

**CHARACTER STRENGTHS AND THE ROLE THEREOF IN THE
RECOVERY OF
CARDIAC SURGERY PATIENTS**

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Summary

In this qualitative study the role that character strengths played in the recovery process of cardiac artery bypass grafting (CABG) surgery patients was explored. Semi-structured interviews were the main means of collecting data from ten patients four to eight months post-operatively, with the aim of accurately describing the participants' experiences during and their perspectives of the CABG recovery process and to identify personal strengths and other restorative and adaptive participant characteristics that could have played an enabling role in the process.

Increasing research suggests that a protective relationship exists between positive psychological functioning and physical health (Diener & Chan, 2011) and that subjective well-being strongly contributes to health and well-being over the life span. Research has also found that increases in positive virtues/strengths are associated with better bio-psychosocial functioning. In line with Baer's (2015) remark that different health situations call for different positive abilities or combinations of such characteristics, Boehm and Kubzansky (2012) suggested that research should investigate whether some unique positive psychological well-being constructs are specifically associated with restorative functions in the context of cardio vascular health.

In the study participants were introduced to character strengths and after their signature strengths were identified by means of the VIA-IS, they were invited to talk about their experiences during the CABG recovery period, about the role played by their strengths in the process, and how strengths influenced their post-surgical recovery and adjustment. The GRID method was used initially to illicit first thoughts and to produce data that follow the pathways of the respondents' thoughts and feelings.

Data obtained from interviews were analysed by means of qualitative thematic analysis (Braun & Clarke, 2006) and by making use of the ATLAS.ti computer assisted software program (Lewins & Silver, 2007), a method for identifying, analysing and reporting patterns within data. From the analyses, a hierarchy or constellation of strengths emerged that were context specific to CABG recovery for the participants involved. Participants did however, not primarily use their VIA-IS identified signature strengths to enable them during their recovery processes, but rather used other VIA-IS related strengths and even strengths not included in the VIA-IS.

Strengths relating to the recovery process that were identified from analyses of the interviews clustered mainly around the four virtues of Transcendence, Courage, Humanity and Temperance. Transcendence strengths (spirituality, hope, gratitude, appreciation of beauty) were mostly used, followed by Courage strengths (i.e. perseverance, vitality,

bravery) and Humanity strengths (love, kindness, social intelligence). Thereafter Temperance strengths and particularly the strength of self-regulation seemed to be prominent, with Wisdom and Knowledge strengths (creativity and open mindedness) and Justice strengths (leadership), least of all.

These findings seem to be in line with those in various other studies which reported that strengths apparently function optimally in context specific applications (Park & Peterson, 2006; Shryack, Steger, Krueger & Kallie, 2010). The view of Biswas-Diener, Kashdan and Minhas (2011) that strengths are highly contextual phenomena that emerge in distinctive patterns relating to particular goals, interests, values and situational factors, is of important relevance to the findings of this study.

Based on the context relevant functioning of strengths, it is understandable that after such a life-changing experience as being diagnosed with cardiac illness and having CABG surgery afterwards (context), transcendence strengths would emerge in order to cope with the anxiety of facing one's vulnerability and mortality and particularly to find meaning and purpose for one's life as a whole (Peterson, 2006). Closely related would be the use of courage strengths of persistence, bravery and vitality (especially psychological energy), to restore a sense of personal control, self-efficacy and coping abilities to deal with the recovery challenges after CABG and to regain a sense of self-competence and of resilience that Masten (Masten, 2001; Masten & Reed, 2002) referred to as ordinary magic.

Humanity strengths manifested mainly as social intelligence and love, but through the experience of perceived social support and the appropriate response thereto. Research abound about the salutary effects of perceived social support on health related matters, including greater resistance to disease, faster recovery from surgery and heart disease, lower mortality, compliance with medical treatment, reduced levels of medication and the adoption of health-promoting behaviour after illness experiences, all very relevant to CABG patients in recovery (see Compton & Hoffman, 2013). Taylor (2011) found that perceived social support reduces negative affect during times of illness or stress and promotes psychological coping and adjustment, which in turn enhance further coping behaviour and other strengths to promote adjustment behaviour (Salovey, Rothman, Detweiler & Steward, 2000).

Although the temperance strengths other than self-regulation did not feature strongly in this study, self-regulation seemed to be prominent as both an enabling strength for other strengths to emerge and as the strength that underpinned the ability to accept the realities of CABG recovery and to adapt to a new health-oriented lifestyle. A sense of self-efficacy and self-regulation seemed to work hand-in-hand in these participants (Bandura, 2005; Hevey,

Smith & McGee, 1998; Kubzansky, Park, Peterson, Vokonas & Sparrow, 2011).

An interesting finding of the study was that certain strengths apparently did not play a role in promoting the recovery of these CABG patients, but rather emerged as outcomes of their struggling with the challenges of cardiac illness and recovery from surgery. These strengths were seen as post-traumatic growth strengths and seemed to serve a purpose in fostering the participants' post-recovery well-being and in their ongoing adaptation to a healthy lifestyle.

In the study, it was therefore clear that character strengths that were context specific, were mostly used by participants to facilitate their recovery processes after CABG surgery rather than their signature strengths, although the latter were not completely absent and were most likely intricately woven into the strengths pattern of each individual participant and perhaps had an enabling or catalytic role to engage other strengths required by the recovery challenges.

* The references in this summary will be found in the reference list of Chapter 1.

Keywords: cardiac surgery, character strengths, CABG: coronary artery bypass graft surgery, positive psychology, post-operative recovery, qualitative research, recovery process, signature character strengths, thematic analysis.

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Declaration

I, Estelle Cloete, declare that "Character strengths and the role thereof in the recovery of cardiac surgery patients" is my own work and that the views and opinions expressed in this work are those of the author and based on relevant literature references as shown in the list of references.

I further declare that the content of this research will not be submitted for any other qualification(s) at any other institutions.

A handwritten signature in black ink, appearing to read 'E. Cloete'.

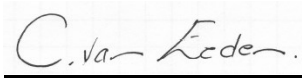
ESTELLE CLOETE

MAY 2017

Letter of Permission

The supervisor hereby gives permission to Estelle Cloete to submit this document as a mini-dissertation for the qualification MA in Positive Psychology.

The research report is in the article format as indicated in the 2015 General Academic Rules (A4.1.1.1.4 and A4.4.2.9) of the North-West University.

A handwritten signature in black ink on a light blue grid background. The signature reads "C. van Eeden." and is written in a cursive style. Below the signature is a solid black horizontal line.

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Declaration by Language Practitioner



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DECLARATION OF LANGUAGE EDITING

1 Mei 2017

To whom it may concern

This is to confirm that I, the undersigned, have language edited the mini-dissertation submitted in partial fulfilment of the requirements for the degree Magister Artium in Applied Positive Psychology at the North-West University, Vaal Triangle Campus of Estelle Cloete entitled: *Character strengths and the role thereof in the recovery of cardiac surgery patients*.

The responsibility of implementing the recommended language changes rests with the author of the dissertation.

Yours truly,

Jomone Müller

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CHAPTER 1

Character Strengths and the Role Thereof in the Recovery of Cardiac Surgery Patients: A Literature Background and Research Methodology of this Study

Wisdom would seek the form or essence of the heart...that the anatomical heart is nobody's heart. ...that there is another heart..... the heart that can break; the heart that grows weary; the hardened heart; the heartless one; the cold heart; the heart that aches; the heart that stands still; the heart that leaps with joy; and the one who has lost heart. Wisdom demands that we teach students....about the essence of this heart. The human heart. Not the pump that beats in any-body but the one that lives in my-body and your-body.

Patricia Deegan (1996): Recovery as a journey of the heart.

This study explored the role of character strengths in the recovery of Coronary Artery Bypass Graft (CABG) surgery patients. The mini-dissertation is presented in three chapters. Chapter 2 reports on the research component, in article format according to the North-West University's academic rules (A4.1.1.1.4; A4.4.2.9). Chapter 1 is a literature background of the study and therefore there may be some duplication of the literature part of Chapter 2. Chapter 3 presents the conclusions and recommendations derived from the study. In the following chapter the problem statement, study context, a literature background and the research methods of the study are discussed.

Not only is the illness experience leading to cardiac surgery and the surgical intervention itself traumatic in nature, but the recovery trajectory is described as an extremely stressful experience (Robley, Ballard, Holtzman & Cooper, 2010) and an "energy-requiring process of adapting and returning to normality and wholeness" (Allvin, 2009; p.27), that can extend over a period of several months (Brennan et al., 2001). Carver (1998) stated that people respond to traumatic or stressful events in three ways: A downward slide and eventual succumbing and surviving in an impaired condition; recovery to the prior level of functioning; or by eventually attaining a level of functioning superior to what they displayed before, namely thriving. Psychological thriving implies a kind of unexpected growth and positive self-development contrary to adversity and in one's ability to deal with the world over-all. Carver argued that "thriving mirrors the noble side of human existence, making something good out of something bad ... A thriving individual will be even stronger after a traumatic event than before" (p.263). According to Carver the challenge is to understand why some people thrive while others remain in the grip of the traumatic experience. In the same vein, Antonovsky (1979) posed the question "Whence the strength?" (p.7) in considering people's ability to resist stressful dysfunction under adverse circumstances. Therefore, from a positive psychology framework, the question would arise whether CABG patients' signature character strengths could enable them towards meaningful recovery or even eventually attaining a level of functioning superior to what was displayed before, namely thriving.

Problem Statement and Context of the Study

Cardiovascular disease (CVD) is the leading cause of death worldwide (Mackay, Mensah, Mendis & Greenlund, 2004; Mathers & Loncar, 2006; Whalley et al, 2011). It imposes enormous physical, psychological, social and financial burdens on individuals, families and society as a whole (Smith & Blumenthal, 2011). It is a chronic, progressive condition characterised by atherosclerotic plaques in the major coronary arteries (Wulsin, 2012) and it brings about symptoms such as angina pectoris, shortness of breath, progressive fatigue,

reduced quality of life and often incapacity (Boudrez & De Backer, 2001; Lopez, Ying, Poon & Wai, 2007; Thomson, Niven, Peck & Eaves, 2013).

In South Africa cardiovascular disease is increasing among all age groups and is predicted to become the main contributor to overall morbidity and mortality in the over 50-years age group (Maredza, Hofman & Tollman, 2011). The South African Medical Research Council: Burden of Disease Research Unit recently (2014) reported that the second largest single cause of death in South Africa, after HIV/AIDS (accounting for 25.5% of deaths), is ischaemic heart disease and stroke each accounting for about 6.5% of deaths (Kassebaum et al., 2014). As in most countries (Braunwald, 1997), life expectancy in South Africa has increased dramatically with a growing proportion of the population being above 60 years of age, being at greater risk for developing a cardiovascular disease (Maredza et al. 2011). Another major factor that contributes to this trend is the modernisation of the population as a result of socio-economic development, urbanisation and acculturation. This led to the adoption of a modern stressful lifestyle with unhealthy diets, physical inactivity, exacerbated by increased alcohol consumption and cigarette smoking with accompanying vascular risk factors such as high blood pressure, diabetes, obesity – both among adults and children (Steyn, 2007; Tibazarwa et al., 2008). Recently, through screening for risk factors by the Heart of Soweto Study, it was established that in a sample of almost 1700 Black African adults, four out of five had at least one easily identifiable risk factor for heart disease. The data from the population of Soweto, the largest urban residential area of predominantly Black Africans in South Africa, suggested that many urban communities in Sub-Saharan Africa are at risk of developing more affluent disease states such as coronary heart disease (Tibazarwa et al., 2008).

Coronary Artery Bypass Graft (CABG) surgery is the most common surgical treatment for patients with cardiovascular disease for whom standard medical treatment have been ineffective (Lie, Bunch, Smeby, Amesen & Hamelton, 2012). The intervention is aimed at symptom relief, improved health prognosis and increased well-being (Herlitz et al., 2009; Karlsson, Lidell & Johansson, 2013). The development of advanced surgical and anaesthetic techniques in cardiac surgery, modern post-operative care and contemporary pharmacotherapy result in very good clinical effects in most cases with symptoms that totally disappear or diminish radically, allowing patients to return to productive lives (Fitzgerald, Tennen, Affleck & Pransky, 1993). However, the performance of open heart surgery has become almost routine in health care, it still remains a unique and challenging event with a significant psychological impact on patients and their families (Stroobant & Vingerhoets, 2008).

A cardiac event is typically presented as an emergency (e.g. cardiac arrest) and causes high levels of anxiety and fear during and after hospitalisation. Any unexpected medical event can be disruptive and traumatic, requiring patients to suddenly adapt to emotional, behavioural and social demands involved in treatment and recovery (Ben-Zira & Eliezer, 1990; Foxwell, Morley & Frizelle, 2013). Concerns about another possible cardiac event that might be fatal, fears regarding invasive medical procedures and possible complications, distress after being diagnosed with a chronic disease, uncertainty about career effects and other possible life changes, may all result in feelings of powerlessness, vulnerability and demoralisation. Furthermore, the heart is perceived as “a mystified organ” in the world’s cultural legacies and many patients in these circumstances also face existential challenges and distress because of a heightened awareness of their own mortality (Ai, Hopp, Tice & Koenig, 2013).

Recovery and the challenges CABG patients face

Every surgical procedure is followed by a period of post-operative recovery involving biomedical issues and unique subjective experiences of patients (Allvin, 2009). It is difficult to define an end point for recovery after surgery as there is great individual variation in the optimum level of independence or dependence that are achieved by patients (Allvin, Berg, Idvall & Nilsson, 2007). Factors concerning the patients’ status of situation before surgery such as age and preoperative physical status are important antecedents to recovery. Allvin, Ehnfors, Rawal and Idvall (2008) developed a holistic post-operative definition of recovery as an energy-demanding process of returning to normality and wellness by comparative standards. This is achieved by regaining control over four dimensions namely the physical (decrease of unpleasant physical symptoms and regaining functions); psychological (reaching a level of emotional well-being); social (re-establish post-operative roles and activities) and habitual (re-establishing everyday life).

Although the performance of open heart surgery has become almost routine in health care, the recovery process often presents patients and their families with a much greater challenge than expected, encompassing both biophysical, psychosocial and emotional components (Robley et al., 2010; Rymaszewska, Kiejna & Hadrys, 2003; Stroobant & Vingerhoets, 2008). The trend towards early discharge after surgery, mandated by economic factors and demanded by medical insurance, has resulted that the major part of the recovery process therefore takes place after discharge from hospital. Self-management is a crucial factor in recovery and refers to the behaviours individuals are required to engage in, in order to manage their conditions and/or promote recovery. Self-management includes people’s capacity to fulfil their potential and obligations and manage their life with some degree of

independence despite a medical condition (Anthony, 1993). A stronger capability to adapt and to manage oneself often improves subjective well-being and may lead to a positive interaction between mind and body.

Recovering patients often face several challenges on their own (Gallagher & McKinley, 2009) and may therefore feel unprepared, have lack of knowledge and experience uncertainty as to what to expect during recovery (Barnason, Zimmerman & Young, 2012; Lorig & Hollman, 2003; Tolmie, Lindsay & Belcher, 2006). Post-operative recovery from cardiac surgery can be divided into three different phases: Early recovery (immediate post-operatively), intermediate phase (patients regain stable vital functions, reach home readiness) and late recovery phase (begins with discharge and lasts until patients achieve preoperative health and well-being) (Allvin, 2009). Patients' specific challenges following heart surgery include the management of physical symptoms (i.e. pain from leg and chest incisions, loss of appetite, fatigue, sleep disturbances); physical functions (i.e. gastrointestinal, bladder, sexual mobilisation); psychological functioning (i.e. difficulty in concentration and emotional challenges of anxiety, worry and feeling down); social functioning (i.e. activity intolerance, dependence on others) and social activities, (e.g. re-establishing everyday life) (Allvin, 2009; Brennan et al., 2001; Lopez et al., 2007). The chronic nature of cardio-vascular disease requires continued management of behavioural risk factors and often necessitates profound changes in the patient's lifestyle after CABG surgery in order to minimise disease progression (Rymaszewska et al., 2003).

Any persistent and/or difficult life or health situation may cause a person to be demoralised and to experience the despair, helplessness and sense of isolation that many patients feel when affected by illness and its treatments. Research has found that the degree of physical recovery after a cardiac incident and/or surgery is not just associated with illness severity, but that intra- and interpersonal aspects are important determinants of the outcome. Numerous studies have shown that psychological adversity is a strong and independent risk factor for the development and progression of cardiac disease (Chida & Steptoe, 2008, 2009; Moussavi et al., 2007; Rozanski, Blumenthal, Davidson, Saab & Kubzansky, 2005; Szepariska-Gieracha, Morka, Kowalska, Kustrzycki & Rymaszewska, 2012) and crucial in the outcome of the physical recovery processes after cardiac surgery (Hokkanen, Järvinen, Huhtala & Tarkka, 2014; Petrie, Weinman, Sharpe & Buckley, 1996). Despite the physical benefits associated with CABG, psychological distress after cardiac surgery is common and includes anxiety, depression, restlessness, irritability, panic and anger due to the feelings of powerlessness, lack of control and reduced self-esteem (Shih, Chu, Yu, Hu & Huang, 1997). Furthermore, Shih et al. (1997) found that an unexpectedly great number of patients after a successful CABG, display only minor recovery in the field of psychosocial functioning or they

do not show it at all. Tested quality of life remains low for approximately 25-40% of patients and many patients do not go back to professional activity.

According to Clarke (2014), it will to a great extent depend on the person's resources, both internal strengths and external support, to what extent they will be able to cope with the challenges posed by CABG recovery and either begin to thrive again or to remain demoralised. Psychosocial factors become even more important in the recovery trajectory of CABG patients than medical factors and have significant impact on the outcome and degree of recovery after surgery (Petrie, Cameron, Ellis, Buick & Weinman, 2002; Petrie et al., 1996; Taylor, Kemeny, Reed, Bower & Gruenewald, 2000).

Lastly, another important consideration regarding recovery is: How do we define health? The World Health Organization's (WHO) perception of health as contained in its constitution, is that health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (Huber et al., 2011). This perspective has, however, been criticised for being outdated given changed disease patterns. Smith and Blumenthal (2011) argued that the WHO requirement for complete health would leave most people unhealthy most of the time, while Huber et al. (2011) proposed changing the emphasis towards the ability to adapt and self-manage one's quality of health. Such a more dynamic formulation of health is based on people's resilience or capacity to cope in order to maintain and restore their integrity, stability and sense of well-being despite chronic and comorbid diseases.

The contextual framework for this study of character strengths that may enable individuals in their recovery after CABG surgery was outlined. The literature framework and conceptual theoretical background to the study are discussed below.

Literature Background to this Study

Health psychology and positive psychology are scientific fields that fairly recently became part of the broad Psychology discipline.

Health psychology studies the role of psychology in establishing and maintaining health, as well as preventing and treating illness. A related field, behavioural medicine focuses on developing and integrating behavioural and biomedical knowledge to build health and reduce illness (King, Ahn, Atienza & Kraemer, 2008). Behavioural cardiology is another emerging field of clinical practice based on the recognition of the pathophysiological effect of adverse lifestyles and risky behaviours, including mental mind-sets and chronic life stress in promoting coronary artery disease. It aims to become a distinct sub-speciality within cardiology that provides coordinated and integrated expertise and care for promoting patient

motivation and goal implementation to bring about behavioural change in cardiac patients, as well as to change social trends in society (Rozanski et al., 2005; Rozanaski, 2014).

However, this study was mostly embedded in the Positive Psychology perspective and framework that is discussed below.

Positive psychology and cardiac health

The positive psychology initiative is concerned with what makes life worth living (Seligman & Csikszentmihalyi, 2000). It pursues research on conditions and processes that enable human flourishing and optimal functioning (Gable & Haidt, 2005). More specifically it is also the science of discovering human strengths and fostering these strengths to enable people to thrive psychologically and physically (Lopez & Snyder, 2009).

There is increased evidence that positive psychological assets may play a critical role in cardiac health and are just as important in the outcome of the physical recovery processes after cardiac surgery (Boehm, Peterson, Kivimaki & Kubzansky, 2011; Hokkanen et al., 2014; Petrie, et al., 1996). Rozanski (2014) stated that it is not emphasised enough that there exist positive counterparts for each of the negative psychosocial risk factors, for example optimism, positive affect, a sense of emotional security, effective stress management, social belongingness and a strong sense of life purpose. Although research suggests a protective relationship between positive psychological functioning and physical health (Diener & Chan, 2011; Pressman & Cohen, 2005), different health situations call for different positive abilities or combinations of such characteristics (Baer, 2015). Boehm and Kubzansky (2012) therefore suggested that research should consider whether some unique positive psychology well-being (PPWB) constructs are specifically and more strongly associated with cardiovascular disease (CVD) and identify/utilise those. Furthermore, they also motivated for studies to focus on the restorative functions of positive psychological well-being (PPWB), rather than just focusing on protective functions against deteriorative processes. This reminds one of Peterson and Seligman's (2004) comments that crisis may or may not be the crucible of character but it certainly allows for the display of corrective strengths of character.

Whereas past research in psychology mostly looked at the impact of negative psychological states or traits (e.g. depression, anxiety, hostility) on health outcomes, the growth of the positive psychology movement led to increased research on the relationship between positive psychological functioning and physical health (Chida & Steptoe, 2008; Linley & Joseph, 2004; Pressman & Cohen, 2005; Sheldon & King, 2001; Xu & Roberts, 2010). In 2008 a programme of research namely, Positive Health, a discipline designed after

positive psychology, was launched at the University of Pennsylvania (Seligman, 2008). Positive Health seeks to identify assets that buffer against illness and promote health as well as identifying relevant strategies for building or enhancing these assets over three domains namely, biological health assets (e.g. cardiorespiratory fitness), subjective health assets (e.g. positive emotions, hope) and functional health assets (e.g. close friends, meaningful work) (Boehm & Kubzansky, 2012; Seligman et al., 2008). “The vision is that people can draw on their health assets to prevent, overcome, sidestep or cope with the illnesses and infirmities they experience” (Seligman, Railton, Baumeister, & Sripada, 2013, p.2).

Most of the mentioned programme’s research to date has explored cardiovascular disease, building on prior studies that showed strong links between subjective assets that predict health and longevity and cardiovascular disease (Boehm & Kubzansky, 2012). There is mounting evidence of the association between subjective well-being and salutary cardiac outcomes. In this regard, Park and Peterson (2009) were of the opinion that, when considering both mental and physical health, one of the best ways to address illnesses and infirmities is by leveraging character strengths (Park, Peterson & Ruch, 2009; Peterson & Seligman, 2004; Seligman et al., 2008).

Character strengths

The study of character strengths is a core focus of positive psychology (Seligman, 2002; Seligman & Csikszentmihalyi, 2000). Character strengths are considered to be the components of a positive good character, a person’s inner determinants contributing to a satisfied, happy and successful life (i.e. the good life) (Harzer & Ruch, 2015; Peterson, Park & Seligman, 2006). Character strengths can be defined as positive traits reflected in thoughts, feelings and actions. They exist in degrees and can be understood as individual differences (Park, Peterson & Seligman, 2004). In Seligman’s (2011) PERMA well-being theory, strengths especially signature strengths, serve as the essential foundation for the five components of the theory, namely, positive emotions, engagement, relationships, meaning and achievement, while Proyer, Gander, Wellenzohn and Ruch (2013) commented that in this sense, strengths serve as “lubricants” for enabling positive psychological functioning. Research has shown that increases in positive virtues or strengths are therefore associated with better physical, social and psychological functioning and fewer symptoms of mental illness (Seligman & Csikszentmihalyi, 2000; Seligman, Steen, Park & Peterson, 2005).

Character strengths are habits, relatively stable across time and relatively general across situations. They develop through dynamic contextual processes as individuals engage in on-going adaption to the environment (Aspinwall & Staudinger, 2003). Although trait-like, strengths are malleable and can be developed and enhanced (Seligman, 2002).

The VIA Classification of Strengths (VIA), a framework for defining and conceptualising strengths, emerged from an extensive study of the texts of the world's most influential religious and philosophical traditions (Dahlsgaard, Peterson & Seligman, 2005). A core set of six virtues was acknowledged as most prominent across history and cultures. Twenty-four associated character strengths were organised under the virtues: Wisdom and knowledge (*curiosity, love of learning, judgment, creativity, perspective*); courage (*bravery, industry, integrity, zest*); humanity (*love, kindness, social intelligence*); justice (*citizenship, fairness, leadership*); temperance (*forgiveness, modesty, prudence, self-control*) and transcendence (*appreciation of beauty, gratitude, hope, humour, spirituality*) (Park, Peterson & Seligman, 2006). Virtues are understood as abstract concepts whereas character strengths are seen as concrete processes and mechanisms (pathways) for displaying one or other of the virtues in everyday life, which can be assessed. Emmons and Crumpler (2000) defined virtues as "acquired excellences in character traits that contribute to a person's completeness or wholeness and facilitate adaptation to life" (p.57), while McCullaugh and Snyder (2000) offered a definition of virtue as any psychological process that consistently enables a person to think and act so as to yield benefits to him- or herself and society.

Related to the VIA, an instrument, the Values-in-Action Inventory of Strengths (VIA-IS), was created for the subjective assessment of character strengths (Peterson, Park & Seligman, 2005). The VIA questionnaire allows a systematic study of character in multidimensional terms (Park et al., 2004). Upon conclusion of the survey the participant is presented with a list of their top five strengths of character, called signature strengths, reflecting the belief that everybody has a set of strengths as uniquely their own as their signature. (Resnick & Rosenheck, 2006). Signature strengths, as reflected in the VIA-IS questionnaire, are the strengths most core to people's identities and Peterson and Seligman (2004) stated that people have between three and seven signature strengths and these are strengths that a person can readily identify as unique to them, that they celebrate and frequently exercise. When using such strengths, an individual experiences authenticity, vitality and well-being, enhanced positivity and mood improvement, feelings of pride and a sense of accomplishment and mastery (Govendji & Linley, 2007; Resnik & Rosenheck, 2006). Peterson and Seligman (2004) proposed criteria for signature strengths such as: A strength should be seen in an individual's behaviour, thoughts, feelings and/or actions, in such a way that it can be assessed (be trait-like); a strength contributes to fulfilling of an individual; a strength is morally valued in its own right; the display of a strength by one person does not belittle other people but rather uplifts them; the larger society provides institutions and rituals for fostering strengths.

One of the core characteristics of character strengths is that they determine how an individual copes with adversity, i.e. what strategies they use to cope with stress (Peterson & Seligman, 2004). Studies have found that certain character strengths work as a buffer and help maintain or even increase well-being despite challenging life events and therefore strengths such as hope, kindness, social intelligence, self-control and perspective can buffer against the negative effects of stress and trauma (Park & Peterson, 2006). This is in line with what Folkman and Lazarus (1988) noted that putting negative life events into perspective with one's own capabilities for meeting the challenge, mediates the actual experience of distress.

Peterson et al. (2006) found an association between recovery from serious physical illness, a return to life satisfaction, and subsequent increases in the strengths of bravery, kindness and humour. Referring to this research, Harzer and Ruch (2015) concluded that emotional strengths, comprising of active behaviours such as being brave, persistent and hopeful and having perspective, can be linked to taking control of one's own reactions and facing a stressful event actively (rather than passive coping). Intellectual strengths on the other hand foster the implementation of problem-solving strategies and exploring situational circumstances and may therefore contribute to an individual's more rational judgment of a stressful event that lowers the negative effect of stress about the illness. Facing challenges could therefore be seen as a natural learning opportunity to refine character strengths, because behaviour related to such character strengths may be beneficial in solving the challenges successfully (Harzer & Ruch, 2015).

Therefore, by playing a protective role, strengths may reduce feelings of devastation and discouragement in individuals when they encounter adverse situations. People tend to rely on their strengths in one domain to deal with potential weaknesses in other domains and dealing with trauma is associated with increased levels of certain character strengths (Smith, 2006). Biswas-Diener et al. (2011) introduced the concept of a strength constellation and expressed the need for research to better understand how personal qualities operate in synergy to improve psychological and physical well-being. Relating to this Aspinwall and Staudinger (2003) gave the example of the forming and maintaining of close relationships in which many human strengths can be found and are developed such as patience, empathy, compassion, cooperation, tolerance, appreciation of diversity, understanding and forgiveness.

People are not always aware of their strengths and do not consciously think about them (Govindji & Lindley, 2007). The mere identification and labelling of an individual's signature strengths has shown to have a powerful effect (Magyar-Moe, 2009; Resnick &

Rosenheck, 2006). Govindji and Lindley (2007) suggested that interventions are designed to help people identify and understand their strengths better and in the light of their past successes capitalise on their natural capacities. Character strengths as trainable personal characteristics (Peterson & Seligman, 2004) can therefore be viewed as a form of health promotion since the person is helped to develop important resources for coping with stressful events (Wong, 2006).

A commonly used intervention approach in positive psychology is to help individuals use their signature strengths more frequently and in new ways. Niemiec (2012) also reasoned that instead of teaching clients new skills, thoughts or emotional reactions, it may be helpful to assist them in identifying strengths they already have and to build resilience from existing strengths (i.e. good problem-solving skills together with a flexible sense of humour). Affirming individuals' existing character strengths can help build confidence with which to make other personal changes (Biswas-Diener et al., 2011).

As mentioned before, research suggests that positive psychological attributes like personal strengths may play a critical role in cardiac health and general recovery from illness (Peterson & Park, 2014), but limited research exists regarding such attributes or strengths and the possible outcomes for the recovery trajectory of CABG patients (Niemiec, 2012). Identifying signature strengths in patients who underwent CABG surgery may be beneficial in providing psychosocial support for them and could provide a way to instil hope and motivation for necessary lifestyle changes and increased well-being (Guse & Eracleous, 2011). In playing a protective role, strengths may reduce feelings of devastation, discouragement and demoralisation in individuals when they are confronted with the adverse, stressful situations that go together with cardiac surgery and in dealing with the recovery trajectory. Biswas-Diener et al., (2011) perceived strengths as personal potentials that emerge in distinct contexts and must be cultivated through enhanced attentiveness and effort. If serious illness contribute to the development of specific character strengths, it may be possible that those who have recovered from CABG surgery display specific, significant strengths (Boehm & Kubzansky, 2012). The challenge is therefore to identify and understand strengths, competencies and resources that can be built upon, to adapt to and overcome an illness and for making positive lifestyle changes.

Other constructs that have been researched in association with health related factors, are the following:

Psychological well-being

Research indicates the protective role of well-being for both mental and physical health (Boehm & Kubzansky, 2012). Existing perspectives on well-being emphasise the multifaceted nature thereof (Forgeard, Jayawickreme, Kern & Seligman, 2011; Gallagher, Lopez & Preacher, 2009; Keyes, 2005), while Boehm and Kubzansky (2012) argued that well-being indicates the positive feelings, cognitions and strategies of individuals who function well in their lives and evaluate their lives favourably. Vella-Brodrick (2013) explained well-being as “the noticeable presence of positive aspects of daily life sizably outnumbering the negative ones” (p.331).

The roots of well-being research lie in two longstanding research traditions (Lamers, Glas, Westerhof & Bohlmeijer, 2012). The subjective (hedonic) tradition represents the emotional aspects of well-being and focuses on feelings of happiness and life satisfaction (Diener, Suh, Lucas & Smith, 1999), while the second tradition, the eudaimonic approach, involves psychological and social well-being and reflects the realisation of one’s own potential, optimal functioning and social engagement (Provencher & Keyes, 2013; Ryff & Keyes 1995).

Furthermore, Keyes’ (2002) two-continuum model of complete mental health is seen as holistic and comprehensive as it includes the three facets of emotional, psychological and social well-being, representing both the hedonic and eudaimonic components of well-being (Wissing & Temane, 2013). The Keyes model is also seen as a construct of psychosocial well-being since it succinctly defines the intrapersonal and interpersonal features that constitute the model. Martin Seligman’s (2011) PERMA Model (Positive Emotions, Engagement, Relationships, Meaning and Achievement) was developed as a guide to help individuals find paths to flourishing. Seligman (2011) believed that strengths in each of PERMA’s areas can help individuals find happiness, fulfilment and meaning in their lives.

A significant volume of research has associated psychological well-being with increased physical health and longevity (Diener & Chan, 2011). Psychological characteristics and constructs of well-being such as optimism, positive affect, autonomy, self-efficacy, hope, meaning and purpose in life, vitality and resilience, were found to promote better physical and mental health outcomes (Chida & Steptoe, 2008; Diener & Chan, 2011; Kim, Park & Peterson, 2011; Pressman & Cohen, 2005; Rozanski, 2014; Seligman, 2008; Su, Tay & Diener, 2014); coping with stress as protection against illness (Rasmussen, Scheier & Greenhouse, 2009; Rozanski & Kubzansky, 2005; Veenhoven, 2008); have a favourable impact on disease course (Fava, Sonino & Wise, 1988); speedy recovery after surgery and fewer physical limitations with aging (Keyes, 2013).

High levels of well-being have been shown to protect against coronary heart disease (e.g. Rozansky & Kubzansky, 2005) and stroke (Kim et al., 2011), specifically through behavioural and biological mechanisms (Boehm & Kubzansky, 2012). It buffers the effects of stress by reducing the intensity or frequency of negative feelings that motivate unhealthy behaviours such as an unhealthy diet, sedentary lifestyle, cardiac reactivity and chronic states of physiological arousal that activate neuroendocrine, cardiovascular and inflammatory processes (Rozanski et al., 2005; Steptoe, Dockray & Wardle, 2009; Steptoe, Wright, Kunz-Ebrecht & Iliffe, 2006).

From a clinical viewpoint, the understanding of positive psychological health is important, since it provides avenues for interventions to improve well-being levels, such as gratitude exercises, counting blessings, kindness interventions, meditating, and thinking optimistically about the future (Boehm & Kubzansky, 2012). An individual's positive assets and strengths are therefore seen as contributing to optimal mental, physical and social functioning, above and beyond the absence of diseases and negative mental states (Su et al., 2014).

Positive affect

Cohn, Fredrickson, Brown, Mikels and Conway, (2009) specifically investigated the meanings, causes, functions and implications of the positive emotions of joy, gratitude, serenity, interest, hope, pride, amusement, inspiration, awe and love. Through positive emotions though short-lived, enduring personal resources are built, including social closeness, resilience and even physical health (Fredrickson, Mancuso, Branigan & Tugade, 2000), that spark self-sustaining upward spirals of enhanced well-being (Fredrickson, 2000; Fredrickson & Joiner, 2002). Literature shows reliable patterns between positive affect (PA) and physical health outcomes (Diener & Chan, 2011; Pressman & Cohen, 2005), including lower likelihood of cardiovascular disease (Boehm & Kubzansky, 2012; Steptoe et al., 2009). Laboratory experiments have shown that positive emotions can undo the lingering cardiovascular effects of negative emotions and speed up cardiovascular recovery to baseline levels (Fredrickson et al., 2000; Ong & Allaire, 2005). Peterson (2006) posited that the effect of positive emotions on the autonomic nervous system is similar to the relaxation response through meditation and that good moods infuse not just our minds, but our bodies. Such positive psychological states not only have a direct impact on physiology (e.g. healthy autonomic function and reduced inflammation) (Fredrickson & Levenson, 1998) but it also influences cardiac health through health behaviours such as adherence to post-surgical medication treatment (Fredrickson et al., 2000; Ong & Allaire, 2005; Pressman & Cohen, 2005). Intervention strategies that cultivate positive emotions can therefore be used to

optimize health and well-being as it not only counteracts negative emotions, but also broaden individuals' habitual ways of thinking and build their personal coping resources (Fredrickson, 2000).

Meaning and purpose in life

The positive psychology framework views meaning in life as a crucial basis for human functioning, striving and flourishing at all life stages (Janoff-Bulman, 1992; Peterson et al., 2006; Reker, 2005; Ryff & Keyes, 1995). Emmons and McCullough (2003) viewed meaning in life as the extent to which people understand, make sense of, or see the importance in their lives and perceive themselves to have a purpose, mission or overarching aim in life (Emmons & McCullough 2003; Steger, Oishi & Kashdan, 2009). For many people being diagnosed with a chronic disease such as cardiovascular disease, for the first time awareness of one's own mortality is heightened (Charles & Carstensen, 1999). Psychological distress and existential concerns are particularly common among patients with life-and-death issues (Breitbart, 2002) and in this regard, Chessick (1995) described the cardiac surgery patient's existential experience as "a boundary situation pointing either to transcendence or nothingness" (p.177). Lyon and Younger (2001) reported that, among a group of HIV/AIDS patients, purpose in life was a stronger predictor of low depressive symptoms than disease severity.

Meaning creation is associated with the development of a coherent sense of identity and finding consistency and worth in life experiences, that brings about a sense of managing and stability in an ever-changing biological process of life (Steger et al., 2009). One of the first studies to investigate the association between purpose in one's life and risk of myocardial infarction was recently done by Kim, Sun, Park, Kubzansky and Peterson (2013). In a longitudinal study among American adults over the age of 50 with cardiovascular disease (CVD), increased purpose was associated with reduced risk of myocardial infarction during a two year follow-up, suggesting it to be a possible protective factor. When individuals have a strong sense that their life has meaning, it may increase their will to live as is expressed in a heart healthy lifestyle (e.g. healthy eating, exercising and adherence to medical regiments) (Kim, et al. 2013).

Self-efficacy, optimism and hope

Snyder, Lopez and Pedrotti (2011) posited that three future-oriented concepts namely self-efficacy, optimism and hope "provide the momentum needed" to pursue a good life (p.191). These constructs are briefly described:

Self-efficacy

Self-efficacy describes individuals' beliefs in their abilities to exercise control over challenging demands and over their own functioning (Luszczynska, Scholz & Schwarzer, 2005). It is not concerned with the skills one has but "with the judgments of what one can do with whatever skills one possesses" (Bandura, 1986, p. 391). The stronger the perceived self-efficacy, the more active the coping efforts.

Efficacy beliefs have a regulatory function in different health areas, such as to adhere to medical regimens, adopt an active physical lifestyle, make necessary dietary changes, quit smoking and coping with stress, all modifying factors contributing to cardiac health (Chesney, Neillands, Chambers, Taylor & Folkman, 2006; Hevey, Smith & McGee, 1998). Self-efficacy also has an impact on various adaptive biological processes including immune function and neurotransmitters (e.g. catechol amines) that are implicated in stress management and the endorphins for muting pain (Maddux, 2009). Strong general efficacy beliefs were found to be related to recovery factors such as lower levels of depression in patients with cardiovascular disease and with adaptive problem-focused coping with health related stress and setbacks (Luszczynska et al., 2005). It is often a patient's perceived inefficacy that tends to cause avoidance of a situation or behaviour such as starting a physical exercise programme or engaging in a behaviour modification programme (i.e. to stop smoking) after recovery from CABG surgery. Bandura (1982) stated that experiences that increase coping efficacy (i.e. skills building) can diminish fear arousal and increase engaging with what was previously dreaded and avoided.

Optimism

Optimism is the positive psychology attribute most consistently associated with cardiovascular health (DuBois et al., 2012; Kim, Smith & Kubzansky, 2014). Optimists have a general expectation of positive outcomes and an outlook on life that underpins such outcomes, whereas pessimists tend to have more negative outlooks and expect adverse outcomes (Carver, Scheier & Segerstrom, 2010; Rozanski, 2014).

Research identified several mechanisms through which optimism brings about beneficial cardiovascular effects, including promotion of healthier physiology (e.g. enhanced neuroendocrine and endothelial function, reduced inflammation, better blood pressure); a greater tendency toward healthy lifestyle habits (e.g. exercise and healthy diet) and benefits that indirectly promote health such as better social functioning (Rozansky, 2014). Optimism is associated with promoting recovery from cardiac surgery both through indirect and direct pathways (Scheier et al., 1989). Optimistic individuals are more likely to take an active role in

their recovery process and engage in health promoting behaviour such as seeking information about heart disease, resume physical exercise and engage in positive lifestyle changes (Shepperd, Maroto & Pbert, 1996). They show quicker physical recovery during hospitalisation and a faster rate of return to their normal daily routine following discharge and show more life satisfaction and happiness six months later (Scheier & Carver, 1993). Kubzansky, Sparrow, Vokonas and Kawachi (2001) in a 10-year follow-up study, assessed individuals according to optimistic, neutral and pessimistic explanatory styles and found a gradient relationship between levels of optimism and cardiac outcomes, with optimism halving the risk for cardiac events. Furthermore, dispositional optimism has been linked to more favourable outcomes following bypass surgery, according to Scheier et al., (1999).

Hope

The experience of having hope has gained significant recognition as a psychosocial resource with potential as a healing factor (Farran, Herth & Popovich, 1995), with importance in coping during times of loss, suffering and uncertainty (Morse & Penrod, 1999) and with value in improving quality of life (Herth, 2001). Snyder's hope model (1995) has a cognitive-behaviour focus perceiving hope not as a passive emotion, but a malleable cognitive process through which individuals actively pursue their goals by developing multiple pathways, raise the mental agency to maintain goal pursuit and reframe obstacles to goals as challenges (Biswas-Diener, Kashdan & Kling, 2009; Cheavens, Feldman, Woodward & Snyder, 2006; Snyder, Ilardi, Cheavens, Michael, Yamhwe & Simpson, 2000). Paul (1994) developed a hope model for patients with recurrent cancer that depicts a dynamic rebuilding process involving "the identification of grounds for hope, the redefinition of objects of hope, and the reframing of self and future both realistically and positively" (p. 178).

The hope theory is based on the perception that people are inherently goal-directed and that in their pursuit of goals, they make use of two related cognitive processes, namely pathways thinking (i.e. ways to reach their goals) and agency thinking (i.e. how to initiate and sustain motivation towards a goal). According to this theory, people with high hope levels are able to think about pathways to goals and feel confident that they can pursue those pathways to reach their goals (Snyder et al., 2000).

Although not a construct in the positive psychology framework but related to disease and recovery patterns of patients, is the theoretical construct of illness representations (Foxwell et al., 2013).

Illness perceptions and cardiac health

Illness perceptions suggest that patients have beliefs and perceptions of illness experiences and is based on the Common Sense Model of Illness (Leventhal, Meyer & Nerenz, 1980; Leventhal, Nerenz & Steele, 1984). Patients' beliefs about their illness before cardiac surgery strongly influence the recovery trajectory post-operatively (Furze, Lewin, Murberg, Bull & Thompson, 2005; Juergens, Seekatz, Moosdorf, Petrie & Rief, 2010). Patients form beliefs about the characteristics, time course, possible causes, consequences and the cure and controllability of their illness (Leventhal et al., 1984) and perceptions that there is great damage to the heart, will influence their subjective health and cause more serious and long-lasting consequences, a slower return to work and higher levels of disability (Broadbent, Ellis, Thomas, Gamble & Petrie, 2009; Leventhal et al., 1984; Petrie et al., 2002). In contrast, perceived controllability and curability of the illness are positively associated with adaptive functioning (Murphy, Dickens, Creed & Bernstein, 1999). Karademas, Frokkai, Tsotra and Papazacharion (2012) found evidence that optimism is related to a more positive representation of illness (e.g. as less threatening and more controllable) that may result in improved subjective health and that illness perceptions can also influence motivation and self-efficacy to adopt positive health behaviours.

Examination of illness beliefs is valuable for further understanding of illness-related coping and for the development of interventions to enhance self-management in the recovery period (Hermele, Olivo, Namerow & Oz, 2007; Leventhal et al., 1984). A promising aspect of research on health beliefs suggests that these beliefs are modifiable through brief clinical interventions. In a clinical trial by Barefoot et al., (2011), individual counselling sessions with cardiac patients were successful in improving rates of returning to work, with evidence of positive effects on angina pain and exercise habits. These findings encourage increased research on the influence of recovery expectations and the potential benefits of attempts to modify them and one wonders whether identifying and intentionally applying signature strengths could influence such beliefs and promote recovery.

Literature pertaining to this study has been explored and the most relevant aspects thereof were discussed above, albeit briefly. The literature informed the research question that is discussed in the following section (Merriam, 2009).

Research question and objectives for the study

Based on the above exposition of literature about the CABG condition and the challenges posed by post-surgical recovery for these patients, as well as research findings indicating the salutary effects of positive psychology variables on cardiac health, the broad research

questions proposed for this study were: How could the character strengths identified by CABG patients have influenced their post-surgical recovery and adjustment processes? Specifically, after having identified their signature strengths on the VIA-IS, how did CABG patients relate such strengths as enabling factors in their recovery process? The core question was therefore: What was the role that signature character strengths played in the recovery processes of a group of CABG patients?

The research aim was to:

- Qualitatively explore how, if at all, signature strengths of CABG patients contribute to their recovery processes.

A qualitative approach was used to address the research question to obtain credible first person accounts from CABG patients of strengths-related experiences during their recovery process in the six to eight months post-surgery, especially the role played by their signature strengths towards aspects of their recovery and regaining of healthy biopsychosocial functioning. The research design and methods are discussed next.

Research Methodology.

This research study consisted of a literature and an empirical study.

Literature study

A review of related scientific literature is an important first step to develop conceptual understanding of the phenomenon to be investigated and to be able to pose significant questions (Kvale, 1996; Marshall & Rossman, 1999; Morrow, 2005; Ponterotto, 2005), and to serve as evidence for the significance of the study for practice (Haverkamp & Young, 2007). Merriam (2009) underlined the importance of identifying and declaring the theoretical framework that forms the underlying structure of a study.

Literature was obtained from amongst others, the following sources: scholar.google.co.za.; nwulib.nwu.ac.za; ncbi.nlm.nih.gov; journals.sagepub.com; psychnet.apa.org; Wolters Kluwer uptodate.com.

Empirical study

Research design

This study planned to use an exploratory descriptive qualitative research design. Creswell (2009) referred to a research design as a plan for action that starts from broad worldview assumptions and strategies of inquiry relating to this, to specific and detailed methods of collecting and analysing data in order to answer the research question. Such a plan is

developed by making decisions about four aspects of research, namely the research paradigm, purpose of the study, the techniques to be employed and the situation or context within which research will take place (Terre Blanche, Kelly, Durrheim & Painter, 2006). Coherence between research questions and the method are required in order to generate valid and reliable data (Ritchie & Lewis, 2005). Analysis of data were done according to qualitative thematic analysis (Braun & Clarke, 2006), which is best suited to shed light on the specific nature of a given group's understanding of the phenomenon under study (Joffe, 2012), in this case the role of strengths in the recovery process of CABG patients.

Qualitative research paradigm

Qualitative research is described as a means for exploring and understanding the meaning individuals ascribe to a specific phenomenon (Creswell, 2009). Qualitative research deals with real-life context, present or past and aims to achieve an understanding of the process (rather than the outcome or product) of meaning-making, of how people construct their worlds, how they interpret their experiences, how they make sense of their lives (Merriam, 2009). The interest is in the psychological meanings of lived examples of the phenomenon, therefore often becomes retrospective descriptions of a situation (Smith, 2008). This study was retrospective in that participants were six to eight months in the recovery period after having had heart surgery, in line with Morse's (2011) view that patients almost never forget significant events such as illness and hospitalisation. The value of a retrospective study is the time patients have had to reflect on the illness/surgery and its effects on their lives and that they will have reached some emotional distance from the experience. Therefore Morse (2011) argued, they will be able to give good emotional expression in their description thereof as well on "the interconnections among emotional, cognitive and physical experiences" (p.401).

Data are collected with qualitative research in the form of written or spoken language, or in the form of observations that are recorded in language. Data are not measured in terms of quantity, amount, intensity or frequency (Cibangu, 2012), but analysed by identifying and categorising themes (Haverkamp & Young, 2007). The experiential element inherent to qualitative research provides the researcher with a range of feelings, emotions, insights, views, beliefs and values of participants living in and interacting with the real world (Cibangu, 2012).

In the case of qualitative research the researcher is the primary instrument for data collection and analysis. This gives the researcher the advantage of being able to immediately clarify and summarise material and checking with respondents for accuracy of interpretation.

Relating to the context of applied health care, Nichols (2009a) stated that qualitative research addresses a set of questions specific to the context of health care that are not well addressed by quantitative research, such as a person's lived experience of illness and surgery, what they think about this phase of their lives, how they adjust to their disease and the actions they engage in, in the recovery process. Qualitative research has the simple premise that every person's experience of health and illness is unique to them (Nichols, 2009b), therefore data themes can be grounded on the meanings and cognitive concepts of the participants themselves, giving more complexity, depth of detail and emphatic appreciation of the phenomenon studied. Data in the participants own words may give clear insight into how and why phenomena come about (Nicholls, 2009b).

Marshall and Rossman (2009) reasoned that qualitative analysis proceeds from the central assumption that there is an essence to an experience that is shared with others. The shared experiences of participants who are purposefully sampled for a study, are seen as unique in identifying the essence of the experience (phenomenon). The experiential knowledge obtained in this way includes rich objective consistencies systematically collected from participants' lived worlds. However, there are shortcomings in that biases may influence the collection and interpretation of data and these need to be identified and monitored (Merriam, 2009).

Some disadvantages of qualitative research are that both data collection and data analysis are time consuming and therefore sample sizes are typically small. Qualitative research is specific to the sample and context of the research and it usually cannot be generalised to other populations or different contexts. However, Cibangu (2012) noted that a misunderstanding of qualitative research is in the belief that it is unfit for generalisation. It may be possible to identify trends that may also apply to other similar situations (in this case other cardiac diseases and/or surgical procedures), while Lucas (2003), Niaz (2007), Onwuegbuzie and Leech (2010), stated that the deeper the knowledge one has about a case, the easier it is to transfer that knowledge to a larger population.

Participant selection and procedure

Participants for this study were recruited purposefully from the cardiac surgery population who underwent CABG six to eight months ago in a local private hospital. Purposive sampling is often used in qualitative research where participants are selected because they can offer meaningful insights into the phenomenon being studied (Carpenter & Suto, 2008; Creswell, 2009) and therefore as participants representative of the population under study, give credibility to the research findings (Arksey & Knight, 1999).

For most qualitative studies ten participants are typically considered an appropriate number (Maree, 2007). One way of identifying how many participants the study needs, is to keep interviewing until data saturation occurs when recurrent themes come forward from the data and additional sampling provides no new information (Patton & Chocharn, 2002).

As the study group was essentially homogenous as a cardiac population, the researcher attempted to achieve “maximum variation” sampling as described by Patton and Chocharn (2002). This involves selecting key demographic variables that are likely to have an influence on participants’ views of the topic such as including patients of different age groups (adults, elderly); gender (male/female); race/ethnicity (white, black, coloured, Asian); career (working/retired); living arrangements (with a partner/alone) and have children, as well as patients who have recovered well and those who had a complicated and lengthened path to recovery. This may be useful in terms of minimising sample biases such as only including older women (Patton & Chocharn, 2002).

Sampling in this research was also partially a convenience sample. Patients undergoing CABG surgery in the local private hospital come from a wide (demographic) area, often from different provinces, are often elderly and not always able to travel to come for follow-up appointments and therefore will not be able to be interviewed face-to-face. Also, as only one cardiac unit was involved, there may not be enough (± 10) participants at a set point of 6 to 8 months post-operative to be included in the sample. The selected participants were therefore recruited mostly from the Vaal Triangle and on the basis of their availability and willingness to participate (Gravetter & Forzano, 2008). If necessary, patients with combined surgical procedures of CABG and valve repair/replacement could be included since the procedures are rather similar and the post-operative processes are also about the same.

Participant criteria

The period of six to eight months post-surgery was chosen for this study because literature suggests that most people have recovered by that time (Hargreaves, 2007). In order for the researcher to obtain a sample with suitable patients, the following were proposed:

Inclusion criteria

- Participants must be six to eight months into the recovery period after CABG surgery.
- Participants from different age groups (35-80 years), various backgrounds and ethnicity and representing both sexes were included to ensure rich and varied research data.
- Participants should be able to read and speak English (to be able to complete the VIA-IS online).

- Participants must be able to avail themselves for the 2 hours of participation in the research, at a venue that would suit them.
- Only participants who have consented to participate by signing the consent form were interviewed.

Exclusion criteria

- Participants who are suffering from another acute condition that could influence the data provided.

The recruiting of research participants. Once the researcher obtained ethical permission from the NWU research ethics committee to conduct the research, locating participants with the necessary characteristics began. Morse (2011) stated that it is a courtesy to inform the surgeon whose patients are recruited about the project and that his permission is essential before patients (and former patients) are invited to partake in the study.

A cardiothoracic surgeon who performed the CABG surgery on the patients (possible participants) agreed to cooperate and for the names of patients suitable for this study to be sourced from his files and to sign the researcher's letter of introduction to the study. Possible participants were then identified from practice files according to the inclusion criteria. The identified persons were contacted and informed about the research and on agreement further information and the consent letter were sent to them and the signed consent letter was received back from them. Thereafter participants' details were given to the researcher and she could proceed with research procedures.

The consent form contained the following elements: Identification of the researcher; how the participants were selected; a purpose statement of the study; identification of benefits for participating; identification of the nature of participant involvement; number of interviews; indication of possible risks to the participant; guarantee of confidentiality to participant; assurance the participant can withdraw at any time and the provision of the names of the research supervisors to contact if questions arose (Creswell, 2009; Maree, 2007; Merriam, 2009).

The setting for the interviews needed to be easily accessible to the participants. Interviews therefore took place in the researcher's office, a room free of disturbance from outside and centrally situated. Truly interested individuals who were physically unable to attend the interview session were accommodated as far as possible and were even interviewed at an agreed upon suitable place.

Data collection strategies and procedures

Demographic questionnaire

Participants were given a short socio-demographic questionnaire that provides information on participants' gender, age, work and marital status. Participants answered each item using defined categories and indicated which applies to them. Pseudonyms of their choice were used to ensure confidentiality.

VIA-IS

Although the VIA-IS was not used as a data gathering instrument for analysis purposes, but as a source of information for the participants, it is nonetheless described here:

The Values in Action Inventory of Strengths (VIA-IS) is a self-report instrument designed for the assessment of character strengths. In order to measure the degree to which an individual possesses 24 character strengths (LaFollette, 2010). The VIA-IS is a 240-item self-report questionnaire that has 24 sub-scales measuring the strengths of creativity, curiosity, open-mindedness, love of learning, perspective, bravery, persistence, integrity, vitality, love, kindness, social intelligence, citizenship, fairness, leadership, forgiveness and mercy, humility and modesty, prudence, self-regulation, appreciation of beauty and excellence, gratitude, hope, humour, and spirituality. There are ten questions per sub-scale with three items being reverse-scored. The examinee is asked to rate each question on a five-point Likert-scale ("1 = very much unlike me" through "5 = very much like me"). Scores are calculated by averaging the relevant items for each subscale. Higher numbers on a scale reflect more of the strength (Van Eeden, Wissing, Dreyer, Park & Peterson, 2008).

Administration consideration: The scale takes approximately 45 minutes to complete. The VIA-IS is only available online. Therefore to take the VIA, clients must have computer and Internet access and literacy to take the test (Grade 8 reading level) (LaFollette, 2010). For test takers that find focusing difficult, completion may be difficult and they may need the researcher's assistance. A brief report is available for free online. Feedback is given about an individual's top five strengths also called signature strengths.

Psychometric properties

The VIA-IS has demonstrated sound psychometric properties and has been well-researched with a variety of populations. All subscales have been found to have acceptable internal consistency reliabilities with Cronbach's alphas greater than .70 (Peterson et al., 2005). Test-retest correlations for all scales over a four-month period are greater than .70. Although the 24 strengths the VIA-IS assesses are cross-culturally relevant, it is important to

remember that there are differences within cultures, in terms of what an individual values (Van Eeden et al., 2008).

Semi-structured individual interviews

The main means of collecting data were through the use of semi-structured individual interviews, lasting around 60-90 minutes. Patton and Cochran (2002) noted that interviews resemble everyday conversations but are focused around areas of particular interest. Face-to-face interviews enable the researcher to gain participants' cooperation by establishing a relationship with them that facilitates a high level of responses (Leedy & Ormrod, 2001). Interviews must be conducted in a rigorous way to ensure trustworthiness, in the sense that the findings "reflect what the research set out to answer rather than reflecting the bias of the researcher" (Patton et al., 2002, p. 11). The techniques used in the interview should aim to be reproducible, systematic, credible, and transparent. The interviews were, with consent of participants audiotaped and later transcribed for analysis.

However, whereas topics are usually introduced by the researcher as basis for the interview, Joffe (2012) developed the Grid Elaboration Method (GEM) of free association to elicit more naturalistic data, in the sense that it follows the pathways of the respondents' thoughts and feelings rather than imposing questions and topic areas. In order to apply the GEM, the meeting with each participant begins with a task that elicits first thoughts: Respondents are given a grid containing four empty boxes and are encouraged to write or draw in each box any word, image or feeling that comes to mind concerning the research issue. Prior to this they are only given a very general sense of the field (topic) of study (Joffe, 2012; Joffe & Else, 2014). The instruction given to participants to elicit free association in this study could be: "We are interested in learning about your CABG experience and especially how you recovered. Now that you know what your signature strengths are, please place words or images in each box about your strengths during your recovery time and even currently." The aim is to draw out subjectively relevant material about a given topic and then to pursue the chains of association of thought. Further information will thereafter be obtained in the ongoing interview. Each interview is transcribed and entered into a qualitative software package for analyses (Joffe, 2012).

In this study, an interview guide, listing questions and topics to be explored in the interview, was also used to guide the interviews (Rubin & Babbie, 2001). The semi-structured interview format provides information about participants' perceptions, views and beliefs in their own terms and allows for probes and clarification during interviews to ensure maximum understanding of their experiences (Denzin & Lincoln, 2000). Questions proposed were:

- How did your signature strengths influence your recovery process?
- Were certain strengths more helpful than others?
- How can you further develop and use the strengths to assist you in your healthy lifestyle?
- Are there other strengths that you would like to develop?

The researcher utilised field notes in conjunction with a reflective journal during the research process. This contained descriptions of the researcher's reflections regarding conversations, intuitions and new ideas as well as any observations noted during interviews (Morse, Barrett, Mayan, Olson & Spiers, 2002). A reflective journal proved to be an effective tool to include as a description of the role of the researcher and reflections on the researcher's thought processes. It allowed for stepping back and reflecting on the researcher's experiences and interpretations. The inclusion of field notes and the reflective journal as part of the data-collection, contributes to credibility and trustworthiness (Janesck, 2014).

Data collection procedure

At the start of the research session the researcher explained the aims of study once again to the participant, as well as the format and duration of the interview, that it will be audiotaped and terms of confidentiality to be addressed. Any questions participants may have had, was attended to (McNamara, 2009).

A short presentation was then given on character strengths. Participants completed the VIA-IS in the presence of the researcher and was guided if necessary, regarding completion of the questionnaire online. After receiving feedback about their signature strengths, a brief break with refreshments was offered and then the interview was conducted.

Analysis of data

Data obtained from interviews were transcribed and analysed by means of qualitative thematic analysis, a method for identifying, analysing and reporting patterns within data (Braun & Clarke, 2006). The end result of a thematic analysis should indicate the most prominent patterns of meanings identified in the dataset, including the affective, cognitive and symbolic dimensions (Joffe, 2012).

Thematic analysis is not linked to a particular theoretical framework and can be applied as a research tool when using various theories and epistemological approaches (Braun & Clarke, 2006). Therefore it is a flexible and useful tool that can provide a rich,

detailed and complex account of data. It is an empirically-driven approach that emphasises a systematic and transparent analysis, allowing other researchers to trace the process whereby the results were obtained (Joffe, 2012).

Thematic analysis utilises both inductive and deductive sets of themes as it approaches each dataset with theoretical ideas that the researcher brings to the study (deductive) as well as taking seriously the naturalistically occurring themes evident in the data itself (Joffe, 2012). Thematic analysis also attends to manifest (directly observable) content as well as latent (hidden) content underlying manifest themes that requires interpretation (Joffe & Yardley, 2004).

The thematic analysis method is a comparatively easy to learn qualitative analytic approach that does not require detailed theoretical and technological knowledge, therefore offers a more accessible form of analysis for those less experienced in qualitative research. This method of analysis is useful in the applied field for health and well-being research (Braun & Clarke, 2014).

Thematic analysis procedure

Verbal (audiotaped) data from interviews need to be transcribed into written form in order to conduct a thematic analysis. The process of transcription can be an excellent way to start familiarising oneself with the data. Thematic analysis follows six phases or steps, namely:

Phase 1: Familiarising oneself with the data

This involves a process of immersion through repeated reading of the entire dataset to get familiar with the general trend of the data content and noting initial points of analytic interest including meaning, patterns, recurrent ideas and the general trend of findings (Bailey, 2008).

Phase 2: Coding the data

Coding involves a systematic and thorough process whereby codes, relating to the research question, are derived from the entire dataset (Braun, Clarke & Terry, 2015). A code is a word or short phrase that captures a key analytical idea in the data (Braun & Clarke, 2006). Codes can range from descriptive summarising of semantic content to a more analytical interpretive insight by the researcher.

Phase 3: Searching for themes

In this phase the researcher's focus shifts from codes to construction of themes. Practically this process involves identifying clusters of similar meaning across the codes. A theme is a coherent and meaningful pattern in the data relevant to the research question. This phase

ends with a collection of possible themes and sub-themes and all extracts of data that have been coded in connection to them (Braun & Clarke, 2006).

Phase 4: Reviewing themes

This step involves rechecking that identified themes have a good fit with the coded data extracts. This means reading all the relevant extracts for each theme and considering whether they form a coherent pattern. It also involves rechecking the entire dataset to ensure that identified themes reflect meaning across the whole dataset and that crucial data were not missed (Braun & Clarke, 2006).

Phase 5: Defining and naming themes

This phase involves doing an analysis of data in each theme, identifying the core meaning of each theme, establishing how it fits into the overall story and thinking of a brief, punchy and descriptive name for each theme (Braun & Clarke, 2006). This highlights the conceptual and analytical interpretation of the data and describes the key concept that is captured. The interpretation of data and the development of a narrative that provides the reader with an account of what is contained in the data and what that means for the research question is crucial in this phase (Braun et al., 2015).

Phase 6: Producing the report

In the last phase the researcher comes to a written conclusion or report of the meaning of the data by using thematic categories as headings (Terre Blanche et al., 2006). Persuasive extract examples can be used illustratively and/or analytically (Braun and Clarke, 2014), informing the reader of the credibility of the analysis. Writing up therefore involves a) a refined analytical analysis that goes beyond description of the data stating why it is significant and answers the research question (Braun & Clarke, 2006) and b) a report that explains, positions and contextualises the analysis in relation to existing theory and research (Braun & Clarke, 2014).

The researcher's stance in this study

Vanderford, Jenks and Sharf (1997) stated that the objectivity of patient centred research is influenced by the interests and identity of a researcher, as the researcher is the primary instrument for data collection and analysis. The researcher must consider and disclose personal involvement in the topic, as identification between the interviewer and patient can have strong influences on conclusions that emerge, since it biases the way that the researcher hears and interprets patients' narratives. The qualitative researcher's challenge is

to demonstrate that these personal interests will not result in a biased approach to the study (Miller & Crabtree 1992).

This researcher's long experience of working with cardiac surgery patients allowed her to understand the culture of cardiac patients and the challenges of the trajectory of recovery in a way not possible through interviews alone. Becker and Geer (1957) described such experience as building "an ever growing fund of impressions, many of them at the subliminal level. The wealth of information and impressions sensitizes him/her to subtleties that might pass unnoticed in an interview" (Becker & Geer, 1957, p. 141). In this study, this "inside" knowledge also contributed to the formulation of the research question.

The researcher aimed to move between the practical experience of working with cardiac patients and abstract theoretical knowledge of the strengths-based paradigm, involving the participants as partners in the research process. She aimed to immerse herself in the participants' ways of thinking and modes of perception, encouraging them to investigate, examine, think about and recognise the strengths that subtly shape their lives and then report on it (Kincheloe & McLaren, 2011). Four probing strategies were used during the interview, namely repeating, request for clarification; request for elaboration; and request for confirmation, to reduce the risk of researcher bias or influence (Abrandt, 1997). The researcher's intention was to understand and qualitatively interpret the experiences of the participants, relying as much as possible on their views of the situation being studied (Creswell, 2009). The individuality of participants was acknowledged and each participant had the opportunity to explore character strengths true to themselves. The researcher as a registered clinical social worker has years of experience of conducting interviews that assisted her in this research process.

Trustworthiness and credibility of the study

Reliability and validity are terms used in quantitative research and refer to the replicability and accuracy of measures (Saldana, 2014). In qualitative research the constructs of credibility and trustworthiness (Lincoln & Guba, 1985) are considered more appropriate (Saldana, 2014).

Credibility is based on determining whether the findings are accurate from the standpoint of the researcher, the participant or the readers of an account (Creswell & Miller, 2000). It was achieved in this study by prolonged engagement with participants; researcher reflexivity and participant checks, as well as through thick descriptions, bringing to light multiple layers of experience, feelings and context in which the experiences are embedded (Bowen, 2005). Saldana (2014) also mentioned that credibility in a qualitative research

report can be established by citing the key writers of related works in the literature review as this shows that the responders have done their homework. Credibility also entails conducting a study that is precise and repeatable, being consistent across time, researchers and techniques of analysis. This can be accomplished by maintaining meticulous records of all the research processes of data collection and analysis, (i.e. interviews) and documenting the process of analysis in detail (Johnson & Waterfield, 2004; Patton & Chocharn, 2002).

To increase rigor in this study the researcher engaged in reflexivity that involves critical reflection on the research process and on one's own role as researcher (Joffe & Elsey, 2014). This is done to ensure that findings represent as far as possible the situation being researched rather than the beliefs or biases of the researcher (Creswell, 2009). A reflective journal and field notes assisted in this regard. Throughout the data analysis process the researcher kept an audit trail (Flick, 1998) of analysis that clearly describes the steps she took including a description of the reflexivity within each step to establish rigor (Johnson & Waterfield, 2004). This reassures readers that one have completed and documented the study carefully and professionally. Although not included in the final report, the audit trail should be available to other researchers to examine as the research procedures are fully described (Yardley, 2008).

The researcher made use of a co-coder, as the integrity of findings lies in the data and verification by means of a co-coder can be a valuable strategy. Opposing perspectives can bring an increased understanding of the data (Creswell, 2009). The researcher further took descriptions of the themes identified back to participants to establish whether these are accurate representations of their meanings (Yardley, 2008).

Finally, presenting negative or discrepant information was done. When discussing evidence about a theme the researcher also engaged in the complementary process of giving attention to and reporting data that does not fit or contradicts with the general perspective of the themes or patterns that have been identified. This contributes to credibility as it reassures the reader that all the data have been taken into account and were presented rather than just selecting the parts that fitted with the researches viewpoint (Creswell, 2009).

Ethical considerations for this study

Patton and Chocran (2002) noted that a starting point in considering ethical concerns is the four principles of Beauchamp and Childress (1983): Autonomy (respecting the rights of the individual), beneficence (doing good), non-maleficence (not doing harm) and justice (equity). Being a registered clinical social worker, the researcher must adhere to a strict ethical code

of practice in which these four values are entrenched. This personal context steered the researcher in all research related activities with the participants involved.

Autonomy

Proper respect for human freedom includes voluntary agreement of the individual to participate in research and their agreement must be based on full and open information about the nature and consequences of the research in which they are involved. In this study the informed consent form explained participants' right to voluntary participation and to withdraw without consequence at any time; the purpose, procedures and methods of the study; participants right to ask questions and to obtain a copy of the results; rights to confidentiality; the potential benefits of participating in the study as well as both the participant and the researcher giving their signatures (Creswell, 2009).

Privacy and confidentiality

Codes of ethics insist on protecting people's identities and those of the research locations (Christians, 2011). All personal information given by participants was protected and kept confidential. Participants were assigned pseudonyms of their choice so that anonymity in reporting of findings was ensured.

Beneficence

This ethical principle means doing well to others and preventing harm to participants (Creswell, 2009). The research methods of this study aimed to ultimately benefit and not harm participants (Creswell, 2009). Furthermore, the design of the study availed itself to the empowering of participants by providing information on character strengths and to individually discover their signature character strengths through the completion of the VIA-IS and receiving feedback. The retrospective interviews gave participants the opportunity to reflect on their experience of heart surgery with more perspective and with someone listening with sincere interest and an empathic stance – yet with perspective as a researcher and not as a counsellor.

The researcher strived for an ethical research study by making the research protocol transparent and by including information such as the rationale and purpose of the study. The researcher made sure that an accurate account is given of the participant's shared information by checking the data with the participants in follow-up contacts and by debriefing them after the interview (Creswell, 2009).

Interviewing in qualitative research is increasingly being seen as a moral inquiry (Kvale, 1996). The researcher aimed to build a relationship with participants as equals with mutual respect, dignity and trust. A researcher should consider how the interview will

improve the participant's situation as well as enhance scientific knowledge and that a sensitive interview may be stressful for the participants and time-consuming interviews may be tiresome (Kvale,1996). In the context of this study, the researcher realised that talking about experiences that were frightening and painful could cause or increase anxiety during an interview or afterwards. Care was taken as to how questions were formulated. Should a participant get upset, they were calmed and if necessary referred for a single session of counselling with a counsellor who agreed to render this service.

Justice

The ethical principle of justice ensures that all participants are equally treated and not personally discriminated against. In this study justice was evident as participants were not excluded from the study because they did not recover well, or due to gender, ethnic group, age, racial group considerations. They were, however, not able to participate if they were unable to understand English as the VIA-IS survey has not yet been translated and validated in South African languages.

Research data are kept safe in secure personal and password protected electronic files for a period of five years (NWU policy) after the study has been completed, after which it will be safely destroyed. Further ethical precautions pertaining to this study were explained in detail in documents for the ethics committee and in the letters of consent to gatekeepers and participants.

Possible contribution of this study

In discussing the Positive Health project that promotes well-being beyond the mere absence of disease, Seligman (2008) argued that certain health assets may protect against illness and building these assets may be an effective and inexpensive strategy for prevention. Assets in three psychological domains have been identified that seem relevant to health: biological, subjective and functional. However, there exists a gap in literature as to whether and how patients' signature character strengths (as subjective health assets) contribute to the recovery process and health-related outcomes and well-being of patients after CABG surgery.

This study aimed to determine whether and how patients' signature character strengths have contributed to their recovery and subjective well-being after CABG surgery and were even developed through the process. The researcher hoped that the insights derived from studying this one context (CABG patients recovery) may prove to be useful in other contexts with similarities.

Participants in this study, by identifying and learning about their strengths through the strengths presentation and the completion of the VIA-IS as well as by sharing their experiences from their own mental frameworks, hopefully benefitted and personally grew in wellness and recovery.

Conclusion

The research process can be summarised as follows:

1. Writing and approval of proposal.
2. Obtain ethical clearance and permission from cardiothoracic surgeon.
3. Recruitment: Contact potential participants telephonically to discuss giving of informed consent and other relevant information regarding the research and arranging to deliver the demographic questionnaire and informed consent form in person.
4. Getting written informed consent from participants.
5. Arrange individual sessions with each participant.
6. Do VIA-presentation and VIA-IS completion.
7. Conduct further interviews to explore strengths in recovery.
8. Engage in process of transcribing the tape recordings and arrange for tapes to be kept in a private safe.
9. Check accuracy with participants telephonically.
10. Continue with process of analysis and write research report.
11. Give feedback to participants regarding research results, giving them the opportunity to ask any questions they may have.
12. Keep the electronic data safe for five years

Chapter layout

Chapter 1: Literature overview and research methodology.

Chapter 2: Patient experiences of signature character strengths in the recovery period after CABG surgery.

Chapter 3: Conclusions, limitations and recommendations.

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CHAPTER TWO

Manuscript: Character Strengths of Cardiac Surgery Patients: How Strengths Contributed Towards Recovery

Abstract

This study qualitatively explored how signature character strengths were identified and used in recovering from open heart surgery, by ten CABG patients. The participants were between four and eight months post-surgery.

A literature study was done about cardiac illness and the surgical procedures following such trauma, the impact thereof on patients' psychosocial well-being, positive psychology and cardiac wellness, character strengths and the role thereof in illness recovery and physical well-being. An empirical study was done using interviews as a method of data collection and qualitative thematic analyses combined with the Atlas-ti software system, for data analysis.

Findings were that participants did not primarily use their signature strengths identified by the VIA-IS during their CABG recovery processes, but rather other VIA-IS related character strengths. Transcendence strengths followed by Humanity and Courage strengths were most prominently used, and less so Temperance strengths (except self regulation), Wisdom and Knowledge strengths and least of all justice strengths. It would seem as if an hierarchy or constellation of strengths emerged, that were context specific to CABG recovery for the participants involved. The strengths were also inter-related and interactive. A further finding was that certain strengths did not facilitate the CABG recovery as such, but rather emerged and grew out of the recovery experiences and challenges. These strengths were termed post-traumatic growth strengths. Finally, limitations of this study were indicated and recommendations flowing from it were made.

Keywords: cardiac surgery, character strengths, CABG: coronary artery bypass graft surgery, positive psychology, post-operative recovery, qualitative research, recovery process, signature character strengths, thematic analysis.

This study explored the role of character strengths in the recovery of coronary artery bypass (CABG) surgery patients.

Not only is the illness experience leading to cardiac surgery and the surgical intervention itself traumatic in nature, but the recovery trajectory is described as an extremely stressful experience (Robley, Ballard, Holtzman & Cooper, 2010) and an “energy-requiring process of adapting and returning to normality and wholeness” (Allvin, 2009; p. 27), that can extend over a period of several months (Brennan et al., 2001). Carver (1998) stated that people respond to traumatic or stressful events in three ways: A downward slide and eventually becoming stuck in an impaired condition; recovery to the prior level of functioning; or by eventually reaching a level of functioning higher to what they displayed before, namely thriving. Psychological thriving implies a kind of unexpected growth and positive self-development contrary to adversity and in one’s ability to manage one’s world over-all. Carver (1998) argued that “thriving mirrors the noble side of human existence, making something good out of something bad A thriving individual will be even stronger after a traumatic event than before” (p. 263). According to Carver (1998) the challenge is to understand why some people thrive while others remain in the grip of the traumatic experience. In the same regard, Antonovsky (1979) posed the question “Whence the strength?” (p. 7) in considering people’s ability to resist stressful dysfunction under adverse circumstances. Therefore, from a positive psychology framework the question would arise whether CABG patients’ signature character strengths could enable them towards meaningful recovery or even eventually attaining a level of functioning superior to what was displayed before, namely thriving.

Problem Statement and Context of the Study

Cardiovascular disease (CVD) is the leading cause of death worldwide (Mackay, Mensah, Mendis & Greenlund, 2004; Mathers & Loncar, 2006; Whalley et al., 2011). It imposes enormous physical, psychological, social and financial burdens on individuals, families and society as a whole (Smith & Blumenthal, 2011). It is a chronic, progressive condition characterised by atherosclerotic plaques in the major coronary arteries (Wulsin, 2012) and it brings about symptoms such as angina pectoris, shortness of breath, progressive fatigue, reduced quality of life and often incapacity (Boudrez & De Backer, 2001; Lopez, Ying, Poon & Wai, 2007; Thomson, Nilven, Peck & Eaves, 2013).

Coronary Artery Bypass Graft (CABG) surgery is the most common surgical treatment for patients with cardiovascular disease for whom standard medical treatment has been ineffective (Lie, Bunch, Smeby, Amesen & Hamelton, 2012). The intervention is aimed at symptom relief, improved health prognosis and increased well-being (Herlitz et al., 2009;

Karlsson, Lidell & Johansson, 2013). The development of advanced surgical and anaesthetic techniques in cardiac surgery, modern post-operative care and contemporary pharmacotherapy, result in very good clinical effects in most cases with symptoms that totally disappear or diminish radically, allowing patients to return to productive lives (Fitzgerald, Tennen, Affleck & Pransky, 1993). However, even though the performance of open heart surgery has become almost routine in health care, it still remains a unique and challenging event with a significant psychological impact on patients and their families (Stroobant & Vingerhoets, 2008).

A cardiac event typically presents as an emergency (e.g. cardiac arrest) and causes high levels of anxiety and fear during and after hospitalisation. Any unexpected medical event can be disruptive and traumatic, requiring patients to suddenly adapt to emotional, behavioural and social demands involved in treatment and recovery (Ben-Zira & Eliezer, 1990; Foxwell, Morley & Frizelle, 2013). Concerns about another possible cardiac event that may be fatal, fears around invasive medical procedures and possible complications, distress after being diagnosed with a chronic disease, uncertainty about career effects and other possible life changes, may all result in feelings of powerlessness, vulnerability and demoralisation. Furthermore, the heart is perceived as “a mystified organ” in most cultural legacies and many patients with cardiac illness, also face existential challenges and distress because of a heightened awareness of their own mortality (Ai, Hopp, Tice & Koenig, 2013).

Recovery and the challenges facing CABG patients

Every surgical procedure is followed by a period of post-operative recovery involving biomedical issues and unique subjective experiences of patients (Allvin, 2009). It is difficult to define an end point for recovery after surgery, as there is great individual variation in the optimum level of independence or dependence that will be achieved by patients (Allvin, Berg, Idvall & Nilsson, 2007). Factors concerning the patients' status or situation before surgery such as age and pre-operative physical states are important antecedents to recovery. Allvin, Ehnfors, Rawal and Idvall (2008) developed a holistic post-operative view of recovery as an energy consuming process of returning to normality and wellness by comparative standards. This is achieved by regaining control over four dimensions namely physical (decrease of unpleasant physical symptoms and regaining functions); psychological (reaching a level of emotional well-being); social (re-establish post-operative roles and activities) and habitual (re-establishing everyday life).

Although the performance of open heart surgery has become almost routine in health care, the recovery process often presents patients and their families with a much greater

challenge than expected, encompassing both biophysical, psychosocial and emotional components (Robley et al., 2010; Rymaszewska, Kiejna & Hadrys, 2003; Stroobant & Vingerhoets, 2008). With the trend towards early discharge after surgery, mandated by economic factors and demanded by medical insurance, the major part of the recovery process therefore takes place after discharge from hospital. Self-management is a crucial factor in recovery and refers to the behaviours individuals are required to engage in, in order to manage their conditions and/or promote recovery. Self-management includes people's capability to fulfil their potential and obligations and live their life with some degree of independence despite a medical condition (Anthony, 1993). An enhanced capability to adapt and to manage oneself often fosters subjective well-being and may result in a positive interaction between mind and body.

Recovering patients often face several challenges on their own (Gallagher & McKinley, 2009) and may thus feel unprepared, lack knowledge and experience uncertainty as to what to expect during recovery (Barnason, Zimmerman, & Young, 2012; Lorig & Hollman, 2003; Tolmie, Lindsay, & Belcher, 2006). Post-operative recovery from cardiac surgery can be divided into three different phases: Early recovery (immediate post-operatively), intermediate phase (patients regain stable vital functions, reach home readiness) and late recovery phase (begins with discharge and lasts until patients achieve preoperative health and well-being) (Allvin, 2009). Patients' specific challenges following heart surgery include the management of physical symptoms (i.e. pain from leg and chest incisions, loss of appetite, fatigue, sleep disturbances); physical functions (i.e. gastrointestinal, bladder, sexual mobilisation); psychological functioning (i.e. difficulty in concentration and emotional challenges of anxiety, worry and feeling down); social functioning (i.e. activity intolerance, dependence on others) and social activities (e.g. re-establishing everyday life) (Allvin, 2009; Brennan et al., 2001; Lopez et al., 2007). The chronic nature of cardio vascular disease further requires continued management of behavioural risk factors and often necessitates profound changes in the patient's lifestyle after CABG surgery in order to minimise disease progression (Rymaszewska et al., 2003).

Any persistent and/or difficult life or health situation may cause a person to be demoralised and feel despair, helplessness and a sense of isolation, as most patients experience when affected by illness and its treatments. Research has found that the degree of physical recovery after a cardiac incident and/or surgery is not just linked to illness severity, but that intra- and interpersonal aspects are important determinants of the outcome. Numerous studies have shown that psychological distress is a strong and independent risk factor for the development and progression of cardiac disease (Chida & Steptoe, 2009;

2008; Moussavi et al., 2007; Rozanski, Blumenthal, Davidson, Saab & Kubzansky, 2005; Szepariska-Gieracha, Morka, Kowalska, Kustrzycki & Rymaszewska, 2012) and crucial in the outcome of the physical recovery processes after cardiac surgery (Hokkanen, Järvinen, Huhtala & Tarkka, 2014; Petrie, Weinman, Sharpe & Buckley, 1996). Despite the physical benefits associated with CABG, psychological distress after cardiac surgery is common and includes anxiety, depression, restlessness, irritability, panic and anger due to the feelings of powerlessness, lack of control and reduced self-esteem (Shih, Chu, Yu, Hu & Huang, 1997). Furthermore, these authors found that an unexpectedly great number of patients, after a successful CABG display only minor recovery in the field of psychosocial functioning or they do not show it at all. Tested quality of life remains low for approximately 25-40% patients and many patients do not go back to professional activity.

However, despite the bleak picture painted above, according to Clarke, Perera and Casey (2016) it will to a great extent depend on the person's resources, both internal strengths and external support, to what extent they will be able to cope with the challenges posed by CABG recovery and either begin to thrive again or to remain demoralised. Psychosocial resources such as character strengths among others, become even more important in the recovery trajectory of CABG patients than medical factors and have significant impact on the outcome and degree of recovery after surgery (Petrie, Cameron, Ellis, Buick & Weinman, 2002; Petrie et al., 1996; Taylor, Kemeny, Reed, Bower & Gruenewald, 2000). These facts prompted this study in which the research question of what role signature character strengths play in the recovery processes of CABG patients, was addressed.

Above, the contextual framework for this study of character strengths that may enable individuals in their recovery after CABG was sketched. The literature framework and conceptual theoretical background to the study, are discussed below.

Literature Background to this Study

Health psychology and positive psychology are the scientific fields that this study were theoretically based on, with emphasis on the latter.

Positive psychology and cardiac health

The positive psychology framework and research field is concerned with what makes life worth living (Seligman & Csikszentmihalyi, 2000). It pursues research on conditions and processes that enable human flourishing and optimal functioning (Gable & Haidt, 2005). More specifically it is also the science of discovering human strengths and fostering these strengths to enable people to thrive psychologically and physically (Lopez & Snyder, 2009).

There is increasing evidence that positive psychological assets may play a critical role in cardiac health and are just as important in the outcome of the physical recovery processes after cardiac surgery (Boehm, Peterson, Kivimaki & Kubzansky, 2011; Hokkanen et al., 2014; Petrie et al., 1996). Rozanski (2014) stated that it is not emphasised enough that there exist positive counterparts for each of the negative psychosocial risk factors, for example optimism, positive affect, a sense of emotional security, effective stress management, social belongingness and a strong sense of life purpose. Although research suggests a protective relationship between positive psychological functioning and physical health (Diener & Chan, 2011; Pressman & Cohen, 2005), different health situations call for different positive abilities or combinations of such characteristics (Baer, 2015). Boehm and Kubzansky (2012) thus suggested that research should consider whether some unique positive psychology well-being constructs are specifically and more strongly associated with cardiovascular disease and identify/utilise those. They also motivated for studies to focus on the restorative functions of positive psychological well-being rather than just focusing on protective functions against deteriorative processes. This reminds one of Peterson and Seligman's (2004) comment that crisis may or may not be the crucible of character, but it certainly allows for the display of corrective strengths of character.

Whereas past research in psychology mostly looked at the impact of negative psychological states or traits (e.g. depression, anxiety, hostility) on health outcomes, the growth of the positive psychology movement led to increased research on the relationship between positive psychological functioning and physical health (Chida & Steptoe, 2008; Linley & Joseph, 2004; Pressman & Cohen, 2005; Sheldon & King, 2001; Xu & Roberts, 2010). In 2008 a programme of research namely, Positive Health, a discipline designed after positive psychology, was launched at the University of Pennsylvania (Seligman, 2008). Positive Health seeks to identify assets that buffer against illness and promote health as well as identifying relevant strategies for building or enhancing these assets over three domains namely, biological health assets (e.g. cardiorespiratory fitness), subjective health assets (e.g. positive emotions, hope) and functional health assets (e.g. close friends, meaningful work) (Boehm & Kubzansky, 2012; Seligman, 2008). "The vision is that people can draw on their health assets to prevent, overcome, sidestep or cope with the illnesses and infirmities they experience" (Seligman, Railton, Baumeister & Sripada, 2013, p. 2).

Most of the mentioned programme's research to date has explored cardiovascular disease, building on prior studies that showed strong links between subjective assets that predict health and longevity and cardiovascular disease, (Boehm & Kubzansky, 2012). There is mounting evidence of the association between subjective well-being and salutary cardiac

outcomes. In this regard, Park and Peterson (2009) was of the opinion that, when considering both mental and physical health, one of the best ways to address illnesses and infirmities is by leveraging character strengths (Park, Peterson & Ruch, 2009; Peterson & Seligman, 2004; Seligman et al., 2008).

Character strengths

The study of character strengths is a core focus of positive psychology (Seligman, 2002; Seligman & Csikszentmihalyi, 2000). Character strengths are considered to be the components of a positive good character, a person's inner determinants contributing to a satisfied, happy and successful life (i.e. the good life) (Harzer & Ruch, 2015; Peterson, Park & Seligman, 2006). Character strengths can be defined as positive traits reflected in thoughts, feelings and actions. They exist in degrees and can be understood as individual differences (Park, Peterson & Seligman, 2004). In Seligman's (2011) PERMA well-being theory, strengths especially signature strengths, serve as the essential foundation for the five components of the theory, namely, positive emotions, engagement, relationships, meaning and achievement while Proyer, Gander, Wellenzohn and Ruch (2013) commented that in this sense, strengths serve as "lubricants" for enabling positive psychological functioning. Research has further shown that increases in positive virtues or strengths are thus associated with better physical, social and psychological functioning and fewer symptoms of mental illness (Seligman & Csikszentmihalyi, 2000; Seligman, Steen, Park & Peterson, 2005).

The VIA Classification of Strengths (VIA), a framework for defining and conceptualising strengths, emerged from an extensive study of the texts of the world's most influential religious and philosophical traditions (Dahlsgeaard, Peterson, Park & Seligman 2005). A core set of six virtues was acknowledged as most prominent across history and cultures. Emmons and Crumpler (2000) defined virtues as "acquired excellences in character traits that contribute to a person's completeness or wholeness and facilitate adaptation to life" (p. 57), while McCullough and Snyder (2000) offered a view of virtue as any psychological process that consistently enables a person to think and act so as to yield benefits to themselves and society. In the VIA, twenty-four associated character strengths were categorised under the virtues: Wisdom and knowledge (*curiosity, love of learning, judgment, creativity, perspective*); courage (*bravery, industry, integrity, zest*); humanity (*love, kindness, social intelligence*); justice (*citizenship, fairness, leadership*); temperance (*forgiveness, modesty, prudence, self-control*) and transcendence (*appreciation of beauty, gratitude, hope, humour, spirituality*) (Park, Peterson & Seligman, 2006). Where virtues are conceived as abstract concepts, character strengths are seen as concrete processes and mechanisms

(pathways) for displaying the virtues in everyday life and which can be assessed. The virtues and related character strengths are displayed in Figure 1 below.



Figure 1: VIA-IS virtue groups and accompanying strengths

Related to the VIA measuring instrument, the Values-in-Action Inventory of Strengths (VIA-IS) was created for the subjective assessment of character strengths (Peterson, Park & Seligman, 2005). The VIA questionnaire allows a systematic study of character in multi-dimensional terms (Park et al., 2004). After conclusion of the survey the participant is provided with a list of their top five strengths of character, called signature strengths,

reflecting the belief that everybody has a unique set of strengths as much their own as their signature. (Resnick & Rosenheck, 2006). Signature strengths, are the strengths most core to people's identities and Peterson and Seligman (2004) stated that people have between three and seven signature strengths and these are strengths that a person can readily identify as unique to them, that they celebrate and frequently exercise. When using such strengths, an individual experiences authenticity, vitality and well-being, enhanced positivity and mood improvement, feelings of pride and a sense of accomplishment and mastery (Govendji & Linley, 2007; Resnik & Rosenhek, 2006). Peterson and Seligman (2004) proposed criteria for signature strengths such as: A strength should be seen in an individual's behaviour, thoughts, feelings and/or actions, in such a way that it can be assessed (be trait-like); a strength contributes to fulfilling of an individual; a strength is morally valued in its own right; the usage of a strength by one person does not minimise other people but rather uplifts them; the larger society provides institutions and rituals for developing strengths.

One of the core characteristics of character strengths is that they determine how an individual copes with adversity, i.e. what strategies they use to cope with stress (Peterson & Seligman, 2004). Studies have found that certain character strengths work as a buffer and help maintain or even increase well-being, despite challenging life events and thus strengths such as hope, kindness, social intelligence, self-control and perspective can buffer against the negative effects of stress and trauma (Park & Peterson, 2006). This is in line with what Folkman and Lazarus (1988) noted, that putting negative life events into perspective with one's own capabilities for meeting the challenge, mediates the actual experience of distress.

Peterson et al. (2006) found an association between recovery from serious physical illness, a return to life satisfaction and subsequent increases in the strengths of bravery, kindness and humour. Referring to this research, Harzer and Ruch (2015), concluded that emotional strengths, comprising active behaviours such as being brave, persistent and hopeful and having perspective, can be linked to controlling one's own reactions and facing a stressful event directly (rather than passive coping). Intellectual strengths on the other hand foster the production of problem-solving strategies and exploring situational circumstances and may therefore contribute to an individual's more rational judgment of a stressful event that lowers the negative effect of stress about the illness. Facing challenges could thus be seen as a natural learning opportunity to refine character strengths, because behaviour related to such character strengths may be beneficial in solving the challenges successfully.

Thus, by playing a protective role, strengths may reduce feelings of devastation and discouragement in individuals when they encounter adverse situations. People tend to rely on their strengths in one domain to deal with potential weaknesses in other domains and dealing with trauma is associated with increased levels of certain character strengths (Smith, 2006). Biswas-Diener, Kashdan and Minhas (2011) introduced the concept of a strength constellation and expressed the need for research to understand how personal qualities operate in synergy to improve psychological and physical well-being. Relating to this, Aspinwall and Staudinger (2003) gave the example of the forming and maintaining of close relationships, in which many human strengths can be found and are developed such as patience, empathy, compassion, cooperation, tolerance, appreciation of diversity understanding and forgiveness.

People are not always aware of their strengths and do not consciously think about them (Govindji & Lindley, 2007). The mere identification and labelling of an individual's signature strengths has shown to have a powerful effect (Magyar-Moe, 2009; Resnick & Rosenheck, 2006). Govindji and Lindley (2007) suggested that interventions be designed to help people identify and understand their strengths better and in the light of their past successes capitalise on their natural capacities. Character strengths as trainable personal characteristics (Peterson & Seligman, 2004) can therefore be viewed as a form of health promotion since the person is helped to develop important resources for coping with stressful events (Wong, 2006).

A commonly used intervention approach in positive psychology is to help individuals use their signature strengths more frequently and in new ways. Niemiec (2012) also reasoned that instead of teaching clients new skills, thoughts or emotional reactions, it may be helpful to assist them in identifying strengths that they already have and to build resilience from existing strengths (i.e. good problem solving skills combined with a flexible sense of humour). Affirming individuals' existing character strengths can help to develop their confidence to make other personal changes (Biswas-Diener et al., 2011).

As mentioned before, research suggests that positive psychological attributes like personal strengths may play a critical role in cardiac health and general recovery from illness (Peterson & Seligman, 2004), but limited research exists regarding such attributes or strengths and the possible outcomes for the recovery trajectory of CABG patients (Berscheid, 2012). Identifying signature strengths in patients who underwent CABG surgery may be beneficial in delivering psychosocial support to them and could provide a way to instil hope and motivate for necessary lifestyle changes and increased well-being (Guse & Eracleous, 2011). In playing a protective role, strengths may reduce feelings of devastation,

discouragement and demoralisation in individuals when they are confronted with the adverse, stressful situations that go together with cardiac surgery and in dealing with the recovery trajectory. Biswas-Diener et al., (2011) viewed strengths as personal potentials that emerge in distinct contexts and must be cultivated through enhanced attentiveness and effort. If serious illness contribute to the development of specific character strengths, it may be possible that those who have recovered from CABG surgery display specific, significant strengths (Boehm & Kubzansky, 2012). The challenge is therefore to identify and understand strengths, competencies and resources that can be used for adapting to an illness and for making positive lifestyle changes, which is the aim of this study.

Research Question and Objectives for the Study

Based on the above exposition of literature about the CABG condition and the challenges posed by post-surgical recovery for these patients, as well as research findings indicating the salutary effects of positive psychology variables on cardiac health, the broad research questions proposed for this study were: How could the character strengths identified by CABG patients have influenced their post-surgical recovery and adjustment processes? Specifically, after having identified their signature strengths on the VIA-IS, how did CABG patients relate such strengths as enabling factors in their recovery process? The core question was thus: What was the role that signature character strengths played in the recovery processes of a group of CABG patients?

The research aim was to:

- Qualitatively explore how, if at all, signature strengths of CABG patients contribute to their recovery processes.

In order to address the research question, a qualitative approach was used to obtain credible first person accounts from CABG patients of strengths-related experiences during their recovery process in the six to eight months post-surgery, especially the role played by their signature strengths towards aspects of their recovery and regaining of healthy biopsychosocial functioning. The research design and methods are described below.

Research Methodology.

This research consisted of a literature and an empirical study.

Literature study

Review of related scientific literature is an important first step to develop conceptual understanding of the phenomenon to be investigated and to be able to pose significant

questions (Kvale, 1996; Marshall & Rossman, 2011; Morrow, 2005; Ponterotto, 2005), as well as to serve as evidence for the significance of the study for practice (Haverkamp & Young, 2007). Merriam (2009) underlined the importance of identifying and declaring the theoretical framework that forms the underlying structure of a study.

Literature was obtained from amongst others, the following sources: scholar.google.co.za.; nwulib.nwu.ac.za; ncbi.nlm.nih.gov; journals.sagepub.com; psychnet.apa.org; Wolters Kluwer uptodate.com.

Empirical study

Research design

This study used an exploratory descriptive qualitative research design, from a phenomenological perspective. Analysis of data were done according to qualitative thematic analysis (Braun & Clarke, 2006), which is best suited to shed light on the specific nature of a given group's understanding of the phenomenon under study (Joffe, 2012), in this case the role of strengths in the recovery process of CABG patients.

Qualitative research paradigm: Qualitative research is described as a way of exploring and understanding the meaning individuals ascribe to a specific phenomenon (Creswell, 2009). Qualitative research deals with real-life contexts, present or past and aims to achieve an understanding of the process (rather than the outcome or product) of meaning-making, of how people construct their worlds, how they interpret their experiences, how they make sense of their lives (Merriam, 2009). The experiential element inherent to qualitative research provides the researcher with a range of feelings, insights, views, beliefs and values of participants living in and interacting with the real world (Cibangu, 2012).

The researcher is the primary instrument for data collection and analysis with qualitative research. This gives the researcher the advantage of being able to immediately clarify and summarise material and checking with respondents for accuracy of interpretation. However, there are shortcomings in that biases may impact on the collection and interpretation of data and these need to be identified and monitored (Merriam, 2009).

Relating to the context of applied health care, Nicholls (2009a) stated that qualitative research addresses a set of questions specific to the context of health care that are not well addressed by quantitative research, such as a person's lived experience of illness and surgery, what they think about this phase of their lives, how they adjust to their disease and the actions they engage in in the recovery process. Qualitative research has the simple assumption that every person's experience of health and illness is unique to them (Nicholls,

2009b), therefore data themes can be grounded on the meanings and cognitive concepts of the participants themselves, giving more complexity, depth of detail and emphatic appreciation of the phenomenon studied. Data in the participants own words may give clear insight into how and why phenomena come about (Nicholls, 2009b).

Participant selection and procedure

Participants for this study were recruited purposefully from the cardiac surgery population who underwent CABG six to eight months ago and conveniently, in a local private hospital. Purposive sampling is often used in qualitative research where participants are selected because they can offer meaningful insights into the phenomenon being studied (Carpenter & Suto, 2000; Creswell, 2009) and as participants representative of the population under study, give credibility to the research findings (Arksey & Knight, 1999).

For most qualitative studies ten participants are typically considered an appropriate number (Maree, 2007). One way of identifying how many people you need, is to keep interviewing until data saturation occurs when recurrent themes come forward from the data and additional sampling provides no new information (Patton & Chocharn, 2002).

As this study group was essentially homogenous as a cardiac population, the researcher attempted to achieve “maximum variation” sampling as described by Patton and Chocharn (2002). This involves selecting key demographic variables that are likely to have an impact on participants’ views of the topic such as including patients of different age (adults, elderly); gender (male/female); race/ethnicity (White, Black, Coloured, Asian); career (working/retired); living arrangements (with a partner/alone) and have children, as well as patients who have recovered well and those who had a complicated and lengthened path to recovery. This may be useful in terms of minimising sample bias such as only including older women (Patton & Chocharn, 2002).

Participant criteria: The period of six to eight months post-surgery was chosen for this study because literature suggests that most people have sufficiently recovered by that time (Hargreaves, 2007). In order for the researcher to obtain a sample with suitable patients, the following were proposed:

Inclusion criteria

- Participants were six to eight months into recovery period after CABG surgery.
- Participants from different age groups (35-80 years), various backgrounds and ethnicity and representing both sexes were included to ensure rich and varied research data.

- Participants were be able to read and speak English (to be able to complete the VIA-IS online).
- Only participants who do not suffer from any other acute condition that is currently receiving medical attention and may impact on recovery, were interviewed.

The recruiting of research participants was done in full adherence to the ethical criteria of the North-West University. Participants were selected from the practice files of a cardiothoracic surgeon with his permission and with the assistance of his secretary. After being informed of the nature of the research and having signed informed consent forms, the participants were individually contacted by the researcher and further research procedures were arranged. Table 1 below shows demographic information about the participants.

Table 1: *Participant demographic information*

Name	Age	Ethnicity	Gender	Marital status	Employment status	Post-op. time
Ri	71	White	F	Married	Retired	4 mnts
Em	50	White	M	Married	Employed	7 mnts
An	60	White	M	Married	Unemployed	8 mnts
Jo	54	White	M	Divorced	Self employed	8 mnts
Da	59	Black	M	Married	Unemployed	8 mnts
Tha	57	Black	M	Married	Employed	8 mnts
Wil	54	White	M	Divorced	Employed	8 mnts
Ka	32	Asian	M	Married	Employed	8 mnts
Be	76	White	M	Married	Retired	4 mnts
Th	74	White	M	Married	Semi-retired	8 mnts

Table 1 shows that the reality of selection brought about that of the ten consenting participants, only one female was included and only one person in the early adulthood developmental phase. Two participants were also four months into recovery and not six to eight months as planned. Twenty individuals were approached for participation, but only ten consented.

Data collection strategies and procedures

Demographic questionnaire: Participants were given a short socio-demographic questionnaire that provides information such as their gender, age, work and marital status. Participants answered each item using defined categories and indicated which applies to them. Pseudonyms of their choice were used to ensure confidentiality.

VIA-IS: Although the VIA-IS was not used as a data-gathering instrument for analysis purposes, but as a source of strengths identification for the participants, it is nonetheless described here:

The Values in Action Inventory of Strengths (VIA-IS) is a self-report instrument designed for the assessment of character strengths, to measure the degree to which an individual possesses 24 character strengths (LaFollette, 2010). The VIA-IS is a 240-item self-report questionnaire that has 24 sub-scales measuring the strengths of creativity, curiosity, open-mindedness, love of learning, perspective, bravery, persistence, integrity, vitality, love, kindness, social intelligence, citizenship, fairness, leadership, forgiveness and mercy, humility and modesty, prudence, self-regulation, appreciation of beauty and excellence, gratitude, hope, humour, and spirituality. There are ten questions per sub-scale with three items being reverse-scored. The testee is asked to rate each question on a five-point Likert-scale (1 = very much unlike me through 5 = very much like me). Scores are formed by averaging the relevant items for each subscale. Higher numbers on a scale reflect more of the strength (Van Eeden, Wissing, Dreyer, Park & Peterson, 2008).

Administration consideration: The scale takes approximately 45 minutes to complete. The VIA-IS is only available online at <http://www.authentichappiness.com> and is in English. Therefore, to take the VIA clients must have computer and Internet access and literacy and have a reading proficiency of at least the 8th grade (LaFollette, 2010). For test takers that find focusing difficult, completion may be difficult and they may need the assistance of the researcher when taking it. A brief report is available for free on <http://www.viacharacter.org>. Feedback is given about an individual's top five strengths, which are called signature strengths.

Psychometric properties: The VIA-IS has demonstrated sound psychometric properties and has been well-researched with a variety of populations. All subscales have been found to have acceptable internal consistency reliabilities with Cronbach's alphas greater than .70 (Peterson et al., 2005). Test-retest correlations for all scales over a four-month period are >.70. Although the 24 strengths that the VIA-IS assesses are cross-culturally relevant, it is important to remember that there is variability within cultures in terms of what an individual values (Van Eeden et al., 2008).

Semi-structured individual interviews: The main means of collecting data were through the use of semi-structured individual interviews, lasting around 60-90 minutes. Patton (2002) noted that interviews resemble everyday conversations but are focused around areas of

particular interest. The interviews were, with consent of participants audiotaped and later transcribed for analysis.

Furthermore, whereas topics are usually introduced by the researcher as basis for the interview, Joffe (2012) developed the grid elaboration method (GEM) of free association to elicit more naturalistic data, in the sense that it follows the pathways of the respondent's thoughts and feelings rather than imposing questions and topic areas. In order to apply the GEM, the meeting with each participant begins with a task that elicits first thoughts: Respondents are given a grid containing four empty boxes and are encouraged to write or draw in each box any word, image or feeling that comes to mind concerning the research issue. Prior to this they are only given a very general sense of the field (topic) of study (Joffe, 2012; Joffe & Elsey, 2014). The instruction given to participants to elicit free association in this study was: "We are interested in learning about your CABG experience and especially how you recovered. Now that you know what your signature strengths are, please place words or images in each box about your strengths during your recovery time and even currently." The aim was to draw out subjectively relevant material about the given topic and then to pursue the chains of association of thought. Further information was thereafter obtained in the ongoing interview.

An interview guide, listing questions and topics to be explored in the interview, were also used to steer the interviews (Rubin & Babbie, 2001). The semi-structured interview format provides information about participants' perceptions, views and beliefs in their own terms and allows for probes and clarification during interviews to assure maximum understanding of their experiences (Denzin & Lincoln, 2000). Questions proposed were:

- How did your signature strengths influence your recovery process?
- Were certain strengths more helpful than others?
- How can you further develop and use the strengths to assist you in your healthy lifestyle?
- Are there other strengths that you would like to develop?

The researcher utilised field notes in conjunction with a reflective journal during the research process. This contained descriptions of the researcher's reflections regarding conversations, intuitions and new ideas as well as any observations noted during interviews (Morse, Barrett, Mayan, Olson & Spiers, 2002). The inclusion of field notes and the reflective journal as part of the data-collection, contributes to credibility and trustworthiness (Janesck, 2014).

Data collection procedure: At the start of the research session the researcher explained the aims of study once again to the participant, as well as the format and duration of the interview, that it will be audiotaped and the terms of confidentiality to be addressed. Any questions participants may have had, were attended to (McNamara, 2009).

A short presentation was then given on character strengths. Participants completed the VIA-IS in the presence of the researcher and was guided if necessary regarding completion of the questionnaire online. After receiving feedback about their signature strengths, a brief break with refreshments was offered and then the interview was conducted.

Analysis of data

Data obtained from interviews were analysed by means of qualitative thematic analysis, a method for identifying, analysing and reporting patterns within data (Braun & Clarke, 2006). The end result of a thematic analysis should indicate the most prominent patterns of meanings identified in the dataset, including the affective, cognitive and symbolic dimensions (Joffe, 2012).

Thematic analysis is not linked to a particular theoretical framework and thus can be used as a research tool in a range of theories and epistemological approaches (Braun & Clarke, 2006). Thus it is a flexible and useful tool that can provide a rich, detailed and complex account of data. It is an empirically-driven approach that emphasises systematic and transparent analysis, allowing other researchers to trace the process whereby the results were obtained (Joffe, 2012).

Thematic analysis utilises both inductive and deductive sets of themes as it approaches each dataset with theoretical ideas that the researcher brings to the research (deductive) as well as taking seriously the naturalistically occurring themes evident in the data itself (Joffe, 2012). Thematic analysis also attends to manifest (directly observable) content as well as latent (hidden) content underlying manifest themes that requires interpretation (Joffe & Yardley, 2004).

Thematic analysis procedure: Verbal (audiotaped) data from interviews were transcribed by the researcher into written form in order to conduct a thematic analysis. The process of transcription can be a very good way to start familiarising oneself with the data. Thematic analysis follows six phases or steps, as described by Braun and Clarke (2006) namely, immersion in data to become familiar with the content, developing initial codes, searching for themes, reviewing themes, naming and defining themes and finally reporting the findings. A

co-coder using the Atlas-ti (Lewins & Silver, 2007) method analysed the transcripts and the researcher analysed the transcriptions manually according to thematic analysis. Findings were integrated, divergent aspects were discussed and consensus reached and further verified by the study supervisor.

About two weeks after the interviews and after a preliminary thematic analysis, member checking was done with participants. The identified strengths clusters were explained to them and their individual usage of strengths in each cluster was verified. They also shared their experience of the research, which was overly positive and meaningful.

Trustworthiness and credibility of the study

Reliability and validity are terms used in quantitative research and refer to the replicability and accuracy of measures (Saldana, 2014). In qualitative research the constructs of credibility and trustworthiness (Lincoln & Guba, 1985) are considered more appropriate (Saldana, 2014).

Credibility is based on determining whether the findings are accurate from the viewpoint of the researcher, the participant or the readers of the report (Creswell & Miller, 2000). It was achieved in this study by prolonged engagement with participants; researcher reflexivity and participant checks, as well as through thick descriptions, bringing to light multiple layers of thought, feelings and context in which the experiences are embedded (Bowen, 2005). Saldana (2014) mentioned that credibility in a qualitative research report can be established by citing the key writers of related works in the literature review as this shows that the researchers have done their homework. Credibility also entails conducting a study that is precise and repeatable, being consistent across time, researchers and techniques of analysis. This can be accomplished by maintaining meticulous records of all the research processes of data collection and analysis, (i.e. interviews) and documenting the process of analysis in detail (Johnson & Waterfield, 2004; Patton & Chocharn, 2002).

In order to increase rigor in this study the researcher engaged in reflexivity that involves critical reflection on the research process and on one's own role as researcher (Joffe, 2015). This is done to ensure that findings represent as far as possible the phenomenon being researched rather than the beliefs or biases of the researcher (Creswell, 2009). A reflective journal and field notes assisted in this regard. Throughout the data analysis process the researcher kept an audit trail (Flick, 1998) of analysis that clearly describes the steps she took including a description of the reflexivity within each step to establish rigor (Johnson & Waterfield, 2004). This reassures readers that one have completed and documented the study carefully and professionally. Although not included in

the final report, the audit trail should be available for other researchers to examine, as the research procedures are fully described (Yardley, 2008).

The researcher made use of a co-coder, as the integrity of findings lies in the data and verification by means of a co-coder can be a valuable strategy. Opposing perspectives can bring an increased understanding of the data (Creswell, 2009). The researcher further took descriptions of the themes identified back to participants, to establish whether these were accurate captures of their meanings (Yardley, 2008).

Finally, presenting negative or discrepant information was done. When discussing evidence about a theme the researcher engaged in the complementary process of giving attention to and reporting data that does not fit or contradicts the general perspective of the themes or patterns that have been identified. This contributes to credibility as it reassures the reader that all the data have been taken into account and were presented rather than just selecting the parts that fitted with the researcher's viewpoint (Creswell, 2009).

Ethical considerations for this study

Patton and Chocharn (2002) noted that a starting point in considering ethical concerns is the four principles of Beauchamp and Childress (1983): Autonomy (respecting the rights of the individual), beneficence (doing good), non-maleficence (not doing harm) and justice (equity). Being a registered clinical social worker, the researcher must adhere to a strict ethical code of practice in which these four values are entrenched. This personal context steered the researcher in all research related activities with the participants involved.

All ethical principles as required by the North-West University for research of this nature were strictly adhered to, which included voluntary participation with written informed consent, anonymous and confidential reporting of findings obtained with the data provided by participants, the right to withdraw and upholding the dignity of participants at all times. Ethical approval for this study was granted by the North-West University (NWU-HS-2016-0046).

Research Results and Discussion

In the following part the qualitative results of this study obtained from in depth interviews with participants after they identified their signature strengths with the VIA-IS, are described. Qualitative analysis with the Atlas-ti (Lewins & Silver, 2007) software package and thematic analyses by the researcher provided the findings.

The signature strengths of the ten participants of this study as identified by the VIA-IS are shown in Table 2.

Table 2: *VIA-IS Signature Strengths Results: N = 10*

IDENTIFIED STRENGTHS (in descending order)	NUMBER OF PARTICIPANTS ENDORISING STRENGTH					
	1	2	3	4	5	6
Gratitude						
Kindness and generosity						
Honesty, authenticity, genuineness						
Fairness, equality and justice						
Zest, enthusiasm and energy						
Spirituality sense of purpose/ faith						
Industry, diligence and perseverance						
Appreciation of beauty/excellence						
Self-control and self- regulation						
Forgiveness						
Bravery						
Hope/optimism, future-mindedness						
Caution, prudence and discretion						
Leadership						
Judgement/Critical thinking						
Modesty and Humility						
Curiosity/interest in the world						

From the participants' VIA-IS identified signature strengths displayed in Table 2, it would seem that the strengths primarily manifested by them, were gratitude (6), kindness and generosity (6), honesty, authenticity and genuineness (5), from the virtue clusters of Transcendence, Humanity and Courage respectively. Thereafter, strengths in the clusters of Justice (4) and Courage (4) were prominent, while thirdly strengths of Transcendence, Temperance, Wisdom and Knowledge virtues, characterised participants. Strengths of spiritual connectedness, emotional relatedness and personal courage thus seem to have been most salient to the majority of participants. The role of these signature strengths in the recovery from CABG of these participants, will be discussed in the following sections.

GRID elaboration method

The grid elaboration method of Joffe (2012) was used as an introduction to the semi-structured interviews, to ensure that the scope of the participant responses is not constrained by focussing only on researcher imposed questions and to allow participants to convey their own sense of what is important, thereby eliciting personal thoughts and emotions that may be underlying the surface content of particular issues (Joffe & Elsey, 2014). Two examples of GRID responses are the following:

Participant Da wrote in one of the grid boxes the words: *turning problems into motivations*. He was invited to talk about this self-chosen topic and said: *First it was the operation now my work is taken from me which was one of my strongest points. I want to turn my problem into a motivation so I channelled all my energies into the church*. The GRID prompted him to tap into what was foremost in his mind and this led to insight as to how his core character strengths (i.e. industry, diligence and perseverance; prudence, discretion and self-regulation) enabled him towards accepting one reality while facing the next. He also seemed to be finding renewed purpose and meaning as well as to plan and engage with new future projects, through which he regained a sense of control and self-esteem.

Participant Ka wrote the word *fear* in one box of the GRID. He vividly expressed the nature of his experiences of emotional lability, fear and anxiety after discharge from hospital: *But when you leave the hospital ... that is when the fear starts kicking in ... the anxiety it was like this uncontrollable surge of different emotions ... all at once and sometimes at different times it also helped me when I lashed out ... I knew I had to say "Sorry" yet the crying helped me feel better ...* Ka apparently went through a process of awareness and unbiased self-processing (Kernis, 2003), self-acceptance and self-compassion initially, to be able to move towards self-regulation, courage and persistence (core strengths) in later phases of his recovery (Du Toit, Wissing & Khumalo, 2014).

The strength words most often inscribed in the grid boxes were: Gratitude (blessing/gift/another chance), self-responsibility, willingness, self-motivation, perseverance, self-regulation, faith (in God, in the surgical intervention/surgeon, in yourself), being positive, future-minded and supportive relationships.

In this study the GRID method proved to be a good introduction to the in-depth interviews and seemingly also had an ice-breaking effect.

Strengths used in the recovery process

In line with the research question of this study, strengths contributing to the recovery from open heart surgery in ten participants were qualitatively explored and are discussed below. Table 3 illustrates the strengths of the participants that were identified from transcriptions of the interviews.

It was noteworthy that participants did not primarily use the top five to six signature strengths identified for them by the VIA-IS and as shown in Table 2, in the recovery processes. A comparative analysis for instance revealed that spirituality, sense of purpose and faith were only sixth in priority and identified by only three participants as a signature strength. According to the inductive analysis this strength however was most frequently used and mentioned by nine participants.

Table 3: *Strengths of participants as identified from the interviews (N = 10)*

	Ri	Em	An	Joh	Da	Tha	Wi	Ka	Be	Thi
WISDOM & KNOWLEDGE										
Creativity (originality, ingenuity)	x			x						
Curiosity (interest, novelty-seeking, openness to experience)										
Open-Mindedness (judgment, critical thinking)										X
Love of learning										
Perspective										
COURAGE										
Bravery (valour)								X		X
Persistence (perseverance, industriousness)		x	x	x	x	x	x		x	
Integrity (authenticity, honesty)			x							
Vitality	x		x	x	x					
HUMANITY										
Love			x			x		X	x	
Kindness (generosity, nurturance, care, compassion, altruistic love)		x		x	x					
Social intelligence (emotional intelligence, personal intelligence)	x						x			X
JUSTICE										
Citizenship (social responsibility, loyalty, teamwork)										
Fairness										
Leadership										
TEMPERANCE										
Forgiveness (mercy)										
Humility (modesty)										
Prudence										
Self-regulation (self-control)	x	x				x	x	X	x	X
TRANSCENDENCE										
Appreciation of beauty & excellence (awe, wonder, elevation)				x			x			
Gratitude					x			X		
Hope (optimism, future mindedness, future orientation)		x	x			x			x	
Humour (playfulness)										
Spirituality (religious, faith, meaning)	x	x		x	x	x	x	X	x	X

In Table 3 it is evident that strengths relating to recovery processes that were identified from analyses of transcriptions of the interviews, clustered mainly around the four virtues of

Transcendence, Courage, Humanity and Temperance. These strengths and their relevance to CABG recovery of the participants are described below.

Transcendence strengths

These were the strengths most prominently used by participants. Transcendence strengths are the spiritual strengths of appreciation of beauty/excellence, gratitude, hope, humour and religiousness/spirituality. Peterson and Seligman (2004, p. 38) defined transcendence as “the connection to something higher – the belief that there is meaning or purpose larger than ourselves” and as “anything that makes our everyday concerns seem trifling and the self seem small”. Frankl (1969) believed that a person finds meaning in life through self-transcendence in three ways: Giving to the world through creativity such as in family, occupation and creative works; taking from the world by being receptive to others and to one’s environment and finding meaning in the attitude one takes to one’s adverse situations.

Self-transcendence was described by Coward (1990) as “the capacity to reach out beyond oneself, to extend oneself beyond personal concerns and to take on broader life perspectives, activities and purposes. Reaching out beyond oneself, without devaluing the self leads to finding meaning in life” (p. 162). Self-transcendence is often associated with an incident that generates intense experiences of physical and emotional distress. In Coward’s (1990) study of women with advanced breast cancer, the transcending of self seemed to have resulted from willingness and great effort of the patients to manage both the physical and emotional effects of their disease.

Spirituality

Spiritual beliefs, religious faith and values are resources that patients tap into to understand their suffering, find meaning, learn to cope with their illness and find some sort of peace. Puchalski and Romer (2000) found that with palliative care patients, spiritual questions included: What gives my life meaning? Why is this happening to me? How will I survive this? What will happen to me when life ends? Such questions are often asked by cardiac surgery patients.

Nine out of the ten participants in this study expressed a renewed and/or deepened sense of spirituality as an enabling factor in their recovery after heart surgery. The mean age group of most of the participants (64 years) may have influenced this finding. In this regard Isaacowitz, Vaillant and Seligman (2003) stated that strengths can only be fully understood when studied for changes and continuity across lifespan, while Martinez-Marti and Ruch (2014) suggested that, although hope seems to be especially relevant at all stages in life, it may take another form in old age, namely *faith*. These authors added that for old or ill adults

who have a greater awareness of finitude, strengths that enable them to integrate the past into the present such as gratitude and forgiveness and that allow transcendence (i.e. spirituality/religiousness), that may be beneficial and contribute to their health and well-being.

The illness and surgery experiences of participants in this study brought a heightened awareness of their mortality. Most participants were of the opinion that it was only through divine intervention that they were brought back to life and they experienced an overwhelming sense of awe and gratitude for the power and goodness of God. Research has shown that through the pathway of gratitude, spirituality exerts its beneficial effects on physical health (ie. better mood and sleep, more self-efficacy, lower fatigue and inflammation) and mental health (psychological well-being) (Mills et al., 2015). Such spirituality entails positive emotions of inspiration and an awareness and appreciation of the beauty of life and the world itself, as a manifestation of divinity (Peterson, 2006). Keltner and Haidt (2003) stated that experiences of awe and elevation have profound outcomes such as inspiring self-improvement and altruistic intentions towards others and the larger community.

Some participants believed that they were granted redemption because of some unfinished business (Umezawa et al., 2012). They all reported that the experience of increased spirituality or religiosity gave more meaning and purpose in their lives and motivated them to take responsibility for their own recovery processes. For example: Participant Ti acknowledged his existential fears and reported how his experience of the presence of a Divine power helped him overcome these fears: *die groter teenwoordigheid van 'n Wese mens besef: die lewe word weggeneem maar die vrees vir daai moment hoef nie daar te wees nie.* (.... the immense presence of a Being one realises: life does end but the fear of that moment need not be there). This spiritual awareness facilitated a sense of meaning and purpose for Ti: *Ek het hierdie geleentheid gekry ek moet dit nou net gebruik My 'sense of purpose' het gegroei my kleindogter ek het 'n doel in hierdie proses.* (I was given this opportunity I have to use it now My sense of purpose increased my grandchild I have a purpose in this process). The view of Baldacchino (2011) that meaning and purpose in life may encourage and improve adaptation during recovery, resonated in this finding.

Through faith some participants changed negative illness perceptions and overcame their fears, seeing an opportunity for greater self-actualization and a determination to live life to the full. Ti said: *moet jy by die punt kom dat jy besef dit (die chirurgie) is suksesvol ek lewe maar ek lewe nie net nie ek kan volledig lewe.* (You have to come to a point where you realize that the surgery has been successful I am living and I don't just live

.... I can live fully). Finding meaning in his suffering created an optimistic shift that transformed despair into triumph for Da: *It is a new beginning. I am seeing life in a new perspective. I am rejuvenated Like the blind man I did not see but now I see.*

Hill et al. (2000) proposed that faith-based coping seems to have salutary effects as it offers meaning, guiding principles and motivations for one's life. Em embraced the following new perspective: *Ek glo daar's nog 'n doel vir my hoekom hierdie ding met my gebeur het en ek soort van uitgesonder is om aan te gaan. Ek het nog werk om te doen jy moet in jouself ook glo.* (I believe there is a purpose why I had to go through this experience and has in a sense been favoured to go on living I still have to do some work one has to believe in yourself as well). Faith-based coping can also be a source of empowerment and promote internal locus of control among distressed individuals (Hill et al., 2000). A recent review found that faith-related engagement such as prayer use can serve as a source of hope, comfort and meaning to CABG patients. It appeared to have ameliorated distress one year post-operatively and reduced postoperative complications (Koenig, 2009). Ka expressed his relating experiences as follows: *Prayer just knowing that I am blessed to be alive, to be given another chance. Knowing that there is no way that God will send me for this op only for me to come back home for something to happen to me There is a bigger reason as to why I am here still....*

Appreciation of beauty and excellence – greater awareness

People have an innate tendency to be moved by and appreciate beauty and excellence and whenever these deep feelings are triggered, people ascribe this to the presence of God (Peterson, 2004). In many aspects similar to the spiritually inspired strengths discussed above, a sense of awe for their experiences of survival characterised most participants. Keltner and Haidt (2003) referred to the emotion of awe as a little studied emotion “in the upper reaches of pleasure and on the boundary of fear” (p. 297).

Wi described his experience as follows: *Nou sien ek dinge in 'n ander lig my oë het oopgegaan vir die natuur om my elke dag gee ek vir die voëls buite kos dit het my aangespoor (deur die herstelperiode) Ek het voorheen oogklappe aangehad.* (Now I see things in a new light my eyes opened to nature around me every day I feed the birds outside this urged me through (the recovery period) it's as if I previously had blinkers on....).

Jo had an appreciation of beauty and excellence throughout his life – for art, old furniture, nature. Yet after surgery he experienced appreciation in a new way: *Waar kom die son vandaan die lig hoe word jy van slaap wakker wie doen dit vir jou dis*

nie vanself nie. So dis awesome. (.... where does the sun come from the light from being asleep to waking up Who does that for you it is not out of yourself So it is awesome).

Some participants experienced a manifestation of Divine power and goodness through their surgery and recovery trajectory that triggered feelings of awe-filled wonder, elevation and appreciation (Peterson & Seligman, 2004). According to Peterson & Seligman (2004), people consistently report that experiences of awe and elevation have profound outcomes including: warmth and connection felt towards others; greater meaning and purpose; motivation towards self improvement and personal change. Such an awe-inspired transformation that served as a motivation to engage in future goals with enthusiasm, demonstrating gratitude and expressing love, compassion and kindness towards others, was expressed by Wj: *Die het my gedwing om rustiger te word kalmer, oop vir ander mense se insette baie meer geduld dankbaar vir dié wat saam met my werk. So word mense om jou ook rustig en kalm en word die job beter gedoen jy sien die lewe uit 'n ander oogpunt. Jy aanvaar dinge beter dis nie 'n gejaag na wind nie ek het wyser geword Rustiger neem besluite op die regte manier luister na 'n ander persoon se opinie (This compelled me to become more calm more open to other people's input and much more patient a greater appreciation for the people working with me In this way people around you also become calmer and the job gets done better. You see life from a different angle You accept things more it is not just like chasing the wind I became wiser more relaxed making decisions in the right way I listen to another person's opinion....).*

Jo verbalised his experience as follows: *elke dag is 'n blessing asof dit die laaste dag is want die dag van my hartaanval het ek besef: alles is normaal en net so wap daar kan ek nie asemhaal nie ek sien nou die lewe heeltemal anders om mense gelukkig te sien. (Everyday is a blessing as if it's the last day because the day of my heart attack I realized: everything seemed normal and just wap and I couldn't breath...I see life from a new perspective now to see people happy).*

Hope, optimism and future-mindedness

According to Peterson and Seligman (2004) hope, optimism and future-mindedness are features of a cognitive, emotional and motivational stance towards the future. The nature of optimism is expecting good events to happen in the future and working to make them so (Peterson & Seligman, 2004). Snyder's (1994) model of hope consists of two components: agency (determination, willpower) and pathways (belief that successful plans can be made

to achieve goals). Snyder (1994) defined willpower as: “the mental energy the reservoir of determination and commitment that we can call on to help move us in the direction of the goal it is made up of thoughts such as: I can, I’ll try, I’m ready to do this, and I’ve got what it takes” (p. 5).

Most participants mentioned the importance of having a positive, wilful mind-set in dealing with the challenges of the recovery trajectory. The following quotations of participants portray their perspectives and experiences about a positive mind-set during their recovery period: Ta expressed feelings of pride, self-affirmation and autonomy that he gained by holding on to his positive mind-set: *To have a positive attitude toward surgery that was the most beautiful thing that I have achieved in my entire life.* Wi said: *Jou “mind-set” moet reg wees om vorentoe te kan gaan. En jy moet vir jouself sê: Ek moet hierdeur kom.* (Your mindset needs to be right to move forward. You must tell yourself: I have to get through this).

Jo said: *En van daar af was ek positief al die pad. Doen wat jy voel jy kan doen en vat die lewe ernstig, regtig met alles aan.* (And as from then I was positive all the way. Do what you feel able to do and take on life in all seriousness, with your all). Da said: *I always try and make my problems motivations. To do something better think about the positive things that I can do, and do them better you cannot do whatever without determination. You must have that will that I can do it no matter what. Stand up, think again do it better this time. That’s when we conquer.* Be said: *Wel, ek het geglo dat ek ‘n baie bekwame span dokters het, my vertroue was in die dokter So geloof in die dokter, geloof in my herstel, nê.* (Well, I believed that I had a team of extremely competent doctors, my trust was in the doctor so faith in the doctor, faith in my recovery). Ka said: *It is a mind over matter thing. Hmm what you tell yourself is what you can achieve what you believe is what you can achieve....*

Ta’s dispositional optimism and hopeful thinking enabled him to bravely and persistently fight (self-regulate) negative feelings and obstacles: *I have a lot of breathing problems but I believe that I will survive. the thought of dying I wanted to eradicate it out of my mind totally. I have such a belief that I will recover. I have to challenge all obstacles with power that’s my strength.* These statements seem to indicate that believing that one’s future will be favourable and having a sense that one can do something to reach those goals, seems to play a role in patients’ motivation and confidence to engage in beneficial behaviours that enhance the recovery process (DuBois et al., 2015). Furthermore, these findings also seem to be in line with those of Martinez-Marti and Ruch (2017) who found that hope is a strength that is significantly correlated with resilience.

Gratitude

Emmons and McCullough (2003) described gratitude as a state that requires that one has achieved a positive outcome. Deep experiences of subjective gratefulness such as a sense of thankfulness, appreciation and wonder, result from the subjective experience of grace and recognition that the good that is received is unexpected and unwarranted (Emmons, McCullough & Tsang, 2003; Watkins, 2004; Watkins, Van Gelder & Frias, 2009) and came from an external source i.e. someone else or an abstract nonperson entity (Emmons & Mishra, 2011). Research has found that gratitude increases positive emotions (Fredrickson, 2004) and protects against stress and depression (Wood, Maltby, Gillet, Linley & Joseph, 2008). The recognition that one has received a positive outcome that one did not necessarily earn, may humble a person and motivate them to be a kinder person (Nelson et al., 2015). Gratitude encourages individuals to engage in better relationship maintenance behaviours (Bartlett, Condon, Cruz, Baumann & DeSteno, 2012), while feeling close to and supported by other people may allow an individual to feel safe enough to take the chance of embarking on a self-improvement journey (Emmons & McCullough, 2003; Layous, Nelson, Kurtz & Lyubomirsky, 2016).

Vaillant (1993) described gratitude as a mature defence, a process whereby self-defeating emotions are transformed into those that foster healing and restoration, as for instance expressed by Jo: *dis 'n geleentheid 'n "gift" van die Here ek het nog 'n kans in die lewe ek's dankbaar vir God se genade, dis net genade ek sien die lewe nou heeltemal anders. Elke dag is 'n "gift"* (it is an opportunity a gift from God I have another chance in life I'm grateful for Gods grace, it's only grace I see life with a whole new perspective Every day is a gift). Em said: *Ja, ek is baie dankbaar jy waardeer dinge nou meer as voorheen. Ek is baie gelukkig en baie dankbaar. Baie.* (Yes I am very grateful one has a greater sense of appreciation than before I am very happy and very grateful. So much).

Emmons (2007) cautioned that an obstacle to gratitude is often a lack of self-reflection. In order to become more grateful, one needs to view life in a different way, i.e. finding the gift in each challenge. Most participants reported a greater sense of awareness, experiences of gratitude and humility, changed perspectives and a greater consideration of the meaning of life.

Ka said: *So it puts some things into perspective and **Ja** you become more grateful for every day that you're given You become more mature in your thinking you don't take things for granted anymore. You are grateful for what you have you take care*

of what you have. Em said: *Ek is baie dankbaar ek het eers die Here gedank en toe die dokter jy waardeer dinge meer as voorheen 'take nothing for granted' dis 'n 'blessing' jy moet dankbaar wees en jou kans benut (I am very grateful I first thanked the Lord and then the doctor you appreciate things more than before take nothing for granted it's a blessing you should be grateful and use this opportunity....).*

From the above reported participants' experiences it would seem that the transcendence strengths worked together as an integrated source of strength, that enabled participants to engage with their recovery processes by means of new or deepened awareness. A sense of experiencing the Divine filled them with awe, appreciation and gratitude, as well as feeling deeply in touch with themselves, with their meaning and purpose, their self-worth and their wish to reach out to others. Their views of life and mankind seem to have softened and self-related strengths emerged that would enhance recovery and a quest for staying well.

Courage strengths

The VIA virtue of courage is made up of four character strengths: Bravery, persistence, integrity and vitality (Peterson & Seligman 2004, p.29). These strengths were the second most prominent cluster used by participants.

Courage researchers have seemingly not found a consensus definition for the courage construct (Finfgeld, 1995, 1999; Lopez, O'Byrne & Petersen, 2003; Putman, 1997). Pury, Kowalski and Spearman (2007) suggested two kinds of courage, namely general courage (actions that would be courageous for anyone to take) and personal courage (actions that are courageous only in the context of an individual's life, i.e. struggling against one's own demons, acting despite fear, struggle and personal limitations). Whereas Putman (1997) called such courage psychological courage, Lopez (2003) replaced psychological courage with the concept of *vital courage*, a concept adopted from work by Finfgeld (1999). Courageous action can therefore be described as acting despite fear, struggle and personal limitations. Haase (as cited in Finfgeld, 1999 p. 809) wrote that courage appears to be a "bridge between fear and action", where courage is one's ability to confront the fear and move through it.

Courage was seen by Peterson and Seligman (2004) as the exercise of will to accomplish goals in the face of opposition and it corresponds with Snyder's (2002) view that hope is the perceived capability to find pathways to reach desired goals and to motivate oneself by means of agency thinking, to use those pathways. One can conclude that hope relates closely with courage.

In her study of people with terminal illnesses, Finfgeld (1999) found that factors fostering the development of courage were: A strong value system as a standard to guide behaviour, hope, optimism, self-confidence (intrapersonal) and supportive relationships (interpersonal). Courage is learned and developed in situations that involve a perceived threat including fear, uncertainty and pain. Fear and anxiety are common emotional responses after CABG surgery and confronting the fear and anxiety is an important step towards recovery and adaptation.

Bravery

As stated by Peterson and Seligman (2004) bravery involves not shying away from threat, challenge, difficulty or pain. Bravery expresses the ability to confront fear and act in the face of psychological danger and while prudence gives one the wisdom to assess danger, bravery allows reason to prevail despite fear. Putman (1997) proposed three types of bravery: Physical bravery (fear of bodily injury or death) and moral bravery (fear of other's opinion), whereas people draw upon psychological bravery every day to deal with their fears and anxieties (fear of loss or the destabilising of the self). Examples of one participant's bravery were as follows:

The process of recovery for Ti "from there to here" was set off when he mustered the bravery to test his physical strength after the operation. In the early stages of his recovery process Ti experienced total despair, anguish and isolation and went into a withdrawal phase: *Ek het ervaar ek bestaan net ek leef nie. Ek was baie negatief angstig en depressief in niks belanggestel nie ek kon nie lees nie geluide verdra nie my bloeddruk het my laat vrees ek het hier by die huis gesit en ek het 'n stoel stukkend gesit letterlik deurgesit.* (My experience was: I only exist I don't live. I was very negative anxious, depressed had no interest in anything at all I couldn't read couldn't stand noise fears about my blood pressure I sat at home on a chair all day until it broke literally broke down from sitting on it). Finfgeld (1999) stated that as a perceived threat becomes more significant and increased amounts of fear are experienced, the need for courage becomes correspondingly greater. Struggling to fully understand the precise nature of the danger faced and the risk involved is a necessary component of being courageous, which is enhanced by assertive attempts to gather information, read, ask questions. Ti's signature strength of judgment and critical thinking lead him to consulting literature for more information and helped him realise that there is a life after heart surgery: *totdat ek begin lees oor die operasie en verstaan en besef en geglo het dat my hart nou nie net 'n 'reconditioned' masjien is nie, maar eintlik 'n goeie masjien toe kon ek begin doen beweeg.* (.... until I started reading about the operation and understood and realised

.... and believed that my heart is now not just a reconditioned machine but in fact a good machine only then could I start moving). When individuals fully acknowledge and accept the reality, they gain control and are able to bravely move onward in spite of fear. Awareness and acceptance thus helped Ti out of his demoralised state of stagnation: *omdat ek besef het ek kan nie hier bly sit nie Dit was of moed opgee of tot aanvaarding kom* (because I realised I cannot just sit here it was either giving up hope or coming to acceptance). A form of problem-solving action then followed in which threats and struggles were turned into challenges to be handled in the best possible way: Ti: *En ek moes by die punt kom en besef dat deur te oefen en te toets wat ek kon doen ek fisies beter gevaar het, dat ek psigies ook oorwinning kon kry oor hierdie hele ding.* (And I had to come to the point and realise that through exercising and testing my strengths I did better physically that I will also gain triumph psychologically over this whole thing). These statements seem to resonate with the findings of Martinez-Marti and Ruch (2017), that bravery is the strength most significantly associated with resilience.

Persistence

Persistence was the most frequently mentioned strength of courage of participants in this study. Persistence was described by Peterson and Seligman (2004) as mustering of the will, showing sustained effort despite frustration, difficulties or discouragement. It involves endurance (not giving up, not losing heart) and overcoming setbacks. It is related to self-control and self-regulation. According to Janoff-Bulman and Brickman (1982) people who expect to succeed (individuals with higher self-efficacy) are generally more persistent. Their responses seem to be more adaptive in that it leads to improved performance.

Seven out of ten participants shared that getting through the recovery process demanded a lot of persistence. Self-determination and persistence were demonstrated by Ri: *Jy weet jy moet deurdruk daardie moét so jy gaan nie bly lê nie, jy gaan aan met die lewe hy't nie gestop nie.* (You know you have to persevere you have to so you don't give up, you go on with life life didn't stop).

Be applied continuous persistence to fight and overcome the many challenges encountered during the recovery process and expressed it as follows: *Ek het vasgebyt. Uithou vermoë Mens moet baie uithou want daar is pyn en ongerief en tye van depressiewe gemoedstoestande uithou* (I persisted endurance one has to persist because there is pain and discomfort and times of depression persist), whereas Em stated: *maar 'n ou druk deur en jy hou aan en elke keer word dit 'n bietjie beter. Ek het op my knieë gestaan en my gewas.* (.... but you persist and every time it gets a

little bit better. I was standing on my knees to wash myself). Sustained motivation to try and persist, was shared by Ka: *That actually helped me get over my fears the willingness to just get better quicker so I could move on and perseverance to get fit to carry my son to look after myself again change clothes, put on underwear so that I could go out and meet friends interact with other people.* Ta who, after eight months persistently kept on fighting against discouragement as he had to overcome several setbacks due to lung problems, reported: *My biggest goal is to get better and just living like any normal person. I don't like starting something and not finishing it. I don't believe in giving up.* Optimism seemed to strengthen perseverance as stated by Jo: *Maar toe my kleindogter saam met my seun vir my kom groet en daai smile is op haar gesiggie na oupa toe, toe weet ek ek gaan terugkom dit was die grootste sukses wat nog ooit in my lewe deur iemand anders se hande oor my gekom het vat die lewe ernstig regtig met alles aan dis 'n geleentheid Never give up* (But when my granddaughter came with my son to greet me and she smiled at her grandfather I knew I would be coming back (live) this was the greatest success that was ever done to me in my life by someone else's hands take life in real earnest it is an opportunity never give up). For Wj the mastering of goals promoted perseverance in the face of difficulties and setbacks: *Jy moet vir jou 'n mikpunt daar kan stel en jy moet na daai mikpunt toe gaan. So jy vat dit van dag tot dag en jy druk jouself.* (You need to set an objective for yourself and go there. So you take one day at a time and you urge yourself).

Most participants also shared that they experienced the benefits of persistence including attaining difficult goals and enjoyment of subsequent success, improving their skills and resourcefulness, enhanced self-efficacy, confidence and mastery as well as a generalised sense of being able to accomplish things, a finding that resonated with the views of Bandura, (1977). They experienced that factors such as social support and receiving positive feedback, fostered a sense of self-determination and contributed to more persistence, as stated by Peterson and Seligman, (2004).

Vitality

Vitality has been described as the capacity for energy, enthusiasm and aliveness (Ryan & Frederick, 1997). Peterson and Seligman (2004) explained that vitality is classified a strength of courage because it is most significant when displayed in circumstances that are difficult and potentially draining. Pury et al. (2007) described vitality as “to act with energy and enthusiasm” (p. 120). The authors saw vitality as a combination of positive emotions that provides energy for managing negative emotions and for acting to solve problems. Richman, Kubzansky, Maselko, Ackerson and Bauer (2009) similarly distinguished between physical

and mental vitality. According to them mental vitality is a combination of hopefulness and mental vigour (i.e. interest) that provides energy to deal with negative emotions and in solving problems effectively. Vitality seems to protect health because it limits psychological and physiological reactivity to chronic stress and hyper arousal. Examples from participants are as follows:

Em demonstrated his mental vitality as follows: *Ek het 'n groot skrik gevang, maar nie so dat ek in sak en as is en gedink het my lewe is verby nie Ek het nog baie om voor te lewe (lag effens). Ek het nie en ek gaan nie dat dit my onderkry nie dit het eintlik verbasend goed gegaan jy moet self die paadje verder loop Jou kans wat jy het moet jy benut ek is sterk op pad, ek is amper ek kan al sien die lig hier aan die einde van die tonnel my lewe word al hoe beter en beter* (I had a big fright but not so that I was down and thought that my life was over I have much to live for I won't let it get me down it actually went surprisingly well you must walk down this road use the chance that you got I am strong underway, I am nearly, I can see the light at the end of the tunnel, my life is getting better). Ri demonstrated vitality through hopefulness and mental vigour (i.e. interest): *In die hospitaal al hulle het vir my 'n boek met resepte gebring en ek het toe al gesê ek wil huis toe, ek is lus om te bak jy sien uit daarna ek maak sommer self die bed op wat jy voel jy kan doen maak jou trots mens motiveer jouself, jy gaan nie op 'n houpie sit nie nou sê hulle: Jou ma is mos 'n ystervrou* (Already in hospital they gave me a recipe book and even then I said I want to go home I want to bake you look forward to that I make the bed myself you feel proud of the things you manage to do you motivate yourself). These quoted experiences of two participants reminded of Bandura's (1977) theory of self-efficacy, that stated that experiences of mastery resulting from persistence in the face of difficulties give people a generalized sense of being able to accomplish things and thus enhance confidence (Peterson & Seligman, 2004).

Ti described both the psychological aspect as well as the physical component of vitality: *Toe besluit ek ek moet verantwoordelikheid vat vir my fisiese vermoëns begin oefen en sodoende het ek selfvertroue gekry ek is 74 jaar oud my nalatenskap moet manifesteer binne my gesin en in die omgewing wat ek was vanself nie op 'n begrafnis waar hulle net goeie woorde oor jou sê nie.* (Then I decided I need to take responsibility for my physical abilities started to exercise and thus I gained self-confidence I am 74 years old my legacy should manifest within my family in my surroundings within myself not at a funeral where they only say good things about you).

An's description of vitality is consistent with that of Seyle (1956) who referred to adaptation energy as synonymous with vitality: *Ek glo daarin: As iets met jou gebeur, dit het kláár gebeur – die dinge is reg, staan op, gaan aan. Moenie gaan lê nie Mens moet aanpas by jou omstandighede werk nou maar om dit jy kyk nou maar wat is jou “capabilities” nou* (I believe that when something happens to you, it already happened things are right, get up, go on don't give up one needs to adapt to your circumstances work around it you look at what your capabilities are)

Peterson and Seligman (2004) saw a vital person as someone whose aliveness and spirit are manifested not only in personal productivity and activity, but such individuals often energise those with whom they come into contact. Vitality implies being filled with positive energy. Psychologically this state of aliveness brings a sense that one's actions have meaning and purpose (Dean, 2017). Ri displayed her vitality strength throughout the interview with her obvious enthusiasm about life. She possessed striking vitality despite the fact that she was at the time only four months post surgery. *Ek het deursettingsvermoë ek het 'n lus vir die lewe trots oor dinge wat ek al kan doen ek is lief om met my hande te werk om in 'n groep te werk by die kerk leer hulle koeksusters bak Dis vir my lekker om myself besig te hou met enige ding wat jy kan* (I have perseverance I have zest for life proud of the things I can do I love to work with my hands, to knit, do tapestry to do sewing test recipes to work in a group at church teach them to bake koeksusters that is what I like to keep myself busy with everything one can). Ri demonstrated vitality in accordance with Ryan and Frederick's (1997) description of vitality as the presence of energy, enthusiasm and aliveness. The statement of these participants also seem to agree with the view of Martinez-Marti and Ruch (2017), that the zest strength is strongly related to resilience.

Integrity: Authenticity and autonomy (independence/self-responsibility)

Peterson and Seligman (2004) described integrity, authenticity and honesty as character traits in which people are true to themselves, while they accurately represent privately and publicly their internal states, intentions and commitments. They accept and take responsibility for how they feel and what they do, owning their feelings and behaviours.

Participant An openly acknowledged and took responsibility for his negative attitude towards his wife and others when, during the first few weeks of his recovery, he was very frustrated and felt irritated because of fatigue and dependency: *Ek was met een woord 'n vark. Want jy's gefrustreerd, jy moet dinge doen en jy kan dit nie doen nie hulle het geweet as ek so gefrustreerd was het hulle my uitgelos. So bietjie afstand tussen ons*

gekry Jy moet self daardeur kom, daardeur baklei met jouself vrede maak. (I was with one word, a pig. Because you get frustrated, you need to do thing you can't they knew when I got so frustrated to let me be. To gain some distance between us. You need to get through it yourself, to fight through it, to make peace with yourself).

Em experienced that he acquired greater perspective and capability to separate the wheat from the chaff figuratively and discriminate between good and bad, along with more productive ways of behaving in order to be true to himself: *die ou met wie ek voorheen saamgewerk het destyds wou ek niks met hom te doen gehad het nie toe lees ek in die sosiale media ek het uit my eie uit vir hom 'n persoonlike boodskap gestuur en gesê: 'Ek is bly om te sien dit gaan goed met jou jammer oor dit wat ek in die verlede vir jou gesê en gedoen het ek wens jou alle sukses en sterkte toe' en hy het teruggeskryf: 'Baie dankie daarvoor, ek waardeer dit'. Die oomblik wat jy vir jouself kan sê dit was eintlik simpel kinderagtig of onvolwasse kry dit uit die pad uit dis soos 'n chip wat jy van jou skouer afvee. (... the guy with whom I worked before back then I didn't want anything to do with him then I read in social media then I, out of my own will, sent him a personal message saying: I am glad to see that you are well sorry about the things I did and said in the past I wish you all the best and he replied: Thank you for that, I appreciate it. The moment you can tell yourself: that was petty of you, childish and immature get it out of the way it is like a chip that you wipe from your shoulder).*

From the above discussion, it would seem as if the courage strengths were mostly intrapersonal and had strong motivational and mentally energising effects that propelled the person towards recovery and regaining of health. The participants clearly engaged with the negative emotional states imposed by the illness and surgery, in a struggle for physical and psychological survival and for regaining of a sense of control. It would seem as if this took so much personal effort that interpersonal strain resulted. The quality of social support however, created a safe space for the person who needs to distance him/herself from others at times and to later mend the strained bonds.

Humanity strengths

Strengths of humanity are the positive interpersonal traits displayed in caring relationships with others (Peterson & Seligman, 2004). Three interpersonal strengths were identified by Peterson namely Love, Kindness and Social Intelligence (2004).

Social intelligence/social support

In this study the social intelligence skills of participants and their perceiving of social support from others during the illness-recovery period as well as responding positively to such

support, were closely related. Without social intelligence, social support would be passively accepted, devoid of the dynamic and salutary interaction (intra- and interpersonally) that according to research, lead to the well-being outcomes ascribed to social support (Feeny and Collins, 2015; Taylor, 2011; Uchino, 2009). Social intelligence, described as being aware of the motives and feelings of others and oneself and knowing how to respond and fit into different social situations (Peterson & Seligman, 2004), is therefore understood in this study as a strength that enables the optimal perception of and response to social support.

Supportive relationships are clearly a critical factor in recovery after surgery and has been reported to predict mortality especially from cardio-vascular disease, more than lifestyle behaviours such as smoking or living a sedentary lifestyle (Barth, Schneider & von Kanel, 2010; Feeney & Collins, 2015). Individuals with caring support networks experiencing a life-threatening episode such as having a coronary incident and/or undergoing CABG, are likely to experience better outcomes (e.g. purpose and meaning in life, motivation for lifestyle changes). Social support is a significant predictor of rehospitalisation and lower mortality in heart failure (Annema, Luttik & Jaarsma, 2007). Supportive relationships not only buffer individuals from the negative effects of fear, stress and uncertainty, but also make it possible to cope in ways that enable them to return to baseline and even thrive with higher prior levels of functioning (Feeney & Collins, 2015). A pathway by which social support may influence the health process, is because it facilitates health behaviours such as exercise, diet and adherence to medical regimens (Uchino, 2009).

Cutrona (1996) listed a core set of functions served by close relationships, namely: Emotional support (expressions of love, empathy and concern); esteem support (respect for the persons qualities, belief in a person's abilities, validation of a person's thoughts, feelings and actions); informational support (factual input, advice, appraisal of situation); tangible assistance (with tasks or physical resources, i.e. money, a place to live and assistance during times of adversity) and lastly companionship (shared interests and concerns). It is also necessary to distinguish between received social support, which describe the type and amount of support provided by the social network and perceived social support, which is associated with an individual's perception, interpretation and reports of social support. Uchino (2009) emphasized the role that internalised attachment processes play in perceptions of support and suggested that more securely attached individuals report greater perceived social support.

Nonetheless, Leegaard and Fagermoen's (2008) review of qualitative studies regarding patients' post-CABG experiences mentioned the paradox of surviving alone. Patients described the importance of supportive relations in surviving the CABG experience,

yet it also proved to be a lonely journey. They found it difficult to explain and share with others their experiences, because of the existential nature thereof and the difficulty of expressing both their near-death experience and their fear of dying post-CABG. The unique challenges faced by open heart surgery patients can impact their social network and strain may result in close individuals withdrawing in an attempt to cope with the overwhelming situation (Mahrer-Imhoff, Hoffman & Froelicher, 2007) Stressful situations such as these can however also provide an opportunity for growth in personal relationships (Holahan & Moos, 1990).

In this study social support was perceived and mentioned as having played a significant role in all participants' recovery trajectories. During the recovery period at home after discharge, a married patient's spouse is the main provider of emotional and cognitive support and monitoring of everyday health behaviours (Umberson, 1992). High levels of social support may strengthen one's perceived ability to cope with the challenging recovery period by modifying the appraisal of the situation and by lowering stress (Sarason, Pierce, Bannerman & Sarason, 1993; Uchino, Bowen, Carlisle & Birmingham, 2012). Em stated: *Van die oomblik wat ek uit teater uitgekome het was die mense wat vir my omgee daar Ek is gereeld besoek my dogter het my soos 'n kleinood opgepas en vreeslik goed behandel. My kleinkind, vier jaar oud, het sy oupa verskriklik opgepas. En die feit dat hulle my laat oefen het hulle het my so aan die hand gevat Dit het my laat voel daar's mense wat omgee en ek moet 'n poging aanwend oproepe wat ek gekry het, boodskappe Dis lekker om te weet daar's mense wat vir jou omgee.* (From the moment I came out of theatre, those who care about me were there I was visited regularly my daughter took care of me like a jewel and treated me very well. My grandchild, four years old, took good care of his grandpa. And the fact the they've let me exercise they took me by hand It made me feel that there are people that care and I need to make an effort phonecalls I received, messages It's nice to know that there are people who care). For Em, social support seemingly fostered a sense of self-appreciation that in turn encouraged greater persistence.

Emotional support conveys a sense of caring, thus enhancing the person's feelings of self-worth and satisfying their need to belong as evidenced by Ta: *There were people around me to support me. They were so very much positive about me and that encouraged me to believe that I am something. And there are people who need me mostly beside my family, but they are people who became worried about me. The support I get from my co-workers is also helping me through. My relationship got better with my wife and with my mom. Because my wife and my mom are the most important people who played a major role in my recovery.* Be: said: *Ek het 100% ondersteuning van my vrou gehad en die kinders.*

Ons het mooi saamgewerk. (I had 100% support from my wife and the children. We worked together well).

Feeney (2007) mentioned that relationship partners can support the other by accepting their dependency needs, providing emotional closeness and reassurance, showing understanding and acceptance, rendering instrumental aid and buffering the close other from negative influences related to the stressor. *Ka: What got me through it, I had my wife there and her parents knowing that my mom was there as well so I am grateful for that. It helped in my recovery more than anything knowing that we had a support structure You need assistance it is a trust factor you trust that she (your wife) will take care of you that she has the best intentions for you, you know love that grows to a different level. Because it is not easy to say: I need you. In Christianity it says: through sickness and in health and that was a true test of those type of vows so our love grew. You know, taking care of me ja it humbles you. It is a true act of selflessness, true act of love. The respect and the understanding and even though I lashed out at times I knew I had to say sorry it was all the understanding from Melissa I don't think I say thank you enough.*

Despite the comfort found in family and social support, some participants had ambivalent feelings about close relationships as it seemed to have been a threat (at the time) to their barely existing sense of personal control (Zimmer-Genbeck, Skinner, Morris & Thomas, 2013). Interactions with others emphasised their feelings of dependence and hopelessness. Messages from others that are incongruent with the person's wellness perspective might be experienced as a threat that may cause a shift to an illness perception (Weinman, Petrie, Moss-Morris & Horne, 1996). *Wi:* for example was struggling to get his independence back and was trying to mow the lawn. However, he experienced the concern and warning comments of his parents as excessive, irritating and a hindrance: *Hmm hulle (sy ouers) sal sê: Moenie die gras sny nie, jy gaan seer kry. Jy moenie iets optel nie hy het 'n rede seker, maar jy is as persoon 'n sterk persoon jy wil dit gaan doen, nou keer hulle jou Jy moet die omstandighede om jou kan aanvaar, jou gesindheid teenoor ander mense wat by jou kom Jy kry mense wat jou negatief wil maak, maar jy moet net sterk wees (Hmmm they (parents) would say: Don't mow the lawn, you'll be hurt. You must not pick something up perhaps he had a reason, but when you as a strong person you want to do it, now they stop you You must accept the circumstances around you, your attitude toward other people that visit you you do get people that want to make you negative but you need to be strong).*

Da on the other hand was more accepting and appreciating. He accommodated the care and support of his “helpers” and complied with their good intentions: *Fortunately I was surrounded with love from my family, friends, church members, everybody. I prayed a lot, asked for guidance I would pray and ask the Lord please give me strength, give me patience, please help me understand what my helpers are doing to me. Not to work against them, to work with them towards my recovery I was patient and I listened and I tried....*

The complexity of intimate relationships especially in a stressful time after surgery when the patient suffers from physical weakness, anxiousness and irritation, has also been illustrated by An: *Dis 'n outomatiese ding wat in my gesin gebeur. Ons ondersteun mekaar. Want dis net ons. Ons is net vier. En as ons nie mekaar ondersteun nie, wie gaan ons ondersteun. Hulle het geweet. As ek so gefrustreerd was het hulle my uitgelos. So bietjie afstand tussen ons gekry. Ons het dieselfde met Tokkie gedoen met die mastektomie. Ons het haar ondersteun maar ons kan haar nie help nie. Jy moet self daardeur kom, daardeur baklei, met jouself vrede maak.* (It is something that automatically happens in my family. We support one another. Because it is just us. We are only four And if we don't support each other, who will support us? They knew when I got so frustrated they left me alone found a bit of distance between us. We did the same with Tokkie with the mastectomy. We supported her but we couldn't help her. You must get through it yourself, fight through it, make peace with yourself).

Love

According to Peterson and Seligman (2004) love is characterized by a cognitive, behavioural and emotional stance toward others. Love is experienced within a shared relationship with another person and involves strong positive feelings, commitment and sacrifice. It is marked by the sharing of aid, comfort and acceptance. Early relationship (attachment) experiences have deep and lasting influences on the capacity to love and be loved. The experience of sensitivity by significant others fosters the capacity to love and be loved, as Peterson and Seligman (2004, p. 319) stated: “if our signals are read accurately and responded to promptly, warmly and consistently we learn to expect the same in future and also how to provide the same if our signals are misread or ignored, it engenders anxiety and anger undermines confidence in others....”. Under threatening circumstances the availability, sensitivity and responsiveness of loving others become crucial for calming oneself and to maintain or restore emotional calmness. During critical conditions human beings need the love, support and comfort from others (Mikulincer & Shaver, 2008) and in this regard Berscheid (2003) stated that the greatest human strengths might indeed be other humans.

A sense of relational security has many psychological benefits such as contributing to resilience and emotional stability, experiencing the self as special and valued, as well as having compassion and helping others to thrive as well. A deep sense of self-worth as a result of feeling accepted and loved, also allows a person to take risks and challenges to grow personally toward self-actualization. (Mikulincer & Shaver, 2008; Mikulincer, Shaver, Gillath & Nitzberg, 2005). The statements of especially Em and An given in the discussion of social intelligence as perceived social support above, are examples of love as an enabling strength during the illness and recovery experiences of CABG participants in this study.

A relationship partner can provide a safe haven and an increased sense of meaning and belonging. Yet, as has been indicated in some of the sayings of participants given above, Mahrer-Imhof et al. (2007) found that following a cardiac event, intimate partners were themselves touched by the stressful situation. These partners had to come to terms with their own stress levels that were as high as those of the patient's, while they also experienced anxiety, depression and uncertainty about the future (Moser & Dracup, 2004; Svedlund & Danielson, 2004).

Kindness

As mentioned before regarding forgiveness and humility strengths, kindness also seems to have emerged as a strength of personal growth that flowed from the illness recovery experiences. It is discussed under the section for post-traumatic growth strengths.

From the above discussion it is clear that the humanity strengths of social intelligence as manifested in perceived social support and responding positively to such support, as well as love-related strengths, were intensely experienced by participants. Both these strengths had interactive, close and caring relationships as their source, but it would seem that intrapersonal aspects of participants determined the salutogenic value of loving and supportive environments in their recovery from CABG. However, the views of Peterson (2006) that other people matter and of Berscheid (2003) that other humans may be our greatest human strengths, came to mind in this discussion.

Temperance strengths

Peterson and Seligman (2004) explained the virtue of temperance as any form of constructive self-restraint. Temperance reworded in psychological terminology reflects self-efficacy and self-regulation, the practiced ability to monitor and manage one's emotions, motivation and behaviour. These strengths were the third most prominently used and specifically the strength of self-regulation.

Self-regulation (self-control)

Kubzansky, Park, Peterson, Vokomas and Sparrow (2011) viewed self-regulation as a psychological resource that enables individuals to master feelings, thoughts, impulses and behaviour and of these, the capacity to regulate emotions is a central part. Overlapping constructs to emotion regulation are mood regulation, coping with stress and all forms of affect regulation (i.e. anger, fear).

According to Koole, Van Dillen and Sheppes (2010) emotion regulation is a control process, a form of effortful self-regulation. Emotion regulation and cognitive control are linked in the sense that both control models require effort and are top-down goal oriented processes. Recent research has focused on strategies for regulating emotions such as diverting attention elsewhere, exerting mental control or reappraisal (cognitive change) and modulating responses (Koole, 2010; Kubzansky, 2011). The ability to manage emotions is associated with less psychological distress and may also be related to healthier physiological functioning. Effective self-regulation may enable a person to maintain emotional flexibility and prevent negative states (Kubzansky et al., 2011). While the optimal outcome of emotion regulation is the ability to selectively and proactively mobilise emotions and cognitions to fit a specific context and specific goals (Aspinwall & Tedeschi, 2010). In this regard Baumeister, Vohs and Tice (2007) stated that motivation is linked to self-regulation as one of the components of the self-regulation process, specifically to achieve a goal or meet a standard. If motivation is high, this may compensate for a low level of will-power due to negative thoughts and feelings. During the recovery process CABG patients may experience a temporary state of ego depletion (low energy for mental activity) and motivation can inspire the person to facilitate goal pursuits towards well-being.

Most participants mentioned that they experienced emotional lability during the recovery period. Be described his emotionality and how he tried to regulate his mood by creatively using cognitive distraction such as engaging in some other activity, to manage it: *Ek het nie baie depressie gekry nie ek het gelees (daaroor) en het seker gemaak dat ek teen depressie gewerk het. Dis 'n onwillekeurige depressie hy kom sommer so oor jou mens raak ook emosioneel As ek in 'n toestand wil verval, het ek iets gaan doen – musiek luister op my rekenaar of op Facebook* (I did not have much depression I read about it and made sure that I worked against it It is an involuntary depression it merely befalls you one also gets emotional When I fell into a state, I did something listened to music on my computer or on Facebook)

Em's use of his signature strength of open-mindedness and critical thinking helped him with reappraising his situation and dealing with his frustrations during the recovery process: *Om beredeneerd te wees oor jou herstelproses obviously kan jy nie niks doen nie, want dan gaan jy nie beter word nie mens moet 'n gabalanseerde uitkyk oor dit hê en doen waartoe jy in staat is. Selfdiscipline ek het gestap. Dis hoe jy ingestel is daarop. Jy moet daai wil hê. Jy moenie tou opgooi nie.* (To reason about your recovery process obviously you can't do nothing cause then you are not going to get better one needs to have a balanced view of what you are capable of Self-discipline I walked. It is how you are geared toward it you must have that will you must not give up). It would seem that for Em self-regulation served as an enabling strength for his perseverance.

Ta's mastery of his feelings made him proud and gave him self-confidence. He stated: *.... Manage my feelings self-control. Never allowed myself to be negative about my sickness, I got mastery. I feel stronger. Even now I know I won't be 100% right, but I don't do anything that's going to bounce back negatively at me. I am prioritising my self-control. I am no longer smoking. When I get much angry I tell myself: No it's wrong to get too much angry Just calm down, take some short breath, take water, drink it, think about something else for the moment.*

Through applying the strength of behavioural self-regulation Ka had success in giving up smoking that contributed to a greater sense of self-efficacy and pride: *I gave up smoking from 20-25 cigarettes a day to nothing. I think that is my best achievement after the op I am most proud of that because I always told myself: I don't think I would be able to. But like anything else: It is a mind over matter thing. What you tell yourself is what you can achieve. I believed that I had to give up smoking. So that was quite an achievement.*

Self-regulation has been linked to will-power, or effortful self-regulation (De Steno, Gross & Kubzansky, 2013). Baumeister et al. (2007) said that similar to exercise making muscles stronger, there are indications that regular exertions of self-control can improve willpower strength. Will-power gives people the strength to persevere (Baumeister & Tierney, 2011). An expressed his use of will-power together with his self-control capacity (persistence) that was built since childhood, in support of his long-term goal for a good recovery: *Ek gaan haal 'n ding, ek wag nie vir hom nie ek maak hom gebeur deursettingsvermoë staan op, dis al uitweg. Ek het dit aangeleer as 'n kind in die weeshuis. Ek is nie 'n ou wat boedel oorgee nie.* (I take on an issue, I don't wait for it I make it happen perseverance stand up, it is the only way out. I learned that as a child in an orphanage. I am not a guy who gives up).

Self-efficacy plays a central role in human agency (Bandura, 1982) and Ri had a high sense of self-efficacy, perceiving herself to have the ability to bring about desired outcomes during her recovery process. This in turn bolstered her perseverance in the face of difficulties and setbacks, while mastering experiences resulting from persistence gave her an increased sense of being able to accomplish things, thus enhancing her self-confidence: *dit is iets wat my glad nie gepla het nie my wonde of wat ookal nie ek gaan net aan jy doen wat jy moet doen, jy vat dit rustig en gaan aan ek het deursettingsvermoë 'n Lus vir die lewe* (that is something that did not bother me at all my wounds or whatever I just carried on you do what you must do, you take it easy and go on I have perseverance a zest for life).

Acceptance and Adaptation

Through analyses of the interviews it became clear that reclaiming life was a process of awareness, acceptance and adaptation. To be able to accept one's reality and the circumstances that flow from it and to adapt to changed or challenging life situations, require psychological flexibility. Psychological flexibility is a human ability to recognise and adapt to various situational demands, to shift mind-sets or behaviour when navigating the challenges of daily life and adapting to fluctuating demands. It requires specific strategies of self-regulation such as acceptance and cognitive regulation (Kashdan & Rottenberg, 2010).

Research has given psychological flexibility different names over the past decades, among them ego-resilience (Block & Block, 1980) and self-regulation (Carver & Scheier, 1998). Psychological flexibility covers a variety of strategies, such as to identify and adapt to various situational demands, shift mind-sets or behaviour strategies, maintain balance among important life areas and to be aware, open and committed to behaviours that go together with deeply held values. Other abilities that go together with flexibility are: Using a flexible explanatory style, being accepting and open to experience, curiosity and willingness to allow for the positive and negative feelings that often arise when confronting a complex and unknown situation (Kashdan & Rottenberg, 2010).

Acceptance and adaptive energy is required when an individual is faced with physical and environmental stressors (Peterson & Seligman, 2004). Da described his acceptance of and adaptation to the physical changes he experienced as follows: *A person doesn't have to fight what you're going through accept yourself as you are if you're going to sit and mope about your short-comings, you won't know your strengths. You have got a health condition but life must go on you are taking it as a condition not as an illness that is going to deter you from being yourself.* Da further used reappraisal to change the meaning of

the emotional issue around facing his erectile dysfunction. *I am a wreck I don't want it to dominate my life I'm one guy who always try and make my problems motivations it must drive me to do something better someway.* He also exhibited bravery in facing the problem: *So I'm trying to train myself, train my mind and I will have to accept it. It must drive me to do something better some way.* Adjustment is multifaceted and for Da consisted of compromise in performance of roles and daily activities, while at the same time showing willingness and determination: *By the third month my body has been regaining strength ever since I'm ok, now they don't cook, they don't clean the house I do it for them, I cook for them. When they come home they just dish up and we eat.*

Adjustment is a process that unfolds over time in individual context. As a result of Da's improved functional status, he mobilised, resumed some routine activities and was keeping to a physical exercise protocol of walking 5 km every morning. Da demonstrated flexibility and adaptability when he decided to withdraw effort and commitment from unattainable goals (going back to his previous work) because of his changed physical situation and he took on a new position as a pastor. Da: *I have got a health problem but life must go on to ask for the Lord to guide me to give me wisdom to help me promote Godliness, to help the church grow.* This led to greater well-being, life satisfaction and mastery experiences: Da concluded: *I think the operation was worthwhile. It is a new beginning for me. If I did not go that path, I would still be stagnant but now I am seeing life in a new perspective I am rejuvenated like the blind man who said all I know is that I did not see but now I see.*

Forgiveness (mercy) and Humility/Modesty

These temperance strengths did not contribute to participants' recovery processes as much as they seemed to be the outcomes of the whole illness-recovery process and the personal growth that flowed from that. These strengths are discussed later under the heading of post-traumatic growth strengths.

Prudence

Prudence is a form of practical reasoning and self-management that helps to reach the individual's long-term goals effectively (Peterson & Seligman, 2004). Linkins, Niemiec, Gillham and Mayerson (2015) described it as cautious wisdom, with the ability to think through (with critical thinking and active open-mindedness) the consequences of a situation and not to do or say things that you may later regret. Many situations require the balance between the strength of bravery and the strength of prudence (Peterson & Seligman, 2004).

Two participants specifically commented on their strength of prudence and the way it helped them during the recovery period:

Em reported that his way of carefully reasoning out a next step of action, his balanced way of approaching life, helped him in the recovery process to regulate his behaviour and get fit again: *sekere karaktereienskappe het my baie gehelp my persoonlike sienings oor die lewe die feit dat ek nie halsoorkop in 'n situatsie ingaan nie, bietjie dink oor wat ek doen en sê om beredeneerd te wees 'n gebalanseerde uitkyk oor die lewe te hê nie dit oordoen nie doen waartoe jy in staat is.* (Certain characteristics helped me a lot my personal views on life the fact that I do not rush into a situation, think somewhat about what I do or say to be thoughtful...to have a balanced look on life not overdo it do what you are capable of). With the use of prudence options can be thought through as Ta reported: *I don't do anything that's going to bounce back negatively at me become stricter about my life's progress make research on more positive things what else can I get that will take me from point A to point B.*

In this study the self-regulation strength of the temperance cluster of virtues seemed to emerge as a guiding self-related and intrapersonal dynamic, serving many purposes during the post-surgical recovery period of the participants. Self-regulation manifested as self-control, discipline, self-management, mastery of negative feeling states to regain emotional stability and as a sense of control. Self-efficacy and will-power seemed to be strengths that underpinned self-regulation and together these strengths fostered acceptance of their recovery challenges and adaptation to a new health and life style reality. The close theoretical correspondence of these strengths to the skills described for emotional intelligence, was striking (Bar-On & Parker, 2000; Mayer, Caruso & Salovey, 2000).

Strengths of justice

Justice strengths refer to what makes life fair and is mostly civic in nature, i.e. equality of everyone. Strengths of citizenship (social responsibility, loyalty, teamwork), fairness and leadership are included (Peterson & Seligman, 2004). Participants in this study mostly displayed growth in the strengths of teamwork and fairness acquired through the cardiac surgery and recovery experience. This strength is discussed in the post-traumatic growth strengths section.

Leadership

Peterson and Seligman (2004) described leadership as the organising of group activities and seeing that they happen "It is a personal quality an integrated constellation of cognitive

and temperament attributes that foster an orientation toward influencing and helping others toward collective success” (p. 414).

Throughout the interview Da often mentioned his commitment to leadership in the church structure as well as the community. His leadership strength helped him throughout his recovery process and when he was boarded from work since it gave him purpose and meaning in life, as well as life satisfaction as he refocused on current commitments and future goals. Da: *I have always been chosen to lead I was nominated for pastorship When I was in hospital I was asking God he has given me people to be their leader should I die, what's going to happen to those people they are so helpless. My focus now is not just helping the congregation, I'm trying to plough back to the community.*

Wisdom and knowledge strengths

Of these strengths, only creativity and open-mindedness clearly emerged from analyses of the interviews with participants.

Creativity

Creativity involves having original ideas or behaviours, adaptability, contributing to the person's life or to the life of others (Peterson & Seligman, 2004), being open to accepting events in life as experiences and challenges that are possible to overcome (Antonovsky & Sourani, 1988), striving to influence outcomes rather than sinking into passivity and avoiding changes (Kobasa, Maddi, Puccetti & Zola, 1985). Being creative is also being able to use one's capabilities to transcend body, time and space (Nygren, Norberg & Lundman, 2007).

Although only one participant clearly showed the strength of creativity during the interview, several other participants also used creativity in various forms during their recovery process.

The description of Ri, (the only female participant in the study) of her experiences of the recovery process demonstrated how her strength of creativity helped her, by distracting her from the discomfort and slow process of recovery to cope by means of increased patience and perseverance and also regain her sense of self-esteem through the process. Ri: *Ek is baie lief om met my hande te werk, vandag doen ek dit, more sal ek dit doen as hierdie wol te donker is en dit werk nie saam met my oë nie, dan los ons dit, kry iets anders om jou besig te hou As ek nie self in die tuin kan plant nie sal ek opdragte gee, maar ek sal nog altyd die ding geplant hê. Ek het twee trui gebrei in die tyd wat ek siek was en toe sê Pieter: 'maar dis 'n mooi trui hierdie' en dan voel jy ook lekker jy kry bevrediging daaruit. (I love to work with my hands today I do this, tomorrow I'll do that*

If this wool is too dark and doesn't work well with my eyes, then I leave it, find something else to keep me busy If I can't plant in the garden myself, I will give orders, but I'll always have the thing planted. I knitted two jerseys in the time that I was ill and then Peter said: but it is a beautiful jersey and then you feel good you get satisfaction from that).

Closely related to creativity, curiosity and openness to experience refer to an inner need for experience and knowledge. It requires an active pursuit and the regulation of one's experience in response to challenging opportunities. Specifically curiosity is about investigating and increasing one's knowledge of specific events and problems, to understand them better (Peterson & Seligman, 2004).

After surgery, the promise of having a future and another chance in life seems to have inspired some participants who, as a result committed themselves to actively take part in their recovery processes by obtaining information and committing to goals to get physically and emotionally as strong as possible, as Em said: *Jy gaan waarskynlik nie weer 100% wees nie, maar as jy 90% kan kry* (You will probably not be 100% again, but if you can get 90%). Ti described his experience as follows: *Is ek net 'gepatch' om verder te kan leef, of dat ek 'n normale en aktiewe lewe kan lei en ek moes by 'n punt kom deur te oefen en te toets wat ek kan doen hoeveel keer ek 'n 5kg gewig kon optel en bokant my kop uitstoot dit was vir my belangrik om te kyk hoe effektief is 'n omlyning En omdat ek fisies beter gevaar het kon ek psigies ook oorwinning kry.* (Am I only patched to live further or that I can live a normal and active life and I had to come to a point to exercise and to test what I can do how many times I could pick up a 5 kg weight and push it above my head it was important for me to see how effective is a bypass And because I got better physically, I could also win and thrive mentally).

Perspective

Several participants experienced gaining perspective (wisdom) through struggling with the challenging experience of cardiac surgery. This strength is also discussed in the post-traumatic growth strengths section.

Open-mindedness (judgment, critical thinking)

Open-mindedness is perceived by Peterson and Seligman (2004) as the willingness to actively look for evidence in contrast with one's favoured beliefs, plans or goals and to weigh such evidence fairly when it is available. The opposite of open mindedness is called myside bias, that refers to the inclination to think in ways that favour one's own views (Peterson & Seligman, 2004).

Ti experienced debilitating depression after his CABG which impeded his usual rational thinking. He was practically immobilized by fear: *was ek net gepatch om te verhoed dat ek doodgaan sonder om enige kwaliteit lewe te hê Wat is die nut wat gaan word?* (Have I only been patched to prevent me from dying without having any quality of life what is the purpose what will become?). He managed to make a paradigm shift by employing his strength of judgment and critical thinking towards realising that the surgery has been successful and what that implied. This cognitive shift gave him renewed hope and motivation to get physically active and in this way he regained strength (physical and psychological) and eventually started participating in everyday life again: *Toe besluit ek ek moet 'n paradigm skuif maak hierdie hart se vermoë is nie 'n halfgelapte ding nie hy het die vermoë om te kan doen wat hy moet hierdie ingryping is suksesvol om my 'n normaal fisies en psigiese lewe te laat leef. En toe het ek begin oefen en so selfvertroue begin kry.* (Then I decided I must make a paradigm shift this heart's ability is not a half-patched thing it has the ability to do what it has to this intervention is successful to let me live a normal physical and mental life. And then I started to exercise and gained self-confidence).

From the above, it would seem that the creativity and open-mindedness strengths which are cognitive strengths, manifested by some participants (and most likely by others too, in various forms) were in line with the old adage of Ellis (1980) and Meichenbaum (1986) that our thoughts determine our emotional reactions and behaviour, that then influence our discomfort or struggling with circumstances. Thoughts influence how people see themselves, determine their self-confidence, -efficacy, -esteem, their interpretation of the circumstances and the coping abilities employed to deal with challenges. Creativity was used by participants to transform physical and emotional discomfort into meaningful activities in order to regain personal control and also open-mindedness with which they could search for clarity and could pierce through denial and confusion (Masten & Reed, 2002).

The preceding discussion about the character strengths identified in participants through analyses of individual interviews with them, seem to indicate that a hierarchy of strengths used for recovery from CABG, emerged in this study. Table 3 showed this hierarchical trend and in the discussion that followed it was explicated rather in detail. These findings resonated with the view of Biswas-Diener et al. (2011), who proposed that constellations of strengths could exist in which strengths would operate in synergy to build and strengthen physical and mental well-being.

Post-traumatic growth strengths

As mentioned previously in the analysis of the strengths used by participants to foster their CABG recovery processes, it became clear that the recovery experiences and especially dealing with the traumatic experience of a cardiac incident and CABG, generated growth-related strengths in these individuals.

The experience of adversity (serious stress or trauma, physical or psychological) draws a person's attention to one's own vulnerability, lack of power and control and one's mortality. Such traumatic events were described by Tedeschi and Calhoun (2004) as personal earthquakes that have shaken people to their core beliefs and coping capabilities. However, research found that people exposed to extreme traumatic events may experience something good emerging from their struggle with such tragedies such as more open communication with family and close friends, experiencing fewer fears, rearranging their life priorities, being less preoccupied with the trivialities of life and living life more immediately (Yalom, 1980).

Linley and Joseph (2004) did a systematic review on studies of survivors of various traumatic events including health-related trauma such as cancer, brain injury, HIV/AIDS, spinal cord injury, leukaemia and heart attacks. Results from 39 studies suggested that positive change is commonly reported in around 30-70% of survivors of the various traumatic events. After the September 11 terrorist attacks, Peterson and Seligman (2003) found that results from a VIA-IS survey completed by voluntary participants showed increases in seven character strengths namely gratitude, hope, kindness, leadership, love, spirituality and teamwork. Although stress and trauma can provide a catalyst for growth, it is not the event but the adaptation process in its aftermath that is the source of growth after trauma. Both Schaefer and Moos (1992) and Tedeschi and Calhoun (1995) proposed models for such a growth process.

The process of growth after trauma

The literature on post-traumatic stress in health populations generally considers the time of diagnosis as the most traumatic part of the experience. Receiving the diagnosis of having a serious heart condition and of the need for surgery are probably the first indicator of having a life threatening disease and the patient is faced with his/her mortality and an identity crisis that challenges his/her sense of global meaning (i.e. whether life has any meaning) (Bostock, Sheikh & Barton, 2009). The initial loss of invulnerability after trauma entails a shattering of assumptions (Janof-Bulman, 1992), or decrease of positive illusions (Taylor & Brown, 1988). Challenges of trauma involve the ability to manage emotional distress and to

redefine the self and the future. People engage in cognitive processing (reflection rumination) to understand and make sense of the experience, as well as engaging in spiritual and religious attempts to find purpose and meaning in what happened (existential meaning) (Tedeschi & Calhoun, 2004).

Taylor (1983), in her paper on how people cope with misfortune, argued that people make use of three strategies of meaning-making: Finding purpose in the suffering, rebuilding a sense of mastery (control) and bolstering their self-worth. Individuals who achieve the greatest benefits are those who change their perceptions of circumstances from being unfortunate to fortunate, which involves finding some positive aspect in a negative event. The positive changes that have been observed following trauma and adversity have been variously named, including benefit-finding (Affleck & Tennen, 1996); flourishing (Ryff & Singer, 1998); heightened existential awareness (Yalom & Lieberman, 1991) post-traumatic growth (Tedeschi & Calhoun, 1995), thriving (Carver, 1998) and resilience (Masten & Reed, 2002).

Ickovics and Park (1998) described thriving as the effective use of individual and social resources in response to risk of threat, resulting in positive mental or physical outcomes and/or positive social outcomes. They stated that it is “an adaptive response to challenge (which) represents something more than a return to equilibrium” (p. 122). Carver (1998) expressed the same opinion when he noted that resilience should be reserved to indicate homeostatic return to a prior condition whereas thriving refers to “the better-off-afterward experience” (p. 247). Thriving entails feelings of power, vitality, joy and being fully engaged in life. There is a sense of personal growth, of better perspective and of a deeper understanding of oneself and openness to the needs of others, it is optimally embracing life (Fingfeld, 1999).

Peterson, Park, Pole, D’Andrea and Seligman (2008) noted that Tedeschi and Calhoun’s (1996) five factor approach that lists five main areas of post-traumatic growth, appear to correspond with particular character strengths namely: Improved relationships with others (i.e. people now value their friends and family more and feel an increased compassion and altruism towards others, showing kindness and love); openness to new possibilities (curiosity, creativity, love of learning); greater appreciation of life (appreciation of beauty, gratitude, zest), enhanced personal strengths (bravery, honesty, perseverance) and spiritual development (religiousness).

Joseph and Linley’s (2005) review of theoretical models of growth following adversity has shown three broad dimensions of growth, namely: Improved relationships (i.e. people

value their friends and family more and feel a deeper compassion and goodwill towards others); changed views of themselves (i.e. people have a sense of personal resilience, wisdom and strength together with more acceptance of their vulnerabilities and limitations); changes in view of life and enhanced meaning of life, (i.e. gratefulness for each given day, reconsidering what really matters in life and possible changes to spiritual beliefs). Participants of this current study reported the following changes in these three broad dimensions of personal growth:

Changes in perception of self (personal strength, resilience or self-reliance, developing a new path or opportunities).

Ri found most pride in her strengths of self-reliance and autonomy that she achieved at 4 months post-surgery: *jy weet jy moet deurdruk dinge wat ek self kan doen ek los nie die bed vir Pieter om op te maak nie wat jy voel jy kan doen maak jou trots.* (You know you need to push through things that I can do myself I don't leave the bed for Pieter to make what you feel you can do makes you proud). She felt a sense of achievement in overcoming adverse physical symptoms after surgery. Be reported pride in his strength to face fear, discomfort and pain after surgery and during the recovery period. He further encountered a premorbid disease (brain tumor that causes incidents of transient-global amnesia) during his recovery phase and struggled with this together with the challenges of the recovery process: *En uithouvermoë* (and perseverance). Be's experiences reminded of the notion that people draw a conclusion that they are stronger, which may generalise to all kinds of situations in future (Collins, Taylor & Skokan, 1990).

Ti reported growth towards reflective wisdom: *geestesrypheid – dat ek 'n bietjie terugstaan voordat ek 'n mening gee of 'n besluit neem.* (Mental maturity allow myself to stand back before I give my opinion or make a decision). He also mentioned a new sense of life purpose and mental vitality: *Ek het 'n 'purpose' my nalatenskap moet manifesteer in my gesin en gemeenskap* (I have a purpose my legacy will manifest in my family and the community) which reflected Ryan and Fredrick's (1997) view of vitality as the presence of energy, enthusiasm and in general aliveness. Ka also experienced an increase in wisdom and meaning in life: *you become more mature you don't take things for granted anymore* He felt a psychological sense of mastery: *I was fighting my fears and I gave up smoking – I think that was my best achievement* and indicated increased patience *I'm very limited now to what I can do but I am OK with that it is a slow process.*

Wi reported acceptance and adapting to his currently weak physical condition: *ek aanvaar en pas nou daarby aan ek hanteer net die situasie anders, kry 'n ander oplossing 'n plan B* (I accept and adapt to it I handle the situation differently, get another solution make a plan). He experienced being more calm, peaceful and unhurried: *Ek het voorheen gejaag Nou die lewe op 'n rustige manier te vat ek is nou meer kalm.* (I was always rushed now I take life more go with the flow I am more calm). His acquired peacefulness seemed to have a positive influence on the people around him: *en die mense om my ervaar ook daai rustigheid.* (And the people around me also experience that calmness). He also mentioned that he became more aware, mindful and appreciative of his immediate surroundings:*die omgewing om my te kan raaksien dis 'n herlewung ek het oogklappe aangehad* (to notice, become more aware of the environment it is a renewal I wore blinkers). An reported a greater sense of personal resilience: *Ek het my genesing gaan haal. Nie vir hom gewag om te kom nie. As jy nie in jouself glo nie, kan jy maar los en 'n boemelaar word. 'n Boemelaar het die geloof in homself verloor.* (I reached out to get recovery did not wait for it to come. If you don't believe in yourself leave it at that become a tramp. A tramp has lost the belief in himself).

Wisdom/perspective is the product and coordination of knowledge and experience giving a person a greater perspective on life situations. Experiencing stressful life events can facilitate the development of wisdom perspective (Dean, 2017). Em reported gaining perspective, thus thinking about situations and problems in a wiser and more reasonable way after his heart surgery: *'n Mens onderskei makliker tussen die kaf en die koring meer perspektief* (One is able to separate the wheat from the chaff more perspective.) a realization that one can: *take nothing for granted* and therefore should make use of opportunities with a determined mind: *'n kans met albei hande aangryp effort insit.* (.... grab an opportunity with both hands put in effort). He also expressed newfound courage and inner strength: *mens sien kans om enige aanslag die hoof te bied want as jy oor soiets kan kom, kan jy oor baie dinge kom emosioneel sterker.* (One feels capable of overcoming any adversity because if you can recover from something like this, you can overcome many things emotionally stronger). Wi mentioned growing wiser: *Ek het meer wys geword -- kan beter besluite neem is oop vir ander mense se insette saam as 'n span gee ander kans meer dankbaar vir mense wat saam met my werk.* (I became wiser can make better choices open to other people's input together as a team give others a chance more appreciative of my colleagues).

Ta reported feeling a sense of mastery for staying positive and hopeful through the challenging recovery period and for managing to conquer his smoking habit: *I never allowed*

myself to be negative about my sickness, I got mastery I am no longer smoking Two participants mentioned how they were humbled (humility) through the experience: Jo: *alles is normal en dan net so wap ek was by die dood Wat ek daai dag besef het ek het 'n suksesvolle besigheid, mooi huis, kinders niks is myne nie as die Here my wil vat jy kan niks saamvat nie.* (.... everything is normal and then, just like that I was almost dead What I realised that day I have a successful business, beautiful house, kids nothing is mine. If God wants to take me You can take nothing along). Ti mentioned: *Jy besef jy's 'n klein spotjie nie eers 'n spikkeltjie op die universe nie.* (You realise you are a small spot not even a spec in the universe).

It was notable that although participants seemed to be able to focus on their personal strengths demonstrated during their survival of the surgery and their enduring of the physical, existential and mental challenges of the recovery process, they still had a growing awareness of a sense of vulnerability of self-esteem and of social valuation after the experience.

Changes in interpersonal relationships – increased compassion or altruism, or a greater sense of closeness in relationships

Part of positive growth of relationships stems from a deeper sensitivity to other people and from efforts aimed at improving relationships (Du Toit et al., 2014). Em reported that he heard about a former colleague, with whom he had some kind of disagreement in the past, who established a successful business after being retrenched himself. He contacted the person in an attempt to bring about an improved relationship: *uit my eie vir hom 'n boodskap gestuur: 'Jammer oor die verlede Kom ons sit dit agter ons dit was kinderagtig, onvolwasse van my Ek gaan sekerlik nog mense kontak en elke keer as ek so iets doen gaan ek beter voel, en daai persoon gaan beter voel....* (.... out of my own sent him a message: Sorry about the past lets put it behind us it was childish, immature of me. I am certainly going to contact more people and every time I do something like that I will feel better and that person will feel better). Thus, strengths of kindness and forgiveness were displayed by Em.

When confronted with his own mortality, Ti seemed to move beyond focusing on his own interests and experienced having greater tolerance with others, displaying more openness for their opinions as well as having a more empathetic stance: *nou ervaar ek, ek kan meer terugstaan totdat daar meer inligting kom voordat ek 'n mening gee begrippe vorm van mense se optredes in plaas van reaktief optree dis een van die groeiprosesse wat in my ontstaan het.* (I find that I can step back until I have more

information before I give an opinion form an understanding of people's actions in stead of reactivity it is one of the processes of growth that started in me). He also envisioned (and already started implementing plans) to be more productive and serve in the community campaigning for the rights of disadvantaged people, thus showing citizenship which entails working for the good of the group/community, loyalty and teamwork. Citizenship as seen by Peterson and Seligman (2004) is characterised by a feeling of identification and a sense of obligation that stretches beyond one's own self-interest.

Ka mentioned his deep experience of physical and emotional care and assistance from family members during his recovery period and the growth towards closer family relationships and especially the marital bond. This led to a greater humbleness and appreciation: *I had a lot of pride I would rather do things on my own than ask for assistance It's easier to say thank you now than before.* He also appreciated the preciousness of his child and an awareness of limitations in time to a greater extent: *You can't pace through life missing all the small moments appreciate that moment when he (son) hugs you.* Ta reported experiencing great appreciation for the selfless sacrificing of his wife and mother during his recovery period as well as improved relationships in the family: *My relationship got better with my wife and my mom used to go out a lot but since the operation I'm always there for her the most important people My relationship with my children when I got angry I used to Now I tell myself Just calm down hold my emotions not going to take a harsh action.*

Jo reported kindness in that he became more social and outgoing. He is now able to start a conversation with a total stranger, supporting and encouraging a person in need. *Ek was eintlik nie 'n sosiale mens nie nou is dit vir my lekker om my kinders en kleinkinders te entertain Ek is vandag nie skaam om met enigiemand in die straat te praat te bid moed in te praat nie.* (I wasn't actually a social person now I love it to entertain my children and grandchildren Today I am not shy to talk to anyone in the street to pray to encourage). Fairness involves the development of perceptiveness and understanding for relationships, becoming sensitive to issues of social injustice, the interpersonal treatment you show towards others, having compassion and caring for others, treating them with dignity and respect (Li & Cropanzano, 2009; Peterson & Seligman, 2004). Wi mentioned that his illness experience constituted a turning point in his life. While at home recovering he engaged in lengthy reflection on the meaning and direction of his life that led to a shift in values (also see Groleau, Whitley, Lespérance & Kirmayer, 2010). He reported having a more empathetic stance now, more patience, fairness and openness to other's opinions, leading to improved teamwork: *Jy moet oop wees vir ander mense se insette en*

raad kan aanvaar – buite jouself kyk (minder ego) groter geduld met ander ek luister nou na ander se opinies aanvaar ook hulle idees werk saam as 'n span. (You need to be open to other people's inputs and accept advice - look beyond yourself (less ego) have more patience with others I now listen to other's opinions accept their ideas work as a team).

The ethic of care broadens the justice perspective by including caring and compassion and it complements the justice focus with empathy and with relational understanding (Peterson & Seligman, 2004). Jo displayed such growth in humanity: *Ek sien nou die lewe heeltemal anders om mense gelukkig te sien Die Here gee jou gawes my koppie is vol so daai piering wat oorloop ek wil dit nie vir myself hou nie maak 'n verskil in mense se lewens. (I now see life totally different my cup runneth over I don't want to keep it to myself make a difference in people's lives).*

Ti expressed growth and commitment to greater citizenship: *Ek het hierdie droom om die munisipaliteit te draai, te depolitiseer en die ou van die plakkerskamp lid maak selfbeskikking uit die gemeenskap. (I have this dream to turn this municipality around depoliticize it involve the guy from the squatter camp right of self-determination from the community).*

Changes in philosophy of life, a greater appreciation for each day – changes in religious or spiritual/existential beliefs.

Pargament, Smith, Koenig and Perez (1998) mentioned that exposure to the challenges of life inspire people to think more deeply and clearly about their religious and spiritual beliefs, that offer a powerful source of meaning-making and coping. Most participants reported religious growth, a greater sense of meaning and purpose, transcendence and gratitude to be alive. Perceived limitations on time, lead to motivational shifts and the value of meaningful social ties with family and friends became of greater importance (Carstensen, Fung & Charles, 2003). Positive changes in visions for the future were characterised by an emphasis on greater enjoyment of the present (Collins et al., 1990). Examples are as follows:

Most participants expressed an enhanced appreciation of life. Ti: *Dit was 'n wonderwerk bewustheid van 'n Groter Teenwoordigheid, 'n Wese. (It was a miracle greater awareness of a Greater Presence, a Being).* Em: *.... mens sien 'n Hoër Hand in dinge die groot Geneesheer Gebed ek doen dit nou baie meer. (...one sees a Higher Hand in thingsThe Great Healer prayer I do it more often now).*

Wi: *My geloof het gegroei ek het nog 'n kans gekry my werk is nog nie klaar nie ek het 'n doel ek moet meer 'care' om my* (My faith has grown I got another chance my work is not completed I have a purpose I need to care more around me). Ka reported: *I'm blessed to be alive, to be given another chance grateful for everyday that you're given to say 'thank you God' when you wake up in the morning I don't take things to heart or as seriously anymore There's a bigger picture out there a bigger reason as to why I am here* Ka now forgives more easily: *.... whereas now I'd say, I forgive you let's move on let's walk from here.* He experienced a change in values *.... you know, life is short now my family comes first before it was my job the love that my family gives me is eternal you take that for granted until you realize that its not a given It can be taken away any time.* He also mentioned that he experienced a greater sense of playfulness *.... I don't rush as I used to more spontaneous that's how we are now we did not book a place that was quite cool.*

Most participants also experienced spiritual change. Da reported that he had a renewed calling to *do the work of God*. He took up a leadership position in his church after he was boarded at work because of his health condition. Da: *I am really grateful for this operation It is a new beginning for me I am rejuvenated the Lord has given me a second chance to promote Godliness, to help the church grow.* Em reported becoming more aware of and being grateful for the goodness in life, but at the same time also experiencing a sense of vulnerability: *Ek is baie dankbaar Dis asof jy dinge meer waardeer, nie as vanselfsprekend aanvaar nie.* (I have more appreciation It is as if you appreciate things more, not taking it for granted). Jo reported a sense of awe and transcendence: *Die Here het my kans gegee 'n gift. Elke dag se opstaan is 'n geskenk.. Ek's dankbaar vir God se genade ek sien die lewe nou heeltemal anders om mense gelukkig te sien doen vandag. Moenie wag vir môre nie.* (God gave me a chance a gift. Waking everyday is a gift. I am grateful for Gods grace I now see life much differently now to see people happy do today don't wait for tomorrow). He also reported a greater awareness of nature: *...die voëltjies die sonsopkoms* (the birds the sunrise...) and now lives with increased and mindful awareness: *... Geniet die lewe elke dag asof dit die laaste dag is* (Enjoy life everyday as if it is your last day). Be said: *.... geloof Mens se geloof raak net meer verryk as jy deur soiets gaan man leer bid van vooraf dis net genade van Bo.* (...faithOne's faith gets more enriched when you go through something like that learn to pray anew it is just mercy from Above).

The above discussion used the framework of Joseph and Linley (2005) to explain the strengths that emerged in participants from their engagement with their CABG recovery,

including working through the traumatic experiences that preceded the surgery. The strengths that became prominent were primarily kindness and love together with fairness and citizenship. Thereafter strong transcendence (spirituality) strengths seemingly linked to strengths of wisdom, humility and appreciation came to the fore. Yet a deepening sense of self with strengths of mastery, self-regulation, self-competence (efficacy), mindfulness and a sense of inner worth, power and calm, became evident. These strengths clearly attested to the five dimensions of post-traumatic growth conceptualised so succinctly by Tedeschi and Calhoun (1996, 2004).

Concluding Discussion

In this qualitative study of how CABG patients used their signature character strengths during their post-surgical recovery process, the aim was to establish if character strengths can be identified in CABG patients that have positively influenced their post surgical recovery and adjustment processes. Specifically whether, after having identified their signature strengths on the VIA-IS, could CABG patients relate such strengths as enabling factors in their recovery process? The core question was thus: What is the role that signature character strengths play in the recovery processes of a group of CABG patients? The main findings are briefly discussed below.

Participants did not primarily use their VIA-IS identified signature strengths to enable them during their recovery processes, but rather used other VIA-IS related strengths and even strengths not included in the VIA-IS. Strengths of Transcendence, Courage and Humanity were the most often reported during the in-depth interviews with participants. Thereafter Temperance strengths and particularly the strength of self-regulation seemed to be prominent, as well as Wisdom and Knowledge strengths of creativity and open mindedness. These findings seem to be in line with those in various other studies that reported that strengths apparently function optimally in context specific applications (Park & Peterson, 2006; Shryack, Steger, Krueger & Kallie, 2010). The view of Biswas-Diener et al. (2011) that strengths are highly contextual phenomena that emerge in distinctive patterns alongside particular goals, interests, values and situational factors, is of particular relevance to the findings of this study.

Based on the context relevant functioning of strengths, it is understandable that after such a life-changing experience as being diagnosed with cardiac illness and having CABG surgery afterwards (context), Transcendence strengths would emerge in order to cope with the anxiety of facing one's vulnerability and mortality and particularly to find meaning and purpose for one's life as a whole (Peterson & Seligman, 2004). Closely related would be the

use of Courage strengths of persistence, bravery and vitality (especially psychological energy), to restore a sense of personal control, self-efficacy and coping abilities to deal with the recovery challenges after CABG and to regain a competent sense of self and of the resilience that Masten (Masten, 2001; Masten & Reed, 2002) referred to as ordinary magic.

Humanity strengths manifested mainly as social intelligence and love, but through the experience of perceived social support and the appropriate response thereto. Research abound about the salutary effects of perceived social support on health related matters, including greater resistance to disease, faster recovery from surgery and heart disease, lower mortality, compliance with medical treatments, reduced levels of medication and quicker recovery and the adoption of health-promoting behaviour after illness experiences, all very relevant to CABG patients in recovery (see Compton & Hoffman, 2013). Taylor (2011) found that perceived social support reduces negative emotion during times of illness or stress and fosters psychological coping and adjustment, which in turn enhance further coping behaviour and other strengths to promote adjustment behaviour (Salovey, Rothman, Detweiler & Steward, 2000).

Although the temperance strengths other than self-regulation did not feature strongly in this study, self-regulation seemed to be prominent as both an enabling strength for other strengths to emerge and as the strength that underpinned the ability to accept the realities of CABG recovery and to adapt to a new health-oriented lifestyle. A sense of self-efficacy and self-regulation seemed to work hand-in-hand in these participants (Bandura, 2005; Hevey, Smith & McGee, 2012; Kubzansky et al., 2011).

From the above exposition, it is clear that in this study character strengths that were context specific were mostly used by participants to facilitate their recovery processes after CABG surgery, rather than their signature strengths, although the latter were not absent and were most likely intricately woven into the strengths pattern of each individual participant and perhaps had an enabling or catalytic role to engage other strengths required by the recovery challenges. Researchers such as Boehm and Kubzansky (2012) and Niemiec (2012) called for research into the recovery processes of CABG patients and especially to determine whether those who have experienced and recovered from CABG display specific, significant strengths. In this study, somewhat of a hierarchy/constellation of strengths salient to the recovery processes after CABG were identified qualitatively. However, the context relatedness of such strengths was clear and further one would be reluctant to speculate about the transferability or generalisability of these findings. The call of the mentioned researchers remain relevant and thus, based on findings from this study it is recommended that CABG recovery related strengths should be further researched.

An unexpected finding was that certain character strengths of the participants emerged during the recovery processes and presented as growth after trauma strengths that could be applied to promote long-term psychosocial well-being. This finding seems to support findings by Park et al. (2004) and Harvey (2001) that certain traumatic or stressful life events and circumstances seem to influence how strengths function, for example, that trauma change the way in which modesty manifests as a strength. It seemed therefore, that certain strengths in this study's participants were not utilised to promote recovery from CABG as such, but grew from the recovery processes to enable adjustment and well-being behaviour post-CABG recovery. Such findings are in support of the post-traumatic growth views of Tedeschi and Calhoun (2004) and those of Joseph and Linley (2005) and Peterson et al (2008), regarding the strengths that grow from adversity. The findings also seem to support the view of Martinez-Marti and Ruch (2014) that character strengths predict resilience over and above various other positive attributes.

From the above it could be concluded that this study was successful to reach the research aim and to answer the research question. However, there were limitations to the research:

- All ten participants requested the assistance of the researcher in completing the VIA-IS questionnaire (by reading the questions aloud to them, at times also by explaining the meaning of a particular item). The reasons for this were twofold: Except for the one young participant the other nine were much older and mostly not computer literate. The other reason was that for all participants English was their second language. Most of them struggled to understand the exact meaning of some of the concepts included in the questionnaire. Yet, during and after completion of the questionnaire participants often described in depth their experiences (i.e. thoughts, feelings and use) of character strengths rendering a rather complete picture of their strength usage during recovery.
- The small sample size of female participants (only one) limited information on differing gender perspectives in strengths use. Women are more likely to be older than men when they have CABG surgery, they often live alone or with spouses who are older and whom need care themselves. Thus women's recovery worries are often associated with these different social circumstances (Hart, 1999; Moore, 1995). Researchers found that psychosocial factors may assume different roles in women's recovery (Hart, 1999).
- Another limitation in the study was that only one participant was in his early thirties, while the others were between the ages of 54 and 74. Most men that have CABG

surgery are still of working age and are thus faced with issues of mortality at an earlier age. The issues of emotional distress that they face such as returning to work and making drastic lifestyle changes are of a different developmental nature than those faced by older and/or retired men and/or women (Moore, 1995). Redeker (1993) found that patients in their middle ages were more anxious after surgery than older ones. Different developmental challenges and circumstances may lead to different strengths playing a role in their recovery processes.

Recommendations for further research that arose from this study were:

- Strengths usage in the recovery from CABG is recommended with different age groups, genders and cultures and also with strengths assessed in other ways than by means of the VIA-IS.
- The design of this study was cross-sectional. In order to increase knowledge of strengths use in recovery and growth of CABG surgery patients, self-reports can be supplemented by additional daily report studies, perhaps in diary form or telephonic/e-mail contact. Such research would be beneficial to understand the processes of recovery by means of strengths use, in more depth.
- This study made use of self-report methods (individual interviews). Future studies could benefit by using the triangulating method in qualitative research with which the interviews could be supplemented by graphic or written media such as written stories, drawings, poetry and photographic images (Lapum, Church, Yau, Ruttonsha & Davis, 2013).

In conclusion, this study could be seen as successful since it met all the requirements for research of this nature. The researcher experienced the study as personally meaningful and feels deep gratitude towards the ten participants who allowed her to journey with them in their landscape of CABG recovery.

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CHAPTER 3

Conclusions, Limitations and Recommendations of the Study

The conclusions and recommendations derived from relevant literature and from the research findings of this study are discussed in this chapter. These are related to the specific aim of the research study, which was to qualitatively explore how signature strengths of CABG patients contributed to their recovery processes.

Conclusions

Literature conclusions

The literature review was aimed at understanding the challenges of cardiac recovery processes as described in previous research, as well as positive psychological attributes and constructs, especially character strengths and the contribution thereof in the recovery process and psychological well-being after CABG surgery. Salient conclusions were that:

- CABG surgery and recovery

The recovery phase after CABG is described throughout literature as a stressful and challenging process of adapting and returning to normality and of regaining a normal place in the community and to lead an active productive life.

Literature indicate that CABG surgery has almost become a routine treatment in developed countries for patients with cardiovascular disease and such procedures have been found to have positive outcomes, since it reduces mortality and cardiac-related symptoms and usually lead to improvement in the quality of life of patients. However, CABG does not directly lead to the overall well-being of patients. It also entails a recovery process comprising biophysical, psychosocial and emotional components that are often a much greater challenge than expected (Robley, Ballard, Hotzman & Cooper, 2010). Patients face challenges such as uncomfortable physical symptoms, adapting of behaviours, roles and activities due to limitations caused by the disease and the surgical intervention and also the management of emotions such as depression, demoralisation, anger, hopelessness and mood swings that often manifest after cardiac surgery (Clarke, Perera & Casey, 2016; Lorig & Holman, 2003). Research has shown that psychological factors are crucial in regulating the recovery phase (Petrie, Weinman, Sharpe & Buckley, 1996; Weinman, Petrie, Moss-Morris & Horne, 1996) and in determining the outcome of the physical recovery process after CABG (Hokkanen, Järvinen, Huhtala & Tarkka, 2014). It will to a large extent depend on a person's resources, both internal strengths and external support, to determine how they will cope with the challenges of illness, surgery and recovery (Hokkanen et al., 2014).

- Positive psychological attributes/character strengths and cardiac health

The science of positive psychology is focused on conditions and processes that enable human flourishing and optimal functioning (Gable & Haidt, 2005), especially discovering and

fostering human strengths to enable people to thrive psychologically and physically. The growth of the positive psychology movement led to increased research on the relationship between positive psychological functioning and physical health, in which character strengths has become a core focus. Increasing research suggest that a protective relationship exists between positive psychological functioning and physical health (Diener & Chan, 2011) and that subjective well-being strongly contributes to health and well-being over the life span. Research has also found that increases in positive virtues or strengths are associated with better bio-psychosocial functioning. However, different health situations call for different positive abilities or combinations of such characteristics (strengths) (Baer, 2015).

While the positive health initiative (Seligman, 2008) demonstrated strong associations between psychosocial factors and cardiac health and disease, Boehm and Kubzansky (2012) suggested that research should investigate whether some unique positive psychological well-being constructs are specifically associated with cardio vascular health and to focus on restorative functions of such characteristics. Most studies in this regard have focused on the protective functions of positive attributes such as dispositional optimism (Kim, Smith & Kubzansky, 2012) psychological well-being (Boehm & Kubzansky, 2012), forgiveness, (Freedman & Enright, 1996), religious meaning, (Krause, 2003) and vitality, (Richman, Kubzansky, Maselko, Ackerson, & Bauer, 2009). However, strengths do not function in isolation (Niemiec, 2012) and in this regard Peterson (2006) referred to the plurality of our character strengths. Linkins, Niemiec, Gillham and Mayerson, (2015) state that an individual has a unique constellation of character strengths that are expressed in different combinations and to different degrees, dependent on the context. These views of Niemiec (2012), Peterson (2006) and Linkins et al. (2015) are of particular relevance to this study in which a context related hierarchy of strengths with regard to the CABG recovery process, has been identified.

Despite the research referred to above about the salutary role of positive psychological features in health in general and cardiac health specifically, limited research exists regarding the restorative role that positive characteristics/personal strengths may play in the recovery process of CABG patients. (Huffman et al., (2011). The need for research of the CABG-recovery process and the strengths that may underpin such a process and that enable CABG patients to return to the same or higher levels of well-being than before, prompted this research.

Empirical research conclusions

A qualitative approach was used for this study in line with the research aim stated above and particularly with the aim of accurately describing the participants' experiences during and their perspectives of the CABG recovery process and to identify personal strengths and other restorative and adaptive participant characteristics, that could have played an enabling role in the process.

Conclusions drawn from the findings were that:

- The selection of the sample was based on the purpose of the study namely, looking for participants whom have had experiences relating to the phenomenon to be researched (CABG surgery) and thus can contribute to understanding of the experience. The participant sample of ten were recruited from the cardiac surgery population whom underwent CABG surgery four to eight months previously in a local private hospital. Although it was intended to include participants from different age groups, gender, race/ethnicity, career, living arrangements (with a partner/alone) as well as patients who have recovered well and those who had a complicated and lengthened path to recovery, the reality of selection brought about that participant ages ranged from 32-74 (mean 58.7), with White (7), Black (2), and Asian (1) participants consenting to participate. Only one female was included and only one person in the early adulthood developmental phase. Two participants were also four months into recovery and not six to eight months as planned. It was therefore clear that the practicalities of a research context often impose difficulties to obtain a purposive sample as planned.
- The VIA-IS, a self-report instrument designed for the assessment of character strengths in individuals (Peterson & Seligman, 2004) was not used as a data gathering instrument for analysis purposes, but as a source of strength identification for the participants. The signature strengths identified from the VIA-IS that were most salient to the majority of participants were strengths of spiritual connectedness mostly gratitude, emotional relatedness mostly kindness and generosity and personal courage mostly honesty, authenticity and genuineness. An interesting finding was that participants did not primarily use their signature strengths identified by the VIA-IS during their recovery processes, but rather other VIA-IS related strengths and even strengths that did not feature in the VIA-IS. It could be speculated that the participants' signature strengths played a latent but catalytic role in generating other context-related strengths required for the CABG recovery challenges.

- Semi-structured individual interviews were used as the main means of data collection. For this purpose the GRID elaboration method was used to elicit more naturalistic data instead of the researcher imposing questions and topic areas and also to allow participants to convey their own sense of what is important. The GRID method proved to be a good introduction to the in-depth interviews and also had an ice-breaking effect. It opened avenues for exploration as subjectively relevant topics came to the fore and were placed (written) by participants in the four boxes of the GRID. Such topics were explored further in the interviews, together with the planned interview schedule of the research.
- Data obtained from interviews were analysed by means of thematic analysis (Braun & Clarke, 2006) and from the analyses a hierarchy or constellation of strengths emerged that were context specific to CABG recovery for the participants involved. Strengths relating to the recovery process that were identified from the interviews clustered mainly around the four virtues of Transcendence, Courage, Humanity and Temperance. Transcendence strengths (spirituality, hope, gratitude, appreciation of beauty) were mostly used, followed by Courage strengths (i.e. perseverance, vitality, bravery), Humanity strengths (love, kindness, social intelligence) and less so Temperance strengths (except for self-regulation), with Wisdom and knowledge strengths (creativity, open-mindedness) and Justice strengths (leadership), least of all.

Transcendence strengths were the strengths most prominently used by participants in this study. The illness and surgery experiences of participants brought a heightened awareness of their mortality. Spiritual beliefs/faith and values were resources that they tapped into to find hope, meaning and inspiration and that motivated them to take responsibility for their own recovery (Hill et al., 2000). Transcendence strengths seemingly worked together as an integrated source of strength that enabled participants to engage with their recovery processes by means of new or deepened awareness. A sense of experiencing the divine filled them with awe, appreciation and gratitude, as well as feeling deeply in touch with themselves, with their meaning and purpose, their self-worth and their wish to reach out to others. Their views on life and mankind seem to have softened and self-related strengths emerged that would enhance recovery and a quest to stay well.

Courage strengths were the second most prominent cluster employed by participants. Fear and anxiety are common emotional responses after CABG surgery and courage strengths enabled them to confront fear and anxiety, regain control and to bravely move forward, facing the challenges of the recovery process by physically exercising, getting physically stronger and also psychologically coping with anxiety and overcoming fears. Persistence was the most frequently mentioned strength of courage that participants used to

overcome the many challenges encountered during the recovery process. Participants further noted the benefits they reaped from persistence including achieving goals, improving skills and enhanced self-efficacy, confidence and a sense of mastery (Bandura & Walters, 1977). Courage strengths seemed to be mostly intrapersonal and had strong motivational and mentally energising effects that propelled the person towards recovery and regaining of health. The participants clearly engaged with the negative emotional states imposed by the illness and surgery, in a struggle for physical and psychological survival and for regaining a sense of personal control. It would seem as if these internal struggles took so much effort that interpersonal strain resulted. The quality of perceived social support however, created a safe space for the person in which they can distance from others at times and later mend the strained bonds.

Humanity strengths (social intelligence, social support, love) were seen by participants as having played a significant role in their recovery trajectories. Perceived supportive relationships buffered individuals from the negative effects of fear, stress and uncertainty. Such social support strengthened their ability to cope with the challenging recovery period by rendering a more positive appraisal of the situation that lowered stress (Uchino, Bowen, Carlisle & Birmingham, 2012). It was evident that the humanity strengths of social intelligence as manifested in perceived social support and of responding positively to such support, as well as love-related strengths, were intensely experienced by participants. Both these strengths had interactive, close and caring relationships as their source, but it would seem that intra-personal aspects of participants determined the salutogenic value of such loving and supportive environments in their recovery from CABG. Nevertheless, the views of Peterson (2006) that other people matter and of Berscheid (2003) that other humans may be our greatest human strengths came to mind in this discussion.

Temperance strengths were the fourth most prominently used strengths cluster and specifically the strength of self-regulation (self-control). This psychological asset enables individuals to manage/regulate feelings, thoughts, impulses and behaviour. Most participants mentioned the emotional lability they experienced during the recovery period. Strategies for regulation of emotions that participants used were diverting attention elsewhere, reappraisal and modulating (restraining) emotions. The self-regulation strength of the temperance cluster of virtues seemed to emerge as a guiding self-related and intra-personal dynamic, serving many purposes during the post-surgical recovery period of the participants. Self-regulation manifested as self-control, discipline, self-management, mastery of negative feeling states to regain emotional stability and as a sense of control. Self-efficacy and will-power seemed to be strengths that underpinned self-regulation and together these strengths fostered acceptance of their recovery challenges and adaptation to a new health and life

style reality. The close theoretical correspondence of these strengths to the skills described for emotional intelligence, was striking (Bar-On & Parker, 2000; Mayer, Caruso & Salovey, 2000).

All the strengths indicated by participants that enable them to overcome the recovery challenges functioned interactively, working together as an integrated source of strength that assisted and motivated participants to engage with the process of recovery from CABG surgery, which is in line with the view of Niemiec and Lissing (2016).

The recovery experiences and especially dealing with the traumatic experience of undergoing CABG, brought about growth-related strengths and further (post recovery) positive change in these individuals. The framework of Joseph and Linley (2005) was used to explain the strengths that emerged in participants from their engagement with their CABG recovery, including working through the traumatic experiences that preceded the surgery. The strengths that became prominent were primarily kindness and love together with fairness and citizenship. Thereafter strong transcendence (spirituality) strengths seemingly linked to strengths of wisdom, humility and appreciation came to the fore. Yet a deepening sense of self with strengths of mastery, self-regulation, self-competence (efficacy), mindfulness and a sense of inner worth, power and calmness, became evident (Janoff-Bulman, 2004). These strengths clearly attested to the five dimensions of post traumatic growth conceptualised so succinctly by Tedeschi and Calhoun (1996, 2004).

Limitations

Limitations of the study

- All ten participants requested the assistance of the researcher to complete the VIA-IS questionnaire (by reading the questions aloud to them, at times also by explaining the meaning of a particular item). The reasons for this were twofold: Except for the one younger participant the other nine were much older and mostly not computer literate. The other reason was that for all participants English was their second language. Most of them struggled to understand the exact meaning of some of the concepts included in the questionnaire. Yet, during and after completion of the questionnaire participants often described in depth their experiences (i.e. thoughts, feelings and use) of character strengths rendering a rather complete picture of their strength usage during recovery.
- The small sample size of female participants (only one) limited information on differing gender perspectives in strengths use. Women are more likely to be older than men when they have CABG surgery, they often live alone or with spouses who are older and whom need care themselves. Thus women's recovery worries are often associated with

these different social circumstances (Moore, 1995). Researchers found that psychosocial factors may assume different roles in women's recovery (Hart, 1999).

- Another limitation in the study was that only one participant was in his early thirties, while the others were between the ages of 54 and 74. Most men that have CABG surgery are still of working age and are thus faced with issues of mortality at an earlier age. The issues of emotional distress that they face such as returning to work and making drastic lifestyle changes are of a different developmental nature than those faced by older and/or retired men and/or women (Moore, 1995). Redeker (1993) found that patients in their middle ages were more anxious after surgery than older ones. Different developmental challenges and circumstances may lead to different strengths playing a role in their recovery processes.

Recommendations

From literature explored

- Folkman and Lazarus (1988) stated that personal abilities and strengths play a protective role and may reduce feelings of devastation and discouragement in individuals when they encounter adverse situations. Putting negative life events into perspective with one's own capabilities for meeting the challenge, could mediate the actual experience of distress. A future study could use a research design in which character strengths could be identified by individuals that enabled them to cope with or be resilient during diverse adverse life experiences, to determine the protective nature of certain or all strengths.
- Biswas-Diener, Kashdan en Minhas (2011) viewed strengths as personal potential that emerge in distinct contexts and that must be cultivated through enhanced attentiveness and effort. They introduced the concept of strength constellation and expressed the need for research into how personal qualities emerge in specific contexts and operate in synergy to improve psychological and physical well-being. As a form of health promotion individuals can be helped to develop such trainable personal characteristics, which can become important resources for coping with stressful events (Wong, 2006). Affirming individuals' existing character strengths can foster confidence with which to make other personal changes, i.e. lifestyle changes.
- Biswas-Diener et al. (2011) also viewed strengths as highly contextual phenomena that emerge in distinct patterns related to particular goals, interests, values and situational factors. Boehm and Kubzansky (2012) argued that, should serious illness contribute to the development of specific character strengths it may be possible that those who have recovered from CABG could display specific strengths. Niemiec (2012) called for

research regarding such strengthening attributes and their role in positive outcomes for the recovery trajectory after CABG surgery and they argued that identifying specific strengths in patients who recovered from CABG may be beneficial in delivering psychosocial support to other patients. It could be a way to instil hope and motivate necessary lifestyle changes. Research along these lines is recommended. One would also wonder whether strengths are illness context-specific or whether there are clusters of strengths that serve as enabling factors across all illness conditions?

From the empirical study conducted

- Since it was found that individual signature strengths were not as prominently used in their CABG recovery by the participants as other VIA-IS strengths and even strengths not related to the VIA-IS, research in this regard is recommended. It could be investigated whether the context determined nature of strengths, so clearly indicated by other researchers, may mean that signature strengths at times are not as powerful as expected, or that signature strengths perhaps serve as enablers or catalysts for other strengths to emerge.
- The GRID was used to illicit first thoughts and to obtain data that follow the pathways of the respondents' thoughts and feelings rather than the researcher imposing questions and topic areas. Recommend use of the GRID to inquire about recovery experiences could be to ask the question of how they experienced their recovery process in order to get information about their specific experiences and challenges. Thereafter these GRID topics could be explored in relation to strengths use, in the interviews.
- This study relied on self-report methods while future studies would benefit from including observational approaches. Regarding challenges in research on virtue assessment Fowers (2014) stated that virtues must manifest in observable behaviour and not only through thoughts, attitudes or self-accredited traits (i.e. courage should show in courageous acts). For such observational methods. Fowers (2014) suggested the use of multiple informants (i.e. from partner, friends, family members, co-workers) research to obtain a varied and in-depth perspective of strengths of individuals. Future studies could also benefit by using the triangulating method in qualitative research with which the interviews are supplemented by graphic or written media such as written stories, drawings, poetry and photographic images (Lapum, Church, Yau, Ruttonsha & David, 2013).
- Strengths identification and usage in the recovery from CABG is recommended with different age groups, genders and cultures and also for strengths to be assessed in other ways than by means of the VIA-IS.

Personal Reflection

As I am writing these last pages of my dissertation, I realise that I have finally come to the end of a structured and enriching academic (MAPP) course and personal growth journey on the subjects of Positive Psychology and Cardiac disease, surgery and recovery processes.

A psychologist colleague introduced me to the new course in Psychology (MAPP). It was the first formal MAPP course presented in South Africa and it was right on my doorstep at the Vaal Triangle campus of the North-West University, South Africa. By then I was already aware of the Positive Psychology movement. I had been reading Martin Seligman's books and had been following Positive Psychology news on the Internet websites for many years. At the time, I was eager to enrich my private practice as a clinical/medical social worker working in three local private hospitals. I was also personally interested in this new discipline of Positive Psychology as I had been following Vaillant's research on the aging baby boomers: I happened to be in that age group myself, and wanted to prepare myself to be able to grow old flexibly, to turn life's lemons into lemonade (Vaillant, 2002).

Despite all the academically enriching aspects of the MAPP course, the peak experience of this whole research journey has been the individual interviews conducted with the ten CABG patients. It was a great privilege to be part (albeit just a spec) of their recovery journey. I learned a tremendous amount about this life-saving, life-changing experience of CABG surgery, experiences of being a vulnerable human being, the strengths of the human spirit and the felt presence of a Divine Being from them.

I sincerely hope that these patients have had a positive experience through our encounters and I wish to thank them dearly for partaking in my study, trusting me and sharing their experiences so openly with me.

I have already put much of my gained knowledge and insight to use in my practice and have a much better knowledge and understanding of the journey of the (cardiac) patient, from being diagnosed with a cardiac disease and undergoing CABG surgery to the challenging and tenuous recovery process, and having to make lifestyle changes.

Studying the discipline of Positive Psychology has made me aware of the enormous psychological and spiritual strengths of the human being that can be tapped into during times of adversity and that enable us to live a life of well-being despite adversities, even to flourish with positive emotion (happiness and life satisfaction), engagement, fulfilling relationships, meaning and purpose and achievement (PERMA). This is where I hope to play a role in my patients' lives.

As for personal growth: I believe that I have learned to be more loving, patient, forgiving and compassionate and grown more emotionally mature. I am determined to live life fully.

Clarke et al. (2016) developed the whole person model that speaks of the relationship between mind body and spirit. Through my study of positive psychology, I am convinced that mind body and spirit are intimately linked. Through this study and interviewing CABG recovery patients, I came to realise that achieving recovery and well-being after surgery is linked to a person's thinking and emotions. Without nurturing of the mind and soul, the body cannot heal. Without the hope of healing and the belief that one can recover and or adapt to possible physical limitations, the patient will not have the motivation, will-power and mental energy to follow the regimen of medication and physical exercises prescribed for recovery. Through focusing on this whole being perspective, I hope to enhance the well-being of all the unwell people who come across my way in my practice.

In conclusion, the aim of this study to qualitatively explore the role played by signature strengths in the recovery of participants from CABG surgery was achieved. The findings indicated relationships between VIA-IS strengths and illness recovery, as well as with personal growth post-recovery. It seemed that the character strengths of participants lead to different desirable outcomes and in different ways.

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