



CHAPTER THREE

LITERATURE REVIEW

PSYCHOLOGICAL WELL-BEING

3.1. Introduction

This chapter reviews the paradigm shift which has occurred in health and the extensive research conducted on psychological well-being. It discusses the recent change in research focus from a subjective to an objective conception of psychological well-being, and the development and utilization of Ryff's scale. It furthermore discusses possible links between the concepts of psychological skills and psychological well-being.

3.2. Health

The World Health Organization defined health as not only the absence of illness but a complete state of mental, physical and social well-being (World Health Organization, 1946). This led to a change in focus from an overemphasis of the medical model towards the development of a public health model (Conway & Macleod, 2002; Pretorius, 1998; Wissing & Van Eeden, 1998). Explorations by researchers such as Antonovsky (1979, 1987) and Strumpfer (1990, 1995) resulted in a further paradigm shift in health management strategies from an illness treatment *pathogenic* orientation to a health promotion and illness prevention *salutogenic/fortigenic* approach. As

outlined by Antonovsky (1979, 1987), salutogenesis is the study of health rather than the study of disease and focuses on the origin of health. As proposed by Strumpfer (1990, 1995), fortigenesis refers to the source of strength. The pathogenic orientation is necessary and effective if the focus is on the treatment of illness. In contrast the salutogenic approach focuses on health promotion.

Our argument is concerned with this paradigm shift with special reference to mental health. For example the common cold of mental disorders, depression, which is closely associated with stress, anxiety and destructive lifestyles, is currently affecting 121 million people worldwide (World Health Organization, 2007). Whereas previous healthcare interventions for depression, anxiety and stress focused predominantly on psychopharmacological medication, contemporary approaches have utilized psychological well-being promotion strategies (Conway & Macleod, 2002; Edwards, 2005). Although effective, medication can have varying side effects resulting in possible addiction and toxicity of the human system. Natural methods of health promotion compliment the body, immune system and improve biopsychosocial well-being at a much reduced financial and physiological cost. Exercise is a cost effective health promotion strategy (Biddle, Fox & Boutcher, 2000).

Exercise movements such as “Walk for Life” are examples of the awareness of exercise as a health promotion intervention strategy. Studies have suggested that exercise improves self-esteem, self-perception, anxiety and stress (Fox, 2000a; Scully et al., 1998), with recent research demonstrating that physical activity can be as

effective as psychopharmacological medication in the treatment of mild to moderate depression (Biddle, Fox & Boutcher, 2000; Bulgatz, 2005).

At a physiological level, physical activity guards against coronary heart disease, hypertension as well as some forms of cancer and diabetes (Scully et al., 1998), with one practical example being the heartbeat of a trained individual returning to a rate of normal function faster than untrained individuals (Sinyor, Schwartz, Peronnet, Brisson & Seraganian, 1983). Health intervention strategies include general well-being promotion related to eating healthily, taking care of oneself, accessing social support and using problem solving techniques.

As a component of general health and well-being, psychological well-being has been widely researched and evaluated over the last two decades (Berger, 1994, 1996, 2001; Keyes, Shmotkin & Ryff, 2002; Ryff, 1989a, 1989b; Ruini, Ottolini, Rafanelli, Tossani, Ryff & Fava, 2003; Wissing & Van Eeden, 1998).

3.3. Psychological well-being

Psychological well-being refers to positive mental health (Edwards, 2005). Research has shown that psychological well-being is a diverse multidimensional concept (MacLeod & Moore, 2000; Ryff, 1989b; Wissing & Van Eeden, 2002), which develops through a combination of emotional regulation, personality characteristics, identity and life experience (Helson & Srivastava, 2001). Psychological well-being can increase with age, education, extraversion and consciousness and decreases with neuroticism (Keyes et al., 2002).

In terms of gender, research has suggested that there is no significant difference between men and women on measures of psychological well-being (Roothman, Kirsten & Wissing, 2003). Furthermore, the perception of physical health and spirituality can mediate the relationship between context and psychological well-being (Temane & Wissing, 2006a, 2006b).

Psychological well-being has undergone extensive empirical review and theoretical evaluation (Wissing & Van Eeden, 1998). There is currently no single consensual conceptual understanding of psychological well-being. Bradburn's (1969) initial understanding of psychological well-being provided a depiction of the difference between positive and negative affect. Preliminary research was mainly concerned with the experiences of positive and negative affect, subjective well-being and life satisfaction that were formed around the Greek word '*eudemonia*', which was translated as 'happiness' (Ryff, 1989b). Happiness was described as the equilibrium between positive and negative affect. Many early scales, such as Diener, Emmons, Larsen & Griffen's (1985) Satisfaction with Life Scale on which a vast amount of research was conducted, used this initial subjective conception of well-being (Conway & Macleod, 2002; Diener et al., 1985). The Satisfaction with Life Scale requires participants to indicate a cognitive rather than affective response in relation to global satisfaction with their quality of life.

Other assessment measures have including Antonovsky's (1993) Sense of Coherence Scale with adaptations by Frenz, Carey and Jorgensen (1993), the Fortitude Scale (Pretorius, 1998), Social Readjustment Scale (Holmes & Rahe, 1967) and Beck's Depression Inventory (Beck, Ward, Mendelson, Mock & Erbaugh, 1961). The Sense

of Coherence Scale assesses comprehensibility, meaningfulness and manageability. The Fortitude Scale measures self-appraisals, family appraisals and support appraisals. The Social Readjustment Scale evaluates present experiences of stress in terms of significant life events. The Beck's Depression Inventory assesses emotional distress in the form of depression.

Despite extensive evaluation and assessments, experts have indicated that psychological well-being is a diverse multidimensional concept, with exact components still unknown (MacLeod & Moore, 2000; Ryff, 1989b; Wissing & Van Eeden, 2002). Ryff has extensively researched the objective understanding of psychological well-being.

3.3.1. Ryff's objective psychological well-being conception

Waterman (1984) and Ryff's (1989b) work suggests '*eudemonia*' was perhaps incorrectly translated as happiness. Carol Ryff's (1989b) research has brought about a shift in focus from a subjective to an objective conception of psychological well-being. Her research is theoretically and conceptually grounded on Maslow's (1968) conception of self-actualization, Rogers' (1961) view of the fully functioning person, Jung's (1933) formulation of individuation, Allport's (1961) conception of maturity, Erikson's (1959) psychosocial stage model, Buhler's (1935) basic life fulfilment tendencies, Neugarten's (1973) descriptions of personality change in adulthood and old age, and Jahoda's (1958) six criteria of positive mental health, as well as additional more meaningful connotations of '*eudemonia*', such as realizing potential through some form of struggle. Ryff's (1989b) research has resulted in a new

objective psychological well-being measurement being developed (Conway & Macleod, 2002; Keyes et al., 2002; Ruini et al., 2003; Ryff, 1989b; Ryff & Keyes, 1995), with the following components autonomy, personal growth, environmental mastery, purpose in life, positive relations with others and self-acceptance. This scale has been regarded as the best objective measure of positive mental health (Conway & Macleod, 2002).

3.3.1.1. Psychological well-being components

Ryff's components of objective psychological well-being are outlined separately below for explanation and clarification purposes. When unpacked there appears to be a relationship between Ryff's psychological well-being components and the psychological skill components previously outlined, with psychological well-being components seemingly inter-related with various psychological skills components. A further association is that a variety of techniques including breathing and self-talk are used to improve both psychological skills and psychological well-being (Berger, 1994, 1996, 2001; Stelter, 1998, 2000, 2001; Wann & Church, 1998; Weinberg & Gould, 2007).

3.3.1.1.1. Autonomy

Autonomy is the regulation of one's own behaviour through an internal locus of control (Ryff, 1989b; Ryff & Keyes, 1995). A fully-functioning person has a high level of internal evaluation, assessing the self on personal standards and achievements while not relying on the standards of others. They do not strive for endorsement from

other individuals (Ryff, 1989b), are focused on their own beliefs and are less swayed by others people's ideas. A high level of autonomy suggests independence with a low level suggesting concern over self-perception. Internal locus of control is an important component of motivation (Weinberg & Gould, 2007) with athletes' generally requiring autonomy, personal insight and objectivity in order to sustain self-confidence and belief. Autonomy is also linked to self-determined motivation in sport participation (Huang & Jeng, 2005).

3.3.1.1.2. Personal growth

Personal growth is the ability to develop and expand the self, to become a fully functioning person, to self-actualize and accomplish goals (Ryff, 1989b; Ryff & Keyes, 1995). To achieve peak psychological functioning one must continue to develop the self through growth in various facets of life (Ryff, 1989b). This requires one to continually evolve and solve problems thereby expanding one's talents and abilities. An elevated level of personal growth is associated with continued development while a depleted level is suggestive of a lack of growth. Sportspeople with a growth mindset realize hard work yields results (Dweck, 2005). A growth mindset requires openness to a variety of new and diverse experiences. Athletes, who are humble but confident, are constantly striving for personal growth and holistic development (Weinberg & Gould, 2007); they generally use positive and negative performances, as well as goals achieved, to enhance personal growth. Personal growth is potentially the psychological well-being dimension that is closest to eudemonia (Ryff, 1989b).

3.3.1.1.3. Environmental mastery

Environmental mastery refers to choosing and controlling the surrounding and imagined environment through physical and/or mental actions (Ryff, 1989b; Ryff & Keyes, 1995). While a high level of environmental mastery reflects control over one's context, a low level is related to inability to successfully control one's environment (Ryff, 1989b). A mature individual is generally able to interact and relate to a variety of people in diverse situations and adapt to various contexts upon demand. Being in control of physiological and cognitive arousal can improve an athlete's control and understanding of their surroundings, as well as their interactions with others. Imagery results in improved self-awareness as well as enhanced situational and environmental understanding (Potgieter, 1997; Weinberg & Gould, 2007). Environmental mastery means being able to control complex environmental and life situations (Ryff, 1989b) and to seize opportunities which present themselves. It often requires the ability to step out of one's 'comfort zone' when striving for optimal sporting performance.

3.3.1.1.4. Purpose in life

Purpose in life refers to the perceived significance of one's existence and involves the setting and reaching of goals, which contribute to the appreciation of life (Ryff, 1989b; Ryff & Keyes, 1995). Mental health includes awareness that one has a greater goal and purpose in life (Ryff, 1989b). Purpose in life creates direction, thereby eradicating despondency. Goals are an important part of striving for success (Miller, 1997). Maturity involves having a clear sense of intentionality (Ryff, 1989b). When athletes sustain focus, attention and concentration, set realistic goals and aim to be

more holistic, they seek a greater goal for themselves and often then also assist others. The setting and achieving of goals can be inspirational and motivational in nature (Potgieter, 1997; Weinberg & Gould, 2007).

3.3.1.1.5. Positive relations with others

Having positive relations with others is an essential component in the development of trusting and lasting relationships as well as belonging to a network of communication and support (Ryff, 1989b; Ryff & Keyes, 1995). A calm and relaxed approach reflects maturity, leads to improved interactions and better consideration of others. While good relations result in an understanding of others, poor relations can cause frustration (Ryff, 1989b). The ability to have good human relations is one key feature of mental health with pathology often characterized by impairment in social functioning (American Psychiatric Association, 2000). Communication is an important part of team interactions (Miller, 1997; Potgieter, 1997). In group/team settings, positive relations with others often results in increased knowledge, empowerment and improved sporting performance.

3.3.1.1.6. Self-acceptance

Self-acceptance is the most recurring aspect of psychological well-being. It is a fundamental feature of mental health and an element of optimal functioning (Ryff, 1989b; Ryff & Keyes, 1995). Healthy levels of self-acceptance create a positive attitude and improved satisfaction with life (Ryff, 1989b). Moderate levels of confidence lead to greater achievement and acceptance (Wann & Church, 1998;

Weinberg & Gould, 2007), with positive feedback from others important in the maintenance of self-confidence and belief. Self-acceptance is a key component of self-actualization, enhanced psychological functioning and development (Ryff, 1989b). It entails accepting the past and present as well as maintaining direction for the future.

3.3.1.2. Research using Ryff's scale

Ryff's scale has been translated into various languages, received some international cross-cultural validation and been used in a variety of research settings (Keyes & Ryff, 2003; Lindfors, 2002; Plaut, Markus & Lachman, 2002; Staudinger, Fleeson & Baltes, 1999).

It has been extensively applied to evaluate life change. Particular focus has included: the well-being of Canadian elderly people (Clarke, Marshall, Ryff & Rosenthal, 2000), mental and physical health in later parts of life (Heidrich & Ryff, 1993a), the psychological adjustment of young adults (Heidrich & Ryff, 1993b), the older self (Heidrich & Ryff, 1996), social structures and quality of life in adults (Keyes & Ryff, 1998), the change in self-concept through life's transition (Kling, Ryff & Essex, 1997), coping and well-being in later life (Kling, Seltzer & Ryff, 1997), variations of the self in adult and elderly life (Ryff, 1991), successfully growing older (Ryff, 1989a), understanding of positive health and life experience (Ryff & Essex, 1992), explorations into areas of life and their value (Ryff & Heidrich, 1996), evaluation of middle aging (Ryff, Lee, Essex & Schmutte, 1994), autonomy and well-being during life transition (Showers & Ryff, 1996), positive mental health in adult life (Ryff,

1995), importance of women achieving midlife career dreams (Carr, 1997), contours of psychological well-being in women (Ryff, 1997), perceived life span and adult personality (Fleeson & Baltes, 1998; Fleeson & Heckhauser, 1997), life management approaches (Freund & Baltes, 2002), self-discrepancy across the life cycle (Heidrich, 1999), different routes of adult development (Helson & Srivastava, 2001), the midlife well-being and health impact of early parental separation or loss (Maier & Lachman, 2000), psychological well-being and distress for adults of alcoholics (Tweed & Ryff, 1991) and parental self-evaluation (Ryff, Schmutte & Lee, 1996; Shmutte & Ryff, 1994).

Research has also focused on the positive mental health continuum (Keyes, 2002; Ryff & Singer, 1998), health and social factors (Heindrich & Ryff, 1996; Marmot, Ryff, Bumpass, Shipley & Marks, 1997), psychological distress and depression (Li, Seltzer & Greenberg, 1999; Rafanelli, Park, Ruini, Ottolini, Cazzaro & Fava, 2000), rheumatoid arthritis (Mangelli, Gribbon, Buchi, Allard & Sensky, 2002), impact of caring for others (Marks, 1998), psychotherapy and well-being (Fava, 1999; Fava, Rafanelli, Grandi, Conti, Belluardo, 1998; Ryff & Singer, 1996) as well as the impact of community and contextual factors on well-being (Heidrich & Ryff, 1995; McKinley, 1999; Plaut et al., 2002; Smider, Essex & Ryff, 1996; Staudinger et al., 1999).

Ryff's scale has been used in South Africa over the last five years. The first study was to establish preliminary South African norms with university students (Edwards, Ngcobo & Pillay, 2004). This research involving 430 university students with a mean age of 22.23, yielded a standard deviation of 4.6 and range of 16-48 years, with South

African sample means lower on all measures than United States' sample means. South African sample mean and standard deviation findings for psychological well-being dimensions were: autonomy (mean 13.0 and standard deviation 3.5), personal growth (13.7 and 2.7), environmental mastery (12.1 and 3.2), purpose in life (9.8 and 3.1), positive relations with others (10.7 and 3.3), self-acceptance (12.6 and 2.6) and total psychological well-being (12.0 and 3.1). Spearman's analysis showed all dimensions correlated significantly with each other at the 1% level of significance. All correlations were modest ranging from 0.14 (purpose in life and autonomy) to 0.33 (environmental mastery and autonomy). Principle component factor analysis revealed that a single factor of psychological well-being accounted for 35,22% of the variance and that all components were moderately correlated with this one factor, extending from 0.47 (purpose in life) to 0.65 (autonomy and environmental mastery). The reliability analysis revealed an overall alpha coefficient of 0.63.

The second study was to compare psychological well-being amongst different types of sport and exercise (Edwards et al., 2004) confirming previous research regarding the impact of sport and exercise on psychological well-being. Subsequent research using Ryff's scale has been undertaken in individual and team sport settings as well as in the assessment and promotion of health amongst soccer players, gym members, runners, surfers and hockey players (Danariah, 2007; Davidson, 2007; Edwards et al., 2004; Edwards et al., 2005). The scale was used to evaluate a mutual aid programme for emergency personal (Mbutho, 2005) and to assess a psychological well-being intervention for people living with HIV and Aids (Edwards, 2004).

Adaptations of Ryff's scale featured in an investigation into the use of exercise as a medium for mental health promotion among institutionalised children (Chetty, 2007; Mnguni, 2005) and to assess a yoga psychological well-being program for people living with HIV and Aids (Williams, 2006).

3.3.2. Psychological well-being, physical activity, sport and exercise

The relationship between physical activity and psychological well-being has been noted in many studies (Biddle et al., 2000; Bydowell, 2006; Edwards et al., 2004; Edwards et al., 2005; Hayes & Ross, 1986; Malebo, Van Eeden & Wissing, 2007; Scully et al., 1998).

Research has demonstrated that psychological well-being is promoted through regular exercise and sport, which occurs for at least twenty minutes a day, three or more times a week (Scully et al., 1998). Regularly exercising hockey players, health club members and runners were found to be more psychologically well than irregular exercisers (Edwards et al., 2005). Similar improved psychological well-being has been found with swimming, yoga and fencing (Berger & Owen, 1998), rugby (Maynard & Howe, 1987), karate and weight training (McGowan, Pierce & Jordan, 1991). In addition, Krawczynski and Olszewski (2000) were able to demonstrate the longitudinal effectiveness of a physical activity program on the psychological well-being of persons over sixty years of age.

Improved psychological well-being seems to be most especially associated with regular, moderate intensity exercise interventions where the type, intensity and

duration of the exercise programs are tailored to suit the particular exercisers. Eastern knowledge has resulted in the development of “soft, slow” moderate exercise for improving health. Non-competitive movements involving rhythmic abdominal breathing of twenty to thirty minutes duration in comfortable, predictable contexts as in Tai Chi, Pilates, Yoga, dance, aerobic exercise and resistance training, which is performed in a slow, controlled way, in individual and group settings seem to be particularly effective (Berger, 1994, 1996, 2001; Stelter, 1998, 2000, 2001).

As a form of exercise, deep, full, slow breathing is one of the most natural forms of mental health promotion (Edwards, 2005), with conscious breathing and meditation often leading to infinite spiritual experiences and insights (Edwards, 2006). Its effectiveness can be experienced immediately. Workshops on breathing techniques for health promotion are being offered at various International Conferences. Titles include “A workshop on breathing methods in sport psychology”, “The evaluation of a psychology of breathing workshop”, “Breath based stress management and health promotion” and “A psychology of breathing” (Edwards & Edwards, 2005, 2006, 2007b, 2007c).

The personal valuing of exercise is an important factor that should be taken into account as people repeat behaviour which is motivational (Edwards & Fox, 2005). Exercise should be a meaningful experience (Edwards, 2002) with positive connotations focused on by the sport psychologist with the athlete. One example is the phenomenon “runners high” which is a heightened ecstatic emotional sensation experienced by runners, when they focus on their natural surroundings (Sachs & Buffone, 1984).



3.4. Résumé

This chapter provided literature on the shift in the health paradigm, psychological well-being, Ryff's subjective psychological well-being conception, relationship between psychological well-being and psychological skill components. The next chapter will provide the methodology of the study.



CHAPTER FOUR

METHODOLOGY

4.1. Introduction

This methodology chapter is concerned with the development, implementation and evaluation procedure for the PST program, as well as the design, measuring instruments, data analysis techniques and ethics of the study.

4.2. PST program

4.2.1. Program development, implementation and evaluation procedure

The effectiveness of programs is inadequately evaluated at times due to insufficient planning, implementation and assessment measures. For these reasons, a structured, systematic approach, based upon Potter's (1999) work was used in the development, implementation and evaluation of the PST program. This involved a needs assessment (investigating the research area), planning and procedure (formulating and developing the program), outcome evaluation (assessing the effectiveness of the program with qualitative and quantitative measures) and process evaluation (examining the program's success/failure).



4.2.1.1. Needs assessment

As outlined in the problem statement and motivation, there was a need to implement PST interventions in South Africa and evaluate their effectiveness and impact on psychological well-being. This need was initially recognized at youth track athlete level, but was also utilized with adult athletes and individuals at a community workshop. This enabled assessment and the promotion of health, well-being and skills at individual, group and community, elite and non-elite levels. The need to investigate the relationship between psychological skills and psychological well-being, led to experts being asked to participate in the research.

4.2.1.2. Program planning and procedure

While various PST programs for athletes have been developed, as reviewed, few are as highly focused and structured as Wann and Church's (1998) program. Relevant adjustments were made to Wann and Church's program with in-depth training of goal setting and motivation, as well as more psychological skill training techniques added to their existing program. It was considered that these components were an important part of holistic psychological skills training which would be of benefit to participants. The program covered physiological arousal, cognitive arousal, mental imagery, attention, concentration, self-confidence, goal setting and motivation. Some skills were combined for didactic purposes, namely attention and concentration, and goal setting and motivation. In each case the program presentation was adapted to suit high school participants, adult elite sportspersons and community workshop participants.



4.3. Design

The final triangulated design used both qualitative and quantitative methods, and consisted of two interventions and two case studies. This had the advantage of examining the program from different perspectives and collecting diverse data from individual, group and community participants and contexts.

4.3.1. Interventions

4.3.1.1. School group intervention

4.3.1.1.1. Design

The school group intervention included a randomized experimental and control group repeated measures design with pre-test (T1) eight weeks before the start of the athletics season’s training, post-test (T2) at the end of the program and before the season’s training began, and follow-up testing (T3) at the end of the season. Before and after session, different process measurements (Pm) were used to evaluate the progress of the participants during the PST program. This design is schematically represented as follows.

Randomization	Experimental group	PST program	Athletics season	
	Control group			PST program
		T1 Pm	T2	T3 Pm

4.3.1.1.2. Intervention process

The school group intervention was originally proposed for a large sample of high school track athletes. This sample was chosen as their events could be measured quantitatively. Three schools, one private girls school, one public girls school and one public boys school, whose learners represented the multicultural population of South Africa, with African, Indian, Coloured and White learners, were contacted in the urban, relatively economically developed Durban North area and invited to partake in the research. Due to other involvements including busy sport and study schedules, two of the three schools did not commit to the study. The head sports coach for the participating public girls school obtained permission from the school principal, before identifying participants for the study. The actual intervention process consisted of eight stages.

4.3.1.1.2.1. Stage one: contact with school participants

An informational letter (Appendix A) and research consent form (Appendix B) were sent to the participants' parents. Participants, who returned the signed parental consent form and signed assent, were allowed to partake in the program. The school sample consisted of 16 female 100 metre participants, who also participated in various other sporting activities. Owing to the sample size being sufficient for efficient group interventions, it was decided to continue with this smaller sample and increase the qualitative research aspects. The demographics of the school sample ranged from grades 10 to 12, with the participants ages ranging from 16 to 18 years.

4.3.1.1.2.2. Stage two: school group intervention pre-test

Eight weeks before the athletics season began, biographical information was collected (Appendix C) and school participants were assessed on both quantitative and qualitative outcome (T1) measures (Appendices D, E, F, G and H). With the assistance of the school head coach, whose main role consisted of the distribution and collection questionnaires, initial assessment data (T1) was collected over a period of 1 week.

A daily training schedule was provided to the school participants, and they were asked to complete the training schedule between the pre- and follow-up testing (Appendix I).

4.3.1.1.2.3. Stage three: experimental and control group allocation

As often happens in actual program implementation ideal randomized control conditions were not possible. Small numbers and student examinations resulted in a quasi-experimental design with the process of allocation to experimental and control groups based on student availability rather than randomisation. The experimental group consisted of 9 participants (4 grade 12 pupils who requested to be in the experimental group due to matriculation trial examinations, together with 5 pupils in grades 10 and 11). The control group consisted of 7 participants (grades 10 and 11 pupils).

4.3.1.1.2.4. Stage four: PST program for school experimental group participants

Seven weeks before the season's training began, the PST program was commenced with the school experimental group. The program consisted of six weekly sessions, covering the six psychological skill topics. Each session was run during the week and ranged from one to two hours. The sessions were all structured into the following format: formal instruction to introduce the concept and theories, interactive discussion, concept practice and homework assignment. Participants, who were in the same grade or had contact with one another at school, reminded each other about and discussed the program at school forming an interactional supportive group environment outside the scheduled psychological skills training sessions. Before and after each session the participants were assessed using both quantitative and qualitative process measures relevant for the particular session concerned (Appendices J, K, L and M, N, P, R, T, V, X and Y). At each session each participant received an educational handout of the session (Appendices O, Q, S, U, W, and Z) including suggested homework, which was explained to them in comprehensive detail. Throughout this time the control group received no intervention. The following interactive account of the experimental group sessions includes the perceptions of participants and researcher.

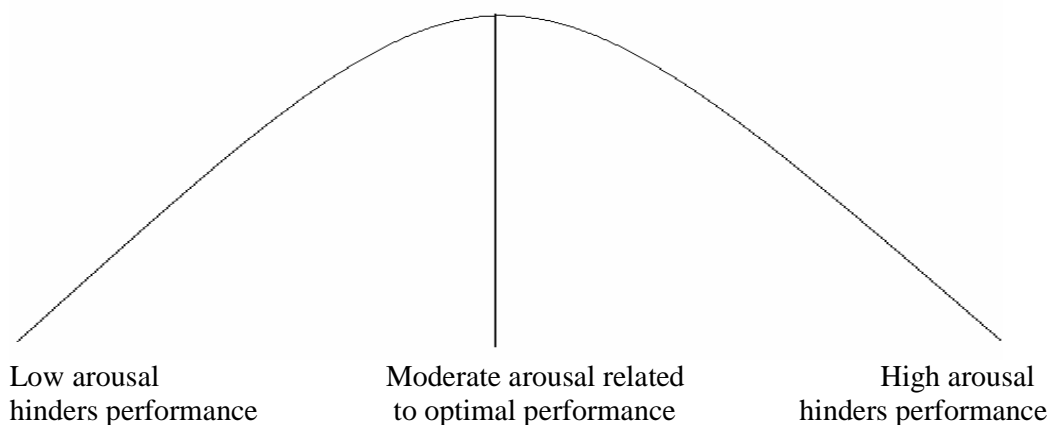
4.3.1.1.2.4.1. Session 1: physiological arousal

The first session on physiological arousal, conducted in the school gymnasium, was attended by seven of the nine experimental group participants. Due to school and personal commitments two learners were not present. None of the participants had

received any previous sport psychology training and an introductory overview of sport psychology and PST programs was provided. This overview explained the natural utilization of psychological skills on a daily basis, the composite nature of psychological skills and PST programs as well as the impact of PST on sporting performance. The overlapping nature of psychological skills and PST techniques was reiterated throughout the PST program.

The concept of arousal was explained at a presentation level appropriate for high school learners, a procedure which was utilized during the program. This explanation outlined physiological and cognitive arousal as inseparable, inter-linking experiences, trained independently for clarification purposes.

The arousal continuum, together with potential positive and negative arousal experiences, was discussed with participants who shared life and sporting examples thereby creating an effective group interaction, an environment which was maintained throughout the PST program. An inverted U hypothesis diagram, displayed below, was used to visually illustrate the inverse relationship between physiological arousal and performance.



The zone of optimal functioning theory was used to further illustrate the arousal performance relationship. Participants shared past experiences of being in the zone.

The utilization of breathing to increase and decrease physiological arousal, by shortening and lengthening the in- and out-breath, was explained. After a practical demonstration, participants used breathing to heighten and lower their physiological arousal levels. A group discussion of experiences followed. Participants expressed interest in the breathing techniques.

The benefits of progressive relaxation were outlined. Participants completed a progressive relaxation exercise which involved tensing then relaxing the following muscle groups, in order, for five seconds each.

- | | | |
|---------------------------|-------------------------|-------------------------|
| 1. right hand and fingers | 7. head and face | 12. right lower leg |
| 2. right forearm | 8. shoulders | 13. right foot and toes |
| 3. right upper arm | 9. chest | 14. left upper leg |
| 4. left hand and fingers | 10. stomach and abdomen | 15. left lower leg |
| 5. left forearm | 11. right upper leg | 16. left foot and toes |
| 6. left upper arm | | |

The value of combining slow breathing, and association of meaning with progressive relaxation, was emphasized during the exercise.

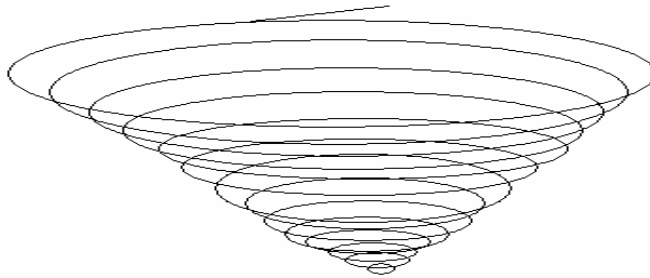
In closing, homework was provided that outlined the importance of regular practice of physiological arousal training techniques.

4.3.1.1.2.4.2. Session 2: cognitive arousal

Eight participants were present for the cognitive arousal session. A detailed

explanation of the concept of cognitive arousal, and the importance of moderate cognitive arousal prior to and state of “no mind” during an event, was provided.

Theoretical underpinnings of cognitive arousal were conveyed using the A-B-C model of event reaction. Practical examples were used to clarify the model. Negative and positive thought patterns, resulting in downward and upward spiralling effects respectively, were explained diagrammatically.



Thought stopping which commences after the first negative thought, changes a downward pattern of negative thinking into an upward spiral of positive thinking

The group then discussed thought stopping and positive self-talk techniques, providing both positive and negative life/sporting thought experiences. The participants split into pairs and read out negative statements, including “Your start is too slow”, “Your stride is uneven”, “Your breathing is incorrect” and “You are not fast enough”, to their partners who practiced thought stopping then positive self-talk in response. The learners expressed their interest in CBT and its value in sport/everyday situations.

Meditation was discussed with the group and participants then found a quiet space, closed their eyes, removed all unwanted thoughts and meditated on a single positive point of their choice. As a closing exercise participants used positive self-talk to encourage each other.

Homework exercises expressed the value of consistently rehearsing cognitive arousal training and meditation. To ensure comprehensive psychological skills training was offered, missed sessions were made available to participants throughout the program.

4.3.1.1.2.4.3. Session 3: mental imagery

Eight participants were present at the third session. The mental imagery and subsequent sessions were conducted on the sports field, which allowed for practical imagery training and situational learning. The concept of mental imagery, as well as bioinformational and psychoneuromuscular theories, was used to illustrate the link between imagery and movement.

Internal and external imagery, and their relative subjectivity and objectivity, were discussed with the participants. Learners practiced internal and external imagery, with particular focus on the enjoyment, meaning and vividness of the images. They reported the value of using imagery and self-reflective objectivity in everyday life.

As a homework exercise participants were encouraged to continually rehearse imagery in order to better understand patterns of movement as well as to combine imagery with relaxation techniques.

4.3.1.1.2.4.4. Session 4: attention and concentration

The attention and concentration session was attended by eight learners. The four types of attentional focus: broad, narrow, internal and external, were explained in detail to the group. Participants firstly shared situations where they had maintained attention and concentration, then discussed internal and external distractible factors.

Concentration training techniques were outlined and demonstrated with learners who practiced attentional focus by sitting on the sport grandstand, then standing at the race start line. They practiced eye control, focusing on a specific object of choice, which was followed by the tracking of objects on the sports field.

Participants then separated into pairs and used cue words such as “stay focused” to concentrate on a dot on the back of their handout page. At the same time a partner attempted to distract them by reading out negative statements including “You are not focused on this task”, “You are unable to concentrate for a long period of time”, “You are becoming distracted” and “You are losing concentration”. As a closing exercise, learners practiced thought stopping then positive self-talk to maintain attention and concentration.

Participants expressed their enjoyment of the session, particularly the attention and concentration grid assessment exercise. Homework outlined the importance of both enhancing and maintaining their attention and concentration through the use of practical training techniques.

4.3.1.1.2.4.5. Session 5: self-confidence

Due to hockey fixtures, only three participants were present at the fifth session. Learners requested the session continue, despite low attendance. The self-confidence continuum was compared to the arousal continuum and further illustrated by the following diagrammatical drawing.

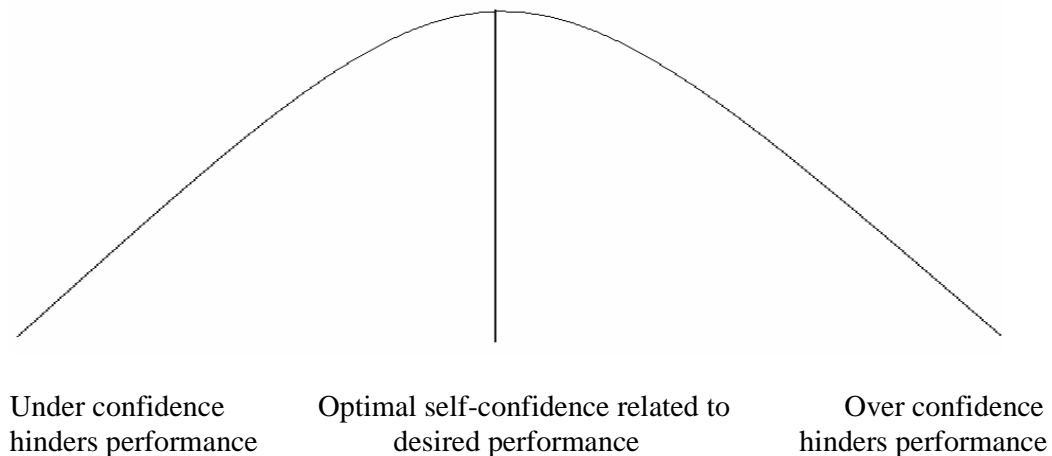


Diagram describing the inverse relationship between self-confidence and sporting performance

Participants shared examples where the various confidence levels had resulted in positive/negative sporting outcomes. A description of athletes, who are humble yet confident, was provided to the group to reiterate the value of optimum self-confidence.

A detailed discussion on self-confidence training techniques followed. Participants then practiced positive self-talk, while maintaining an optimal level of self-confidence. Learners analyzed a personal experience of optimal self-confidence and

performance. They visualized themselves, in detail, winning their athletic event at different levels of competition. For easier accessibility during difficult sporting situations, they paired their scenarios with a meaningful experience.

Learners reported the session to be most valuable. Homework exercises expressed the importance of maintaining optimal self-confidence levels, in order to produce peak performance.

4.3.1.1.2.4.6. Session 6: goal setting and motivation

The goal setting and motivation session was attended by all nine participants, where the establishment of desired goals was explained. Factors which can influence motivation were discussed, and the value of having an internal and external locus of control was emphasized. The following analogy, that while athletes have core abilities, both training and learning new skills can enhance sporting ability, was used to explain entity theory and incremental learning perspectives. An in-depth group discussion, on the importance of coaches providing positive feedback, followed.

Participants were asked to review their motivational levels, by analyzing the importance of having a balance between an internal and external locus of control. They remembered past goals and set or adjusted future life and/or sporting goals.

Homework exercises required reflection on the link between motivation and goal setting. Participants expressed their enjoyment of the final session and PST program as a whole.

4.3.1.1.2.5. Stage five: school group intervention post-test

At the end of the intervention the experimental and control group school participants were re-assessed (T2) using the quantitative and qualitative outcome measures (Appendices D, E, F, G, H and AA). The experimental group evaluated the experience of being in the PST group (Appendix BB) and PST program (Appendix CC). Examination commitments resulted in missing data from some control group participants.

4.3.1.1.2.6. Stage six: school experimental group PST review session

The experimental group met for a PST review session during their athletics season (between T2 and T3). Five of the nine participants were present. During the session the psychological skills were re-discussed, with the experience, use of PST and its impact on sport and life explored. The participants appeared to retain a vast amount of conceptual, theoretical knowledge about the psychological skills and PST techniques. Participants emphasized the value of the review session.

4.3.1.1.2.7. Stage seven: school group intervention follow-up testing

At the end of the athletics season, the school experimental and control participants were re-assessed (T3) using the quantitative and qualitative outcome measures (Appendices D, E, F, G and H).

4.3.1.1.2.8. Stage eight: PST program for school participant control group

The control group received the intervention after re-assessment (T3). The PST program was run in the same manner as was the case with the experimental group. Due to school, sporting and social commitments only three control group participants completed session 1, two completed sessions 2, 3 and 4, with one participant completing all 6 sessions. Despite small group size, sessions were constructive and individual attention was provided, with positive results achieved by the participants who completed sessions.

4.3.1.2. Community workshop intervention

With the added motivation of promoting community health and well-being, the PST program was run as a workshop for general public participants (including dancers, athletes and gym members) at a health and fitness seminar in Empangeni. At the onset of the workshop, the PST program was introduced to the workshop participants, with written consent and biographical information acquired from five adult participants, 3 female and 2 males. The psychological skills outcome evaluation preceded and succeeded the PST program (Appendix D) and participants were provided with educational handouts (Appendices O, Q, S, U, W and Z). A shortened six topic PST program was conducted over an hour and a half period. Theoretical conceptions were explained using diagrams, with the PST techniques outlined then practiced. Participants encouraged each other and established a support group environment, where diverse ideas were shared in relation to various sport settings.

4.3.2. Case studies

Case studies were utilized to collect in-depth individual information from the adult elite participants about the PST program and from the experts about the conceptual relationship between psychological skills and psychological well-being.

4.3.2.1. Adult elite sportspersons

A KwaZulu-Natal and South African male cricket player and female swimmer, who were both 27-years-old, were asked to participate in the study. For qualitative research purposes these participants were chosen on the basis of their established relationship with the researcher, experience in youth sport, sport psychology understanding, insight into and willingness to discuss their psychological skills training experiences.

Participant information letters (Appendix A) were provided and written consent (Appendix B) was acquired. All six psychological skills were covered in the same format as the school intervention. The PST program was however conducted individually over three weekends with biographical information (Appendix C), pre-testing (quantitative and qualitative outcome measures, appendices D, E and F), session 1 and 2 conducted together on the first weekend, session 3 and 4 undertaken together on the second weekend, and session 5, 6, post-testing (quantitative and qualitative outcome measures (appendices D, E, F, G, AA) and evaluation of the PST program (Appendix CC) conducted on the third weekend. Educational handouts were provided at each session (Appendices O, Q, S, U, W, and Z). Due to their sport and exercise experience, in-depth discussions and valuable knowledge sharing occurred.

Participants expressed their enjoyment in the program. They completed follow-up testing 2 months after their post-test.

4.3.2.2. Sport psychology experts

Sport psychology experts have extensive knowledge in their area of expertise and are able to provide in-depth understanding and explication of the relationship between concepts. It is for these reasons that 5 experts, 1 female and 4 males, comprised of local and international sport psychologists, were asked to comment on the relationship between psychological skills and psychological well-being. All experts were known to the researcher, had extensive qualifications, expertise, research and practical experience in the area of sport psychology. It was explained that the information would be kept confidential. Information was collected via confidential email format.

4.4. Measuring instruments

4.4.1. Quantitative outcome measures

4.4.1.1. Ryff's psychological well-being scale (Appendix D)

Ryff's (1989b) standardized psychological well-being scale was used as an outcome measure to assess the school group intervention (at T1, T2 and T3) and elite adult participants (at pre-, post and follow-up test) on the six dimensions of psychological well-being: autonomy, personal growth, environmental mastery, purpose in life, positive relations with others and self-acceptance. The scale was initially constructed

as a twenty item questionnaire and has been standardised in 3, 9 and 14-item forms. The 3-item version was used in this research. Previous research in the United States of America (USA), using telephone interviews on a nationwide representative adult sample over twenty-five years of age, indicated high levels of internal consistency on the six subscales as follows: autonomy .83, personal growth .85, environmental mastery .86, purpose in life .88, positive relations with others .88 and self-acceptance .91. They have high levels of correlation with the 20-item parent scale: autonomy .97, personal growth .97, environmental mastery .98, purpose in life .98, positive relations with others .98 and self-acceptance .99 (Ryff & Keyes, 1995). During initial assessment construction, the Cronbach alpha coefficients of 117 participants for the twenty item scale were high: autonomy .88, personal growth .81, environmental mastery .81, purpose in life .82, positive relations with others .83 and self-acceptance .85 (Ryff, 1989b).

Previous studies using Ryff's psychological well-being scale have been conducted in South Africa (Bydawell, 2006; Danariah, 2007; Davidson, 2007; Edwards, 2004; Edwards et al., 2004; Edwards, Ngcobo & Pillay, 2004; Edwards et al., 2005; Mbutho, 2005).

4.4.1.2. Bull's mental skills questionnaire (Appendix E)

The most comprehensive available assessment of psychological skills is Bull's (1986) mental skills questionnaire, which was used as an outcome measure to assess the school group intervention (at T1, T2 and T3), elite adult (at pre-, post- and follow-up test) and community workshop intervention participants (before and after the

workshop) on psychological skills. The questionnaire measures: imagery, mental preparation (goal setting), self-confidence, anxiety and worry management, concentration, relaxation and motivation (Bull et al., 1996; Snauwaert, 2001). The questionnaire has 28 items and assessed participants along a six point Likert scale, ranging from strongly agree to strongly disagree. The scale has been translated into Dutch, where it was assessed with 219 athletes and shown to have generally high Cronbach alpha levels of .80, .64, .62, .61, .59, .72 and .72 for the six subscales (Snauwaert, 2001). Bull's scale has been utilized in South Africa (Danariah, 2007).

4.4.1.3. Time measurement (Appendix H)

The school group intervention participants' speed in seconds, over their track distance (100 metres), was measured at T1, T2 and T3.

4.4.2. Qualitative outcome measures

Each school group intervention (at T1, T2 and T3) and elite adult participant (at pre-, post and follow-up test) described their understanding of psychological well-being (Appendix F) and psychological skills training (Appendix G).

The school group intervention (at T2) and elite adult sportspeople (at post-test) described their experience of autonomy, personal growth, environmental mastery, purpose in life, positive relations with others and self-acceptance (Appendix AA), since T1 (in the case of the school participants) or pre-test (for the cricket player and swimmer).

After the PST program the school group experimental participants were asked to describe their experience of the group (Appendix BB).

After the intervention the school group intervention and adult elite sportspeople were asked to assess the PST program by completing the following questions (Appendix CC),

1. How did you experience the program?
2. What did you appreciate about the program?
3. How do you think the program can be improved?

4.4.3. Quantitative process measures

4.4.3.1. Relaxation measures (Appendix M)

The ability to use relaxation before and after session 1 was assessed using the relaxation measures of heart rate and number of breaths per minute.

4.4.3.2. Competitive State Anxiety Inventory-2 (CSAI-2) (Appendix G)

One of the best available assessments of arousal, anxiety and self-confidence is the Competitive State Anxiety Inventory-2 (CSAI-2), which was constructed by Martens et al. (1990). This inventory was used as a process measure to assess physiological, cognitive arousal and self-confidence. The CSAI-2 is a twenty-seven-item questionnaire, which assessed participants along a five point Likert scale, ranging from 'not at all' to 'very much so'. It has three subscales: cognitive anxiety, somatic

anxiety and self-confidence. The reliability of the three subscales is high ranging between .79 and .90. High Cronbach alphas of between .79 to .83 for cognitive anxiety, .82 to .83 for somatic anxiety and .87 to .90 for self-confidence were found during assessment construction (Martens et al., 1990). The somatic anxiety subscale (Appendix N) was used to assess physiological arousal skill before and after session 1, the cognitive anxiety subscale (Appendix P) was used to assess cognitive arousal skill before and after session 2, and the self-confidence subscale (Appendix V) was used to assess self-confidence skill before and after session 5. The CSAI-2 has been utilized in South Africa (Andrew, Grobbelaar & Potgieter, 2007).

4.4.3.3. Sports imagery questionnaire (SIQ) (Appendix R)

Hall, Mack, Paivio and Hausenblas's (1998) sports imagery questionnaire was used as a process measure to assess mental imagery ability before and after session 3. It has thirty items with five subscales, which are motivational specific, motivational general-mastery, motivational general-arousal, cognitive specific and cognitive general. Each question is rated along a seven point Likert scale ranging from rarely to often. Initial assessment during questionnaire construction revealed high Cronbach alpha levels for the five subscales of .88, .83, .70, .85 and .75 respectively (Hall et al., 1998). The SIQ has been used in South Africa (Basson, 2004).

4.4.3.4. Concentration grid (Appendix T)

A concentration grid was used as a process measure to assess attention and concentration ability before and after session 4. The block grid design contains digits

ranging from 1 to 99, which have been scrambled in the grid. The participants' time to acquire numbers 0 to 49 (pre-session) and 50-99 (post-session) was measured. Concentration grids have been used at length in Eastern Europe (Weinberg & Gould, 2007). Concentration grids are currently being utilized in South Africa (Edwards & Edwards, 2007a).

4.4.3.5. Perception of success questionnaire (POSQ) (Appendix X)

Roberts, Treasure and Balague's (1998) POSQ (adult version) was used as a process measure to assess motivation and goal setting ability before and after session 6. The scale assesses both ego and task orientation. It is a twelve-item questionnaire with 6 ego and 6 task questions (Moran, 2004), which assesses participants along a five point Likert scale ranging from strongly agree to strongly disagree. The scale has high internal reliability for the orientations, with high alpha coefficients of .98 for task orientation and .97 for ego orientation, and inter-orientation correlation of .08 (Roberts et al., 1998). Adaptations of the ego and task orientation scale questions are currently being used in South Africa (B.J.M. Steyn, personal communication, 22 August 2007).

4.4.3.6. Self-theory questionnaire (Appendix K)

Dweck's 3 and 8-item self-theory questionnaires assess entity and incremental theory, along a six point Likert scale ranging from strongly agree to strongly disagree (Dweck, 1999). Two separate validation studies on the 3- and 8-item questionnaires revealed correlational coefficient values ranging between .83 and .92 (Levy,

Stroessner & Dweck, 1998). The research of Biddle, Wang, Chatzisaray and Spray (2003) on 352 participants revealed high Cronbach alphas of .74 for entity and .80 incremental theory questions. This 3-item applied sport setting scale was used to assess motivational aspects of entity and incremental theory before and after session 6. An extensive literature search by the researcher, revealed no published literature on the use of Dweck's 3 and 8-item self-theory questionnaires in South Africa.

4.4.4. Qualitative process measures

At T1 the school group intervention participants were given a diary and asked to keep a detailed record of their training, learning experiences and emotions per week over the season between T1 and T3 (Appendix I).

Before (Appendix J) and after (Appendix K) each session the school group intervention and elite adult participants were asked to complete what the psychological skill (depending on the session either physical arousal, cognitive arousal, mental imagery, attention, concentrations, self-confidence, motivation and goal setting) meant to them.

After each session the school group intervention and elite adult sportspeople were asked to describe their experience of the session (Appendix L),

4.4.5. Qualitative sport psychology expert question (Appendix DD)

Sport psychology experts were asked to provide their view on the relationship

between psychological skills and psychological well-being.

4.5. Data analysis techniques

Quantitative and qualitative data analysis techniques were used to elicit the most comprehensive results.

4.5.1. Quantitative technique

If parametric testing is used when sample is small, not homogenous and normally distributed then the probability of a Type 1 error is larger than the alpha level used (Heiman, 1996). Non-paramedic testing can yield valuable results for small sample studies. Owing to its sample size it could not be assumed that the sample was normally distributed or representative of the population, therefore non-parametric testing was chosen. Pearson correlations, Mann-Witney (non-parametric equivalent of t-test for two independent samples) and Wicoxon Signed Ranks Tests (non-parametric equivalent of t-test for dependent samples) were used to analyze the school group and community workshop intervention data. All quantitative data was analyzed using the SPSS version 15 statistical data analysis package.

4.5.2. Qualitative technique

Qualitative data analysis involves firstly condensing, then highlighting and expanding qualitative information. The qualitative data from the school group and community workshop intervention, elite adult sportspeople and sport psychology experts' case

studies, were coded and analyzed using content analysis. This refers to a method of studying and analyzing the meanings of communications in a systematic objective way. The major communication units in this research were meanings expressed in recorded words obtained. Content analysis can use counting (frequencies) to understand how frequently responses or pieces of information occur (Kerlinger, 1978; Lewin, 1979). In this research a frequency of one indicated that the theme occurred once, a frequency of two twice etc. Furthermore, the researcher's observations and objective experience of the PST program are outlined in the data results.

4.6. Ethics

Ethical clearance was acquired from the University of Pretoria campus. Detailed participant information was provided to all participants, as well their parents when relevant. Informed consent/assent was acquired from each participant/parent. The intervention was fully explained to all participants who were free to withdraw from the study at any time. The questionnaires and data are securely kept. No names were divulged and each participant's data was coded. Quantitative results were presented only in group format. All information was kept and presented in a confidential manner.

4.7. Résumé

This methodology chapter was concerned with the development, implementation and evaluation procedure for the PST program, design, measuring instruments, data



analysis techniques and ethics of the research. The next chapter will cover the results of the study.