants involved in an

English secondary school the remainder of participants were taken to be proficient in the use of English as their second language. The majority (more than 60%) of participants were white, with the other racial groupings (African, Indian, and Coloured) making up the remainder of the participant group.

## **Procedure**

After an appropriate group of participants was identified in collaboration with Outward Bound South Africa (OBSA), the gatekeepers to the participants (including principals and/or grade coordinators at the selected schools, the Independent Schools Association of South Africa, and the Eastern Cape Department of Education) were contacted to gain permission to continue with the study. Participants for this research study included all physically healthy learners from the two schools enrolled for the OBSA course from which parental permission and individual assent could be obtained. This was done during an information session, during which the nature and aim of the research project, as well as the procedure of the study, was explained. A medical background check was done by OBSA before proceeding with the course. All participants were therefore required by OBSA to complete a medical indemnity form before the intervention commenced, to notify the researcher of any injuries, disabilities, and participants' medical history.

The questionnaires involved (GHQ-28; MCH-SF; SSRQ) were presented in a booklet during a formal visit to the respective schools about six weeks prior to the intervention to eliminate the transference effect. Once the course was completed, the questionnaires were again administered on site in order to collect posttest data directly after completion of the programme. The post-post test was conducted at the respective schools approximately six weeks after the intervention to determine the longevity of any changes that may have been observed in the participants' levels of self-regulation and mental health. After completion of

data collection, the process of analyzing the data commenced with the assistance of the NWU Statistical Consultation Services. Once preliminary results were available, feedback about the results of the study and the further aims of the project was given to the participants in group format at a meeting that was set up in collaboration with the gatekeepers on a suitable date.

### **Analysis of Literature**

A literature survey was done where search engines such as SABINET, GOOGLE SCHOLAR, and GOOLGE BOOKS, as well as databases such as JSTOR, EBSCO HOST, and SCIENCE DIRECT was used to investigate the following key terms: eco-adventure programmes, self-regulation, positive mental health, well-being, and adolescence.

### **Measuring Instruments**

Quantitative data was collected by means of three self-report questionnaires.

#### **The General Health Questionnaire -28 (GHQ-28) - Goldberg & Hiller, 1979.**

The GHQ is a self-report screening test which was originally designed to detect signs and symptoms of possible psychiatric disorders in general medical patients (Vallejo, Jordan, Diaz, Comeche, Ortega, 2007). However, this psychometric instrument is often used as a measure of mental well-being (Jackson, Rothmann & Van de Vijver, 2006). The 28-item version of the GHQ was used, and provided a total scale score, as well as subscale scores for Somatic Symptoms (SS), Anxiety and Insomnia (AS), Social Dysfunction (SD), and Severe Depression (SD) (Wissing, 2013). Each of the 28 items has four Likert-type response options (1 = agree to 4 = disagree), which indicate higher or lower endorsement of that symptom (Goldberg & Hillier, 1979). The GHQ-28 has been used widely in both health care settings and research, and has a proven reliability and validity (Hunley, 2008). Goldberg and

Hillier (1979) reported internal consistency coefficients of 0.69 - 0.90. According to Wissing and Van Eeden (2002) similar indices have been found in the South African context, attesting to the reliability of the GHQ-28. In a recent study conducted by Wissing (2013) among a group of South African youth, Cronbach's alpha reliability indices of 0.78 (SS), 0.85 (AS), 0.80 (SD), 0.82 (DS), and 0.91 (total scale) were reported. In the current study, the GHQ-28 yielded Cronbach's coefficient alphas of 0.85 (SS), 0.86 (AS), 0.83 (SD), 0.78 (DS), and 0.83 (total scale) attesting to the scale's reliability and the interpretability of the results. The GHQ-28 provided the researcher with information regarding the participants' general health prior and subsequent to attending the course.

#### **The Mental Health Continuum- Short Form (MHC- SF) - Keyes, 2006**

The MHC-SF is a short (14-item) self-administered screening test which generally takes less than 10 minutes to complete. Participants are asked to indicate the frequency with which they experience certain well-being indicators using a six point Likert-type response format, ranging from never (0) to every day (6) (Lehmann & Simmons, 2013; Wissing, 2013). The scale measures the three components of well-being (i.e. emotional well-being, social well-being, and psychological well-being) according to Keyes's Mental Health Continuum (Keyes, 2013). By combining the subscale scores, a respondent can be categorized as either languishing (i.e. experiencing low levels of social, emotional, and psychological well-being), moderately mentally healthy, or flourishing (i.e. experiencing high levels of social, emotional and psychological well-being). A number of researchers have noted evidence of exceptional discriminant validity and reliability of the MHC-SF (Lamers, Westerhof, Bohlmeijer, Ten Klooster & Keyes, 2010). The scale's internal consistency ( $\alpha > .80$ ), and its temporal stability over a period of three months ( $\alpha = .68$ ), and six months ( $\alpha =$

.65) was recently attested to by Lehmann and Simmons (2013). The MHC-SF was also validated in a South African context in a study conducted by Keyes, et al. (2008). They found that the MHC-SF total scale score yielded a relatively high internal consistency ( $\alpha = 0.74$ ) and also yielded good criterion validity. In the current study the MHC-SF yielded Cronbach's coefficient alphas of 0.84 (EWB), 0.75 (SWB), 0.71 (PWB), and 0.81 (total scale). The MHC-SF was used to assess the participants' mental health prior and subsequent to the intervention.

#### **The Short Self-Regulation Questionnaire (SSRQ) - Carey, Neal & Collins, 2004**

The SSRQ is a shortened 31-item scale based on the Self-Regulation Questionnaire (Brown, Miller & Lawendowski, 1999), which was originally designed to measure an individual's use of seven sub-processes of self-regulation (Hustad, Carey, Carey, & Maisto, 2009). The SSRQ contains statements regarding the respondent's self-regulatory strategies, which are scored on a five point Likert scale ranging from strongly disagree (1) to strongly agree (5) (Neal & Carey, 2005). A study conducted by Carey, Neal and Collins (2004), provided support for the reliability and validity of the SSRQ in young adults. In a follow up psychometric analysis Carey, Neal and Collins (2005) found that the SSRQ correlated highly with the original 63-item SRQ ( $r = .96$ ) and showed good internal consistency ( $\alpha = .92$ ). Vosloo, Potgieter, Temane, Ellis and Khumalo (2013) investigated the psychometric properties of the SSRQ in a South African context. They found that the majority of items yielded item-total correlations that fell within the sought-after range of between 0.15 and 0.55, reflecting positively on the degree of homogeneity of the SSRQ. A Cronbach's coefficient alpha of .86 was yielded for the SSRQ total scale score, lending further support to its reliability (Vosloo et al., 2013). The current study revealed a Cronbach's coefficient alpha

of 0.87. The SSRQ was therefore used to determine the levels of self-regulation reported by participants prior to, and following, participation in an eco-adventure programme.

### **Data Analysis**

A quantitative research approach was adjudged to be the most appropriate method to address the research questions, as it seeks to test hypotheses, to objectively measure the social world and to explore human behaviour (Myburgh, Poggenpoel & Van der Linde, 2006). Muijs (2011) describes the goal of quantitative research as explaining specific phenomena through the collection of numerical data that are analyzed using statistical methods.

The researcher investigated the psychometric properties of the above mentioned questionnaires before any further analysis was done. In order to ensure the reliability of the measurements, Cronbach's coefficient alpha was used to determine the internal consistency of the scales by verifying whether the items' responses are consistent across constructs, and test re-test correlations were used to determine whether scores are stable over time when the instruments are administered a second time (Creswell, 2013).

Descriptive statistics was used to give an indication of participants' self-regulation and well-being prior to, as well as after their participation in an eco-adventure programme conducted by OBSA. According to Taylor (2005) descriptive statistics is used to quantitatively describe how a particular characteristic is distributed amongst a group of people. Both the practical (effect sizes) and statistical significance of changes observed in participants' responses before and after the OBSA course were subsequently determined.

The relationship between these variables, and specifically the association between self-regulation and any changes that may have been observed in participants' levels of well-being, was then determined through correlational analysis.



### **Ethical Considerations**

The current study forms part of the overarching TREA-project, for which ethical clearance was obtained from the Health Research Ethics Committee (NWU-00109-13-A1). The researcher also obtained ethical approval for the proposed sub-study from the North-West University's Health Research Ethics Committee before commencement of data collection. ISASA (the Independent Schools Association of South Africa) as well as the Eastern Cape Department of Education was also contacted for their consent to proceed with the study before contact was made with any prospective participants.

The dignity, well-being and safety of all participants were the primary concerns throughout this research study. The identities of participants involved were protected through anonymous data collection. All data that were collected was treated as confidential and is kept in a locked cabinet in the principal investigator's office. Adolescent consent was sought from all the participants together with parental permission before the collection of data. The administration of psychometric tests or discussion of psychological issues in group format could possibly provoke an emotional experience or response for participants, often as a consequence of gaining unexpected knowledge about the self. A registered clinical psychologist was therefore be present during all phases of data collection in order to provide support and counseling in the case of any discomfort. Participants' right to decline participation or to withdraw from the project at any time was respected, without reproach, irrespective of their prior consenting to participate in the project. The latter was communicated clearly to them at the information session, and again on commencement of data collection.

The aim of this study was to provide information that can potentially be used in the prevention of mental illness in individuals and groups, and/or the enhancement of their overall well-being. In line with the principles of beneficence, respect and justice, the

interventions in combination with feedback regarding its effects will in all probability contribute to the well-being of individuals and groups who participate.

## Results

### Reliability

The psychometric properties of each questionnaire were considered before commencing with further analyses. The Cronbach coefficient alpha (CA) is commonly used to quantify the internal consistency and reliability of items within a test (Heo, Kim & Faith, 2015). A Cronbach's coefficient alpha of 0.70 usually attests to the internal consistency of a measure being satisfactory (Bradley, 2013). The CA scores of each of the instruments used in this study (Table 1), as well as their respective subscales, therefore lead us to believe that the data is interpretable.

### Descriptive Statistics

Descriptive statistics were used to summarize the data in a meaningful way. Table 1 includes means (M) and standard deviations (SD) for the different scales as obtained by the total group at different points of measurement. Table 2 indicates the statistical and practical significance of the changes in participants' self-reported levels of self-regulation and mental health. Due to mainly the relatively small sample size more emphasis was placed on the practical significance (calculated as Cohen's  $d$ -value) of differences observed. Effect sizes should be deemed strong and of practical significance when Cohen's  $d = 0.80$ ; medium when  $d = 0.50$  and small when  $d = 0.20$  (Rubin, 2013).

Discrepancy in terms of the number of participants involved in each round of testing is due to the omission of incomplete test protocols and a number of participants withdrawing

from the study. However, all individuals forming part of the post post-testing were involved throughout the study.

Table 1

Descriptive statistics of the results of the SSRQ, MHC-SF, and the GHQ-28 during pre-; post-; and post post-testing

		Point of measurement					
		Pre-testing ( <i>n</i> =104)		Post-testing ( <i>n</i> = 100)		Post Post-testing ( <i>n</i> = 87)	
Scale	$\alpha$	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
SSRQ	.87	3.23	.25	3.29	.23	3.27	.28
MHC-SF total	.81	3.29	.76	3.39	.74	3.61	.81
<i>Emotional well-being</i>	.84	3.74	.91	3.79	.87	4.01	.95
<i>Social well-being</i>	.75	2.43	.99	2.62	.89	2.92	1.11
<i>Psychological well-being</i>	.71	3.77	.79	3.82	.80	3.98	.76
GHQ total	.83	1.80	.48	1.80	.52	1.66	.46
<i>Somatic Symptoms</i>	.78	1.80	.61	1.93	.72	1.72	.60
<i>Anxiety and Insomnia</i>	.85	1.96	.69	2.06	.78	1.78	.72
<i>Social Dysfunction</i>	.86	2.05	.45	1.88	.49	1.88	.49
<i>Severe Depression</i>	.83	1.40	.60	1.32	.52	1.26	.50

*Note.* *n*= number of participants,  $\alpha$ = Cronbach's coefficient alpha, *M*= Mean, *SD* = Standard Deviation, SSRQ = Short Self-Regulation Questionnaire; MHC-SF = Mental Health Continuum Short Form; GHQ = General Health Questionnaire.

## Changes in Adolescents' Self-Reported Levels of Self-Regulation and Positive Mental Health

Table 2 contains the results of a one-way ANOVA used to determine the changes in adolescents' self-reported levels of self-regulation and positive mental health after participation in an eco-adventure programme. Effect sizes (*d*-value) were used to indicate practical significance.

Table 2

One-way ANOVA for effect sizes between different points of measurement for the SSRQ, MHC-SF and the GHQ-28

Scale	<i>P</i>	Point of measurement		
		Pre- to post testing <i>d</i>	Pre to post post-testing <i>d</i>	Post to post post-testing <i>d</i>
SSRQ	.66	.26 <sup>Δ</sup>	.16	.07
MHC-SF total	.02*	.13	.39 <sup>Δ</sup>	.27 <sup>Δ</sup>
<i>Emotional well-being</i>	.10	.05	.29 <sup>Δ</sup>	.24 <sup>Δ</sup>
<i>Social well-being</i>	.00**	.19	.44 <sup>Δ</sup>	.27 <sup>Δ</sup>
<i>Psychological well-being</i>	.16	.07	.27 <sup>Δ</sup>	.20 <sup>Δ</sup>
GHQ-28 total	.08	.01	.30 <sup>Δ</sup>	.27 <sup>Δ</sup>
<i>Somatic Symptoms</i>	.07	.18	.14	.30 <sup>Δ</sup>
<i>Anxiety and Insomnia</i>	.03*	.13	.25 <sup>Δ</sup>	.36 <sup>Δ</sup>
<i>Social Dysfunction</i>	.01**	.35 <sup>Δ</sup>	.36 <sup>Δ</sup>	.00
<i>Severe Depression</i>	.18	.14	.24 <sup>Δ</sup>	.11

Note. \* = Statistically significant at the 0.05 level (2-tailed); \*\* = Statistically significant at the 0.01 level (2-tailed); Δ = Small to medium effect; SSRQ = Short Self-Regulation Questionnaire; MHC-SF = Mental Health Continuum Short Form; GHQ = General Health Questionnaire.

According to Table 2 participants showed a slight increase from pre- to post-testing with regard to their self-regulation scores after which self-regulation levels returned to levels only slightly higher than what it was initially. Except for the change of small effect ( $d = .26$ ) in self-regulation levels from pre- to post-testing, none of the other changes were of practical significance.

With regard to participants' mental health a similar trend of increasing mean values was observed for all the MHC-SF sub-constructs, as well as the total scale score. Most of these increases were of small to medium effect with the most significant increase observed for the Social Well-being construct ( $p < .01$ ) approaching a medium effect ( $d = .44$ ). When considering participants' self-reported symptomatology as measured with the GHQ-28 two of the subscales (Somatic Symptoms; Anxiety and Insomnia) showed a slight increase from pre- to post-testing. The mean scores for both the Somatic Symptoms subscale ( $d = .30$ ) and the Anxiety and Insomnia subscale ( $d = .36$ ), however showed decreases of small effect from post- to post post-testing. Participants' self-reported levels of Social Dysfunction decreased significantly ( $p < .01$ ) from pre- to post-testing ( $d = .35$ ) as well as from pre- to post post-testing ( $d = .36$ ). With regard to participants' self-reported symptoms of depression a slight decrease of small effect ( $d = .24$ ) was observed from pre- to post post-testing. Possible explanations for these results will be explored further in the discussion section.

### **Gender Differences**

Table 3 contains the results of the two-way ANOVA which was used to explore the differences between the male and female subgroups and the associated  $d$ -values in order to indicate the practical significance of gender differences.

Table 3

Gender Differences for the SSRQ, MHC-SF, and GHQ-28 during Pre-, Post-, and Post Post-Testing

<i>Scale</i>	<i>Gender</i>	<i>n</i>	<i>M</i>	<i>d</i>
Gender difference during pre-testing				
SSRQ	M	38	3.64	0.01
	F	66	3.65	
MHC-SF	M	38	3.34	0.11
	F	66	3.26	
GHQ	M	38	1.69	0.38 <sup>Δ</sup>
	F	66	1.87	
Gender difference during post-testing				
SSRQ	M	38	3.68	0.01
	F	62	3.69	
MHC-SF	M	38	3.36	0.02
	F	62	3.38	
GHQ	M	38	1.81	0.04
	F	62	1.79	
Gender difference during post post-testing				
SSRQ	M	30	3.76	0.14
	F	57	3.69	
MHC-SF	M	30	3.78	0.35 <sup>Δ</sup>
	F	57	3.51	
GHQ	M	30	1.46	0.55*
	F	57	1.75	

*Note.* Δ = Small effect size; \* = Medium effect size; n = number of participants; M= Mean; d= Effect size; SSRQ = Short Self-Regulation Questionnaire; MHC-SF = Mental Health Continuum Short Form; GHQ = General Health Questionnaire; M = Male; F = Female.

Differences between male and female subgroups with regard to their self-reported levels of self-regulation at all three points of testing were negligible. With regard to their mental health the male subgroup generally reported higher levels of overall positive mental health (MHC-SF; GHQ-28) than their female counterparts. These differences regarding their GHQ-28 results were of small to medium effect and only apparent during pre-testing ( $d=.38$ )

and post post-testing ( $d=.55$ ). Higher levels of mental health (MHC-SF) were also reported by the male subgroup during post post-testing ( $d=.35$ ).

## Correlations

In order to determine the relationship between self-regulation and mental health the Pearson correlation between levels of self-regulation (SSRQ) and mental health (MHC-SF) as well as general health (GHQ-28) was calculated (Table 4). Due to the lack of practically significant differences between the gender groups with regard to self-regulation, these correlations were calculated for the total participant group.

Table 4

Spearman Rho correlations between dependent variables at different points of measurement

Scales	N	MHC-ALL	MHC-E	MHC-S	MHC-P	GHQ-ALL	GHQ-B	GHQ-C	GHQ-D	GHQ-A
Pre-test SSRQ	104	.55**	.42**	.42**	.54**	-.52**	-.38**	-.51**	-.46**	-.38**
Post-test SSRQ	100	.55**	.47**	.36**	.59**	-.49**	-.42**	-.47**	-.47**	-.29**
Post-testing SSRQ	87	0.46**	.39**	.34**	.49**	-.48**	-.32**	-.54**	-.46**	-0.25*

*Note.* \*.Correlation is significant at the 0.05 level (2-tailed); \*\*. Correlation is significant at the 0.01 level (2-tailed); SSRQ = Short Self-Regulation Questionnaire; MHC-ALL = Mental Health Questionnaire total scale; MHC-E = Emotional Well-being subscale; MHC-S = Social Well-being; MHC-P = Psychological Well-being subscale; GHQ = General Health Questionnaire total scale; GHQ-B = Anxiety and Insomnia Subscale; GHQ-C = Social Dysfunction Subscale; GHQ-D = Severe Depression; GHQ- A = Somatic Symptoms Subscale.

As indicated in Table 4 the SSRQ correlated positively with all the sub-constructs and the total scale score of the MHC-SF at the .01 level of significance. Inversely, self-regulation showed a strong negative correlation with all signs and symptoms of psychopathology as measured with the GHQ-28 ( $p<.01$ ). This applied during all three rounds of testing. Although

no causality can be inferred from these results these findings are in line with existing literature and will be explored in more detail in the discussion section.

### **Discussion**

This study aimed to describe self-reported levels of self-regulation and positive mental health within a group of adolescents before and after participation in an adventure based programme, and to determine the possible gender differences with regards to the latter. It also intended to determine the relationship between self-regulation and positive mental health within a group of adolescents participating in an adventure based programme.

The first aim therefore was to describe self-reported levels of self-regulation and positive mental health of a group of adolescents before and after participation in and OBSA adventure based programme. Participants showed a slight increase of small practical significance from pre- to post-testing with regard to their self-regulation scores, after which self-regulation levels returned to levels only slightly higher than what they initially were. No significant difference in the levels of self-regulation from pre- to post post-testing, or from post- to post post-testing, were however present. These results of course do not contradict Perkins et al. (2011) who found self-regulation to be a critical factor for the maintenance of optimal mental health during adolescence. The results found in the current study may however be partly explained in terms of Baumeister, Gailliot, Dewall, and Oaten's (2006) conceptualization of self-regulation as a resource which can be depleted when used, as well as one that only grows stronger and increases significantly with regular exercise and concerted effort over the long term. The slight increase observed in adolescents' self-reported levels of self-regulation from pre- to post-testing might indicate mobilization of their self-regulatory resources during the course, in order to cope with the challenges they were presented with. The lack of significant increases from there onward could be taken as



confirmation of the fact that significant increases in self-regulatory capacity most probably necessitates longer-term intervention and exposure to situations in which individuals regularly exercise self-regulation. It is thus possible to recommend that facilitation and processing of experiences need to occur during the programme so transfer of learning can take place.

With regard to their mental health, the MHC-SF results show a difference of small to medium effect from pre- to post-testing as well as from post- to post post-testing. These small to moderate increases in adolescents' self-reported levels of mental health after the completion of the adventure programme could represent some of the positive effects of this intervention. Due to the absence of a control group, other possibilities should however be considered. These possibilities may include the positive experience of being in nature, the development of positive peer relationships, or breaking away from one's everyday stressful environment. Each subscale of the MHC-SF revealed differences of small to moderate effect from pre- to post post-testing and from post- to post post-testing. This is in line with the results from a study conducted by Pryor, Townsend, Maller and Field (2006) who found that contact with nature can be seen as a valuable asset in health promotion across the entire range of mental health. The most significant increase was seen in the participants' self-reported levels of social well-being from pre- to post post-testing, indicating the prominence of the social component of participants' experience and the lasting effect of the intervention. These significant increases in social well-being could possibly be explained in terms of participants developing positive peer relationships and friendships throughout the course of the adventure programme (Goldenberg, McAvoy & Klenosky, 2005). This development of social relationships is crucial to helping adolescents deal with developmental tasks such as forming

identity, developing social skills and self-esteem, and establishing autonomy (World Health Organization, 2012) which subsequently contributes to adolescents' health and well-being.

When considering participants' self-reported symptomatology as measured with the GHQ-28, two of the subscales (Somatic Symptoms; Anxiety and Insomnia) showed slight increases from pre- to post-testing directly after the completion of the adventure programme. These results can be understood in terms of participants being exposed to a new environment during the OBSA adventure programme, as these programmes are challenging in nature and potentially evokes anxiety, uncertainty, and tension (Lee & Ewert, 2013). However the results then indicated decreases of small to medium effect from post- to post post-testing of these two subscales. In total, decreases of varying significance in participants' self-reported levels of symptomatology were therefore observed. The different subscales yielded similar results with the most significant changes seen in lower levels of Anxiety and Insomnia, as well as Social Dysfunction from pre- to post-post testing. This is in line with the argument presented by Nadler et al. (as cited in Durr, 2009) which states that adventure activities facilitate processes of change by taking individuals out of their comfort zones to experience a sense of anxiety, and propelling them to develop new coping mechanisms which, when effectively translated into everyday life, may contribute to a decrease in symptomatology. According to Pryor et al. (2006), adventure activities and contact with nature improve mental fatigue and self-esteem; it positively affects mood states, as well as enhances the ability to recover from stressful events. These activities also foster a sense of belonging and enhance social relationships (Pryor et al., 2006) which may explain the positive changes in Anxiety and Insomnia and Social Dysfunction revealed in the GHQ-28 results.

Results interestingly revealed a practically significant difference between the male and female sub-groups regarding their overall mental health. At the point of pre-measurement

the male subgroup reported higher levels of overall mental health than the female subgroup. The post-post testing results revealed differences of medium practical significance with the male group again reporting higher scores in overall mental health. This is in line with the findings of Stewart, Hays, and Ware (1988) during which men reported slightly better general and mental health than women on all measures except health perceptions. More recent literature also suggests that anxiety and related disorders are three times more prevalent amongst adolescent females than amongst adolescent males (Levin & Becker, 2010) also indicating higher levels of mental health amongst adolescent males. According to Ussher (2007) estimates regarding the ratio of women to men who suffer from mental disorders such as depression, anxiety, and eating disorders range from 6:1- 5:3. Women also represent in far greater numbers with regards to hospital admissions and outpatient treatment (Bebbington, 1996 as cited in Ussher, 2007). There were however no significant differences between the gender groups involved in this study with regard to the levels of self-regulation prior to, or following the adventure course.

Lastly this study aimed to determine the relationship between self-regulation and mental health within this group of adolescent participants. The results indicated a strong positive correlation between self-regulation and all aspects of mental health as well as a strong negative correlation between self-regulation and symptomatology during all three phases of testing. It can therefore be inferred that self-regulation is strongly associated with optimal mental health within this group of adolescent participants. Although no causality can be inferred from these results, these findings are in line with a study conducted by Burton, Lydon, D'Alessandro, and Koestner (2006) who found that self-regulation led to greater psychological well-being. Furthermore existing literature also supports this line of argument in which self-regulation is thought of as an important predictor for the outcome of positive

mental health as the capacity to exert control over one's self is a strong determining factor for optimal mental health (Barry, 2007).

### **Conclusion**

This study revealed small increases in a group of adolescents' self-reported levels of self-regulation, and small to medium increases in their positive mental health after participation in an OBSA adventure programme. Participants especially reported higher levels of Social Well-being and lower levels of Anxiety and Insomnia, as well as Social Dysfunction after completion of the programme. This indicates the possible effectiveness of the adventure programme regarding the promotion of adolescent mental health. Furthermore the male subgroup was found to report higher levels of mental health, as opposed to the female subgroup. The results also indicated a strong positive correlation between self-regulation and mental health as well as a strong negative correlation between self-regulation and symptomatology, confirming the crucial role self-regulation plays in maintaining optimal mental health. In general it can be considered that this study did yield significant and useful results that have set the stage for future research regarding the use adventure programmes in the promotion of self-regulation and overall mental health of the South African adolescent population. Due to the limitations inherent to the research design used, care was taken throughout not to draw unwarranted conclusions during the interpretation of the results regarding causality. It is recommended that future research make use of an experimental design in order to rule out alternative explanations for the changes observed in adolescents' self-reported levels of self-regulation and positive mental health. This study did however lay a foundation for the further development of adventure based programmes to optimally facilitate the well-being of the South African adolescent population.

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### **Critical reflection**

When reflecting on the current study there is a few limitations and recommendations that require attention. As limitations and recommendations are not required by the guidelines to authors to be included in the article, it will be discussed in this section.

The first limitation identified involves the research method that was used. Although the quantitative data yielded significant and interesting results, a mixed method approach is however recommended for future studies in order to gain an in-depth understanding of participants' experiences, as well as to determine with greater accuracy what explanations could be put forward for changes observed after participation in the adventure programme.

The second and most significant limitation of this study is the pre-experimental research design that was used. This one group pre-test multiple post-test design poses a significant shortcoming, as it was difficult to rule out alternative explanations (such as the positive experience of being in nature, the development of positive peer relationships, or breaking away from one's stressful environment) for changes that occurred from pre- to post-testing. In spite of this, the current study is still considered a cost-effective way to lay the foundation for further investigation regarding the effectiveness of adventure programmes in the promotion of self-regulation and mental health. Care was taken throughout not to draw unjustified conclusions during the interpretation of results regarding causality, or the so-called 'effect' of the programme. Future researchers are encouraged to make use of a control group in order to eliminate alternative factors possibly accounting for the changes observed in participants' self-reported levels of self-regulation and positive mental health.

A further limitation of the current study was that the majority of participants were white, English speaking individuals. The use of convenience/availability sampling was

based on the limited options offered in terms of schools already registered for an OBSA course. This limited the generalizability of the findings due to the homogenous nature of the participant group. It is therefore recommended that future researches make use of a larger sample group with a greater variety of participants, especially with regard to race and socio-economic status.

With regard to the adventure programme itself, it is important to do further investigation in terms of the different activities participants are involved in during the OBSA programme. This can once again be done through the use of a mixed method study in order to determine the impact of particular activities on participants' self-regulation and mental health. Additionally it is recommended that more emphasis is placed on the different types of self-regulatory processes (cognitive-, behavioural-, and emotional self-regulation), specifically regarding its correlation to positive mental health. Once this is established it would be ideal to develop adventure activities that specifically address the particular processes involved in the promotion of self-regulation and positive mental health.

Finally it is recommended that the researcher spend a fair amount of time at the OBSA site during administration of the programme in order to observe participants as they engage in the various activities. This will provide the researcher with more insight regarding the participant group as well as the nature of the challenges they face. A lack of constant presence at the site resulted in a limited understanding regarding the meaning of the results.

In general it can be considered that this study did yield significant and useful results that have set the stage for future research regarding the use of adventure programmes in the promotion of self-regulation and overall mental health of the South African adolescent population.