

**Evaluation of a HeartMath intervention and faith
following a traumatic experience**

by

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DECLARATION

I declare that the thesis, which I hereby submit for the degree of PhD in Practical Theology at the University of Pretoria, is my own work and has not previously been submitted by me for a degree at this or any other tertiary institution.

A handwritten signature in black ink, appearing to read 'D. Edwards', written in a cursive style.

David John Edwards

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The author, whose name appears on the title page of this thesis, has obtained the required research ethics approval/exemption for the research described in this work.

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ABSTRACT

Traumatic experiences can have an impact on faith. HeartMath can be utilised to help overcome traumatic experiences. This research focused on a HeartMath intervention, emphasising psychophysiological coherence, sense of coherence, resilience and faith following a traumatic experience. A quasi-experimental, case study and appreciative inquiry triangulated design was used. The purposeful sample consisted of 10 participants, five females and five males, who had been through a traumatic experience. They had an age range of 29 to 54 years, with a mean age of 36.30 years and standard deviation of 8.99 years, and described years of faith ranged between 17 and 54 with a mean of 23.20 and standard deviation of 17.73. A 12-week HeartMath intervention was undertaken. Related quantitative and qualitative coherence, resilience and faith measures were used at pre-test, re-test and, after intervention, post-test, with participant diaries completed. Quantitatively, there were significant post-intervention positive improvements in physiological average coherence, achievement, and low, medium and high coherence level scores. Although not significant, there were improvements in resilience and faith scale, although no improvement in sense of coherence scale total score. Qualitatively, there were positive integrative thematic changes in experiences of sense of coherence, resilience and faith. A case study revealed causal, correlational and relationship mechanisms of change with an appreciative inquiry positively evaluating the intervention. There seemed to be enough data and information to support both the potential that a HeartMath intervention could have a positive effect on faith following a traumatic experience, and for HeartMath to be used as a pastoral care and counselling intervention.

DEFINITIONS

Appreciative Inquiry: Process of evaluation of an intervention or programme.

Case Study: Focusing on in-depth information from a case/s in a real-life context.

Faith: Belief in a Greater Being.

HeartMath: A modality that centers on the Heart.

Integral Theory: Comprised of inter-related and overlapping theories.

Intervention: A programme involving techniques.

Pastoral Care and Counselling: Spiritual, faith and religious support.

Practical Theology: The area that focuses on practical application of theology.

Physiological Coherence: Coherence as physiologically measured.

Resilience: The ability to bounce back and overcome experiences.

Sense of Coherence: The experience of coherence as comprehensible, manageable and meaningful.

Traumatic Experience: An experience that is traumatic in nature but for this research is not focusing on diagnosis as in the DSM-V or ICD-11.

SUMMARY

Traumatic experiences, HeartMath, psychophysiological coherence, sense of coherence, resilience and faith are interrelated and overlapping areas. Many people will go through traumatic experiences during their lives. These can have varying effects on their faith. HeartMath, which focuses on coherence and resilience, is one approach that can be utilized to help overcome traumatic experiences.

The purpose of this research was to focus on a HeartMath intervention, coherence, resilience and faith following a traumatic experience. For triangulation, a quasi-experimental, single, within sample design was used as well as a case study and an appreciative inquiry. This purposeful sample consisted of 10 participants who had been through a traumatic experience. A 12-week HeartMath intervention was undertaken by the participants. Quantitative and qualitative coherence, resilience and faith measures were used at pre-test, re-test and, after intervention, post-test. An intervention diary was kept by all the participants. Statistical Package for the Social Sciences was used to analyse the quantitative data, and Thematic Content Analysis and ATLAS.ti Word Clouds for the qualitative information.

In terms of the quasi-experimental results, quantitatively, there were statistically significant post-intervention positive improvements in total average coherence, achievement, and low, medium and high coherence level scores. Although not significant, there were improvements in Brief Resilience Scale and Santa Clara Strength of Religious Faith Questionnaire total scores. There was no improvement in Sense of Coherence Scale total score. Qualitatively, there were positive thematic changes in experiences of sense of coherence, resilience and faith. A qualitative case study then focused on before, during and after sense of

coherence, resilience, faith, HeartMath experiences and experiences of the HeartMath intervention, suggesting causal, correlational and relationship mechanisms of change. Finally, to complete the triangulation, an appreciative inquiry on experience, appreciation of and what could be improved, revealed positive experiences of the intervention with some potential improvements.

In terms of the hypothesis, based on the integrated quantitative results and emerging qualitative themes and sub-themes, with caution, there seemed to be enough data and information to support the potential that a HeartMath intervention could have a positive effect on faith following a traumatic experience. However, this effect might be both directly and indirectly, where from a HeartMath psychophysiological understanding, in terms of resilience, coherence is found at the centre of physical, mental, emotional and spiritual dimensions, and thus, through HeartMath techniques, improving coherence and/or resilience, could also have a positive effect on faith. In this regard, the results also seemed to attest to coherence, resilience and faith, as well as the three theological areas of spirituality, religion and faith, being inter-related and overlapping. This was supported by the Spearman's correlation, which revealed Sense of Coherence Scale items correlated with Brief Resilience Scale items and Santa Clara Strength of Religious Faith Questionnaire items, and integrated inter-related and overlapping experiences of sense of coherence, resilience and faith themes and sub-themes.

Based on the quasi-experimental, case study and appreciative inquiry designs, it was suggested that HeartMath could potentially be used as a Pastoral Care and Counselling Intervention. As research had not been completed in this area before, recommendations were that larger sample, experimental designs in this regard be undertaken.

CHAPTER 1

INTRODUCTION

1.1. Overview

This chapter introduces the main components of this research namely, faith, traumatic experiences, practical theology specifically pastoral care and counselling, HeartMath and integral theory. It furthermore provides the motivation, problem statement, aim, hypothesis and modus operandi for the research.

1.2. Faith

The three theological areas of spirituality, religion and faith are inter-related and overlapping (Gall et al., 2011:180; cf Gschwandtner, 2021). Faith, which is central to this research, involves believing and trusting in a Greater Being (Jacquette, 2012). This research focused particularly on religious faith (Plante & Boccaccini, 1997:375). From a Christian perspective, the religion underpinning this research, this would be in God the Father, God the Son/Jesus Christ and God the Holy Spirit (Kärkkäinen, 2007:14; cf Durand, 2012; Kärkkäinen, 2014). Various factors can have an impact on faith with one of these being traumatic experiences (Harris et al., 2008).

1.3. Traumatic Experiences

Many people will go through a traumatic experience during their lifetimes (Benjet et al., 2016:327). For instance, during most of the current research, the COVID-19 pandemic, which was traumatic in nature, impacting in different ways, was taking place (Bridgland et al., 2021). Traumatic experiences can have varying effects on a person's faith (Harris et al., 2008:17; cf Daniel, 2012; Ganzevoort & Falkenburg, 2012; Cataldo, 2013). It can, for example, lead to decrease in faith, faith remaining the same or increase in faith (see Harris et al., 2008). From a therapeutic perspective, this, as exemplars, can be part of the final stages of therapy where focus is on the transformational themes of acceptance after grief/loss (Kübler-Ross, 1969) and/or the creation of meaning after traumatic experiences (Eagle, 1998; cf Frankl, 1992; Ganzevoort & Falkenburg, 2012).

1.4. Practical Theology: Pastoral Care and Counselling

From a practical theological perspective, this research focused on the sub-discipline of pastoral care and counselling (Capps, 1999). This area is concerned with the application of psychological paradigms, frameworks, metatheories, theories, methods and techniques (see Bennett & Graham, 2008; Osmer, 2011; Graham, 2013). Pastoral care and counselling can focus on specific areas such as overcoming traumatic experiences (Harris et al., 2008:17; cf Landman, 2012; Sifo & Masango, 2014) and, through this, personal growth can occur (Ganzevoort & Falkenburg, 2012:189) with one key aspect involving focusing on the heart (see McCraty & Atkinson, 2012).

1.5. HeartMath

The word 'heart' appears in the Bible (Berding, 2013), occurring 570 times in the Old and New Testament, is at the centre of connectedness, is central to faith (McCraty & Rees, 2009), is the human organ of spiritual perception (Bourgeault, 2016), as well as being linked with spiritual, religious and faith experiences, and vice versa (Anderson, 2020). HeartMath, which was founded in 1997, has been presented and discussed as a scientific meditation method in dialogue with theological phenomena (Edwards, 2021).

HeartMath focuses on aspects including heart rate variability (HRV), breathing cycles and positive emotions (McCraty et al., 2001). It is concerned with areas such as psychophysiological coherence and sense of coherence (Edwards et al., 2015:890; cf McCraty et al., 2006; McCraty & Childre, 2010; Edwards & Edwards, 2017). It provides a scientific foundation for resilience (Institute of HeartMath, 2014). There are various HeartMath techniques that can be used for helping to overcome, for example, traumatic experiences, and for improving physiological coherence, sense of coherence and resilience (McCraty & Zayas, 2014:1; cf Childre & Rozman, 2005; Ginsberg et al., 2010:52; Institute of HeartMath, 2014; Edwards et al., 2015). In terms of HeartMath, two studies have demonstrated significant post-intervention quantitative improvement in spirituality (Edwards, 2013, 2014a:236).

1.6. Integral Theory

With the world going through the COVID-19 pandemic, wars, natural disasters and climate change, humanity is striving for connectedness and interconnectedness (see Willard, 1998; Meylahn, 2015; Edwards, 2020a; Oliver, 2021). Integrated and overlapping theories, such as integral Christianity, are key to integral approaches (Smith, 2012). Based on the convergence model, juxtaposition and structural uniformity models, theology and psychology can exist alongside one another, and move towards a common invisible point or be indistinguishable (Capps, 2014a).

Wilber's integral work can make a key contribution to the field of pastoral theology and counselling (Bidwell, 1999:81). From a transpersonal perspective, connectedness and interconnectedness can be conceptualized using Wilber's (1997, 2000, 2005, 2007) integral theory, which postulates a non-dual universe continually involving and evolving in descending and ascending movements of consciousness present in every breath inhalation and exhalation.

1.7. Problem Statement

Much research has focused on the association between spiritual, faith and religious practices, and improved physical, emotional, psychological and social dimensions (see Delaney, 2005; Peres et al., 2006; Kohls & Walach, 2007; Nelms et al., 2007; Narayanasamy & Narayanasamy, 2008; Peltzer, 2011; Hardt et al., 2012; Sharpley & Kaunda, 2020; Aslamzai & Sajid, 2021). For example,

based on Western monotheistic religions, such as Christianity, Judaism and Islam, there are models of causal pathways for mental health (Koenig, 2012:8).

Understanding the underlying mechanisms for change in such relationships is important (see Park, 2007). Research and practice have included focusing on: the use of narratives (Hogue, 2014:659), faith contemplation (Edwards & Edwards, 2014:87), contemplative and centering prayer (Keating, 2002), phenomenology and neurophysiology of Christian Trinity meditation (Edwards & Edwards, 2012), Christian models of mindfulness (Symington & Symington, 2012:71), Christian contemplation (Hohn, 2003:7), prophetic prayer (Poloma, 2009:47), prayer of the heart (Louchakova, 2007a:81, cf 2007b), heart-based methods of meditation (Lindhard, 2018:68), heart-focused interior prayer/compassion meditation (Quehl-Engel, 2014:v), impact of different types of prayer (supplication, devotion, intercession, gratefulness and contemplation) on HRV and psychophysiological coherence as measured through HeartMath devices (Stanley, 2009:825), a prayer programme for physiological coherence and spirituality (Edwards, 2014b:1390) and Christ consciousness with heart prayer and HeartMath practices (Edwards & Edwards, 2017).

Bidirectionally, different biological, psychological, social, cultural and spiritual interventions/programmes are linked with enhanced faith (see Fowler, 1981; Eagle, 1998; Streib, 2003; Fowler et al., 2004; Roberto, 2007). There is for

example research on examining the structure and role of emotion in relation to the neurobiology of embodied religious experience (Norris, 2005:181).

Traumatic experiences can have varying effects on a person's faith (Harris et al., 2008:17; cf Daniel, 2012; Ganzevoort & Falkenburg, 2012; Cataldo, 2013). As highlighted above, there are various HeartMath techniques that can be used for helping to overcome traumatic experiences (McCraty & Zayas, 2014:1; cf Ginsberg et al., 2010:52).

Through learning, teaching, researching and practicing psychology, over the last three decades, including as a Licenced HeartMath Coach, it has emerged, as referenced above, how often people speak about the impact, which traumatic experiences have on their faith. Based on personal research, after an extensive literature review and searches on websites such as Pubmed, Ebscohost, Psychinfo and Sabinet, and discussions with the Institute of HeartMath, one area which required further exploration was the evaluation of a HeartMath intervention and faith following a traumatic experience.

1.8. Research Question

In what way would experiences of faith after a traumatic experience remain the same or change following a HeartMath intervention?

1.9. Motivation

There was a need for research evaluating a HeartMath intervention, focusing on psychophysiological coherence, sense of coherence, resilience and faith following a traumatic experience.

1.10. Aim

The aim of this research was to evaluate participants' experiences of faith following a traumatic experience at pre-test, re-test, and after a HeartMath intervention, post-test, as well as focusing on before, during and after intervention experiences.

1.11. Objective

The objective was to provide feedback to participants and the wider scientific community on a HeartMath intervention and faith following a traumatic experience, which could have practical theological, in general, and specifically pastoral care and counselling implications.

1.12. Hypothesis

Using participants as their own controls, it was expected that the HeartMath intervention would have a positive effect on the quantitative measurements and qualitative experiences of faith following a traumatic experience.

1.13. Modus Operandi

The modus operandi was chosen based on what was sought to be known and understood (Njie & Asimiran, 2014:35). In order to investigate the questions raised in the above problem statement, the modus operandi adopted in this research was concerned with a triangulation involving a quasi-experimental, single, within sample design, where the sample acted as its own control, then a case study and an appreciative inquiry, involving mixed quantitative and qualitative research methods and techniques. Data and results were analysed and appraised. This is further discussed in the chapter four triangulated research results and study discussions.

1.14. Summary

This chapter introduced the core areas of this research, namely: faith, traumatic experiences, practical theology particularly pastoral care and counselling, HeartMath and integral theory. It identified the research need for the evaluation of a HeartMath intervention and faith following a traumatic experience, leading to the motivation, problem statement, aim, hypothesis and modus operandi for the research. The next chapter is concerned with a literature review, following which the chapter on methodology will return to directly address the design, sample, questionnaires and questions, intervention and appraisal.

CHAPTER 2

LITERATURE REVIEW

2.1. Introduction

This chapter reviews literature on the inter-related and overlapping areas of: spirituality, religion and faith; traumatic experiences; practical theology specifically pastoral care and counselling; cognitive, physiological approaches and HeartMath; and integral theory.

2.2. Spirituality, Religion and Faith

Spirituality, religion and faith are three theological areas (Gschwandtner, 2021; cf Gall et al., 2011:180). Conceptually, they have various definitions (Van Niekerk, 2018:10; cf Dyson et al., 1997:1186). The corresponding descriptive language used can be dependent upon the context (Gschwandtner, 2021). They have differing, wide-ranging, connotations (Lepherd, 2015:566; cf Lazenby, 2010:470; Gschwandtner, 2021:2; cf Scott et al., 2016:203). In practice, for some people they are intertwined and for others they are quite distinct (Gschwandtner, 2021:21).

2.2.1. Spirituality

The term 'spirituality' is often used in a very broad manner. Though it is of Christian origin, it has subsequently been referenced for both Christian and other belief experiences (Pak, 2012:110; cf Gschwandtner, 2021:21). It is about

connecting to that which is sacred (Koenig, 2012:3) and is a part of the core of human beings (Lepherd, 2015:569). It is concerned with areas such as meaning, fulfilment and transformation (Gschwandtner, 2021:3), and, like faith, it focuses on transcendence (Lepherd, 2015:567). Compared to, for example, religion, spirituality is more individually orientated (Lepherd, 2015:566; cf Gschwandtner, 2021:5). The process is often described as a spiritual journey (Lepherd, 2015:569) with experiences of 'awe' and 'wonder' (Gschwandtner, 2021:20). It is about connecting with the self (Lepherd, 2015:569) and is concerned with identity (Gall et al., 2011:158). Popular spiritual measures cover areas such as: self-discovery, relationships and eco-awareness (Delaney, 2005:1), as well as: belief in God, search for meaning, mindfulness and feeling of security (Hardt et al., 2012:116).

2.2.2. Religion

Religion is a structured form of spiritual practice. Religion, such as Christianity, Judaism, Buddhism, Hinduism and Islam, is organised spirituality and faith (Ganzevoort & Roeland, 2014:95; cf Gall et al., 2011:170; Lepherd, 2015:568). It is typically community orientated (Gschwandtner, 2021:5). It involves, for example, symbols, rituals, acts, practices, images and gestures (Viviers, 2012; cf Norris, 2005:181; Smith, 2011:79; Gschwandtner, 2021). Christianity is the largest religion comprised with just over thirty percent of the world's population (Maoz & Henderson, 2013:280). In Christian tradition, as referenced in the Bible,

faith, hope and love play a central role (Pisk, 2017:146). The study focuses on this idea of faith.

2.2.3. Faith

Faith can be found at the centre of religion. Faith is about belief and trust (Jacquette, 2012; cf Gschwandtner, 2021:20). As referenced in the Bible: 'Now faith is confidence in what we hope for and assurance about what we do not see' (Hebrews 11:1). In terms of Christianity, this is faith in the Trinity of the Father, Son and Holy Spirit (Kärkkäinen, 2007:14; cf Durand, 2012; Kärkkäinen, 2014). Faith involves adhering to one's convictions, and encompasses affiliation, commitment and adhesion (Gschwandtner, 2021:21). Faith puts one in communion with God and therefore with others (Smith, 2011:85).

Much like psychosocial stages of development (Erikson, 1968), according to Fowler, there can be various levels of faith with obtaining higher levels dependent upon a person's ability to transcend (Fowler et al., 2004:50). For example, stage 0 is primal or undifferentiated faith, which is from birth to two years of age. Stage 1 is intuitive-projective faith, which is from three to seven years of age. Stage 2 is mythic-literal faith, which is predominately during primary school age. Stage 3 is synthetic-conventional faith, which is from age 12 to adulthood. Stage 4 is individuative-reflective faith, which is from mid-twenties to late thirties. Stage 5 is conjunctive faith and stage 6 being universalising faith (Fowler, 1981).

There are various measures of faith, for example, The Santa Clara Strength of Religious Faith Questionnaire (Plante & Boccaccini, 1997; cf Plante et al., 1999:3; Storch et al., 2004; Plante, 2010). Faith can be impacted upon by numerous aspects. One of these is traumatic experiences (Harris et al., 2008).

2.3. Traumatic Experiences

Traumatic experiences can be faith defining moments for people. This study focused on experiences that were traumatic in nature but not as diagnosable in the DSM-V or ICD-11 (APA, 2013:265; cf WHO, 1992). Many people will go through traumatic experiences during their lives (Benjet et al., 2016:327). These can be individual or collective, direct or indirect, minor or major, have a minimal or large effect and have short- or long-term implications. They can impact various bio-psycho-social-cultural-spiritual areas of life.

Traumatic experiences can result in symptomology such as numbness, hypervigilance, flashbacks and nightmares, decrease in mood, shift in vegetative functioning (i.e. sleep), appetite and energy. Symptoms are generally worse early in the morning, late in the evening, leading up to as well as during significant milestones and events (Andersen & Silver, 2021). Cognitions, such as mind traps, can affect perceptions and beliefs, resulting in negative thoughts, self-doubt and loss of environmental mastery. Identity can become fragmented (Eagle, 1998; cf Louchakova-Schwartz, 2012:10; Andersen & Silver, 2021).

Traumatic experiences can have varying effects on faith (Harris et al., 2008:17; cf Daniel, 2012; Ganzevoort & Falkenburg, 2012; Cataldo, 2013). It can result in existential, spirituality and faith questions (Cvetek, 2017). It can, for example, lead to loss of faith, decrease in faith, faith remaining the same, discovery of faith, re-discovery of faith or increase in faith (see Harris et al., 2008). Comparatively, spirituality, faith and religion can help people to make sense of going through traumatic experiences (Gall et al., 2011:287).

2.4. Practical Theology: Pastoral Care and Counselling

Pastoral care and counselling is a diverse practical theological area. Theology involves the study of God and beliefs, for example the way in which we understand Christ in terms of history and faith (Meeks, 2004:77), the wisdom Jesus (Bourgeault, 2008), or the manner in which social and cultural aspects are embedded within Christianity (Anderson, 2001). Theology is a continuously evolving area with practical theology focusing on elements such as the contemporary moment (Root, 2006:53).

Psychological research on spirituality, religion and faith was strongly influenced by some of Allport's early work (Allport & Ross, 1967) and has continued. This study used insights from the disciplines of psychology of religion, and specifically pastoral care and counselling, a sub-discipline of practical theology (Capps, 1999). In this growing therapeutic discipline, there has been an increased focus

on spiritual, religious and faith experiences (Gschwandtner, 2021), and many studies reflect on the area of faith (Thorne, 2001; cf Hodge, 2006).

Pastoral care and counselling is multi-faith orientated and cross-cultural (Lartey, 2002). It focuses on global, societal and individual transformation (Meylahn, 2014b:1; see Cilliers & Nell, 2011:1). Focusing on love, internal and external peace, and intra- and inter-personal relationships are essential parts of this (Steyn & Masango, 2012:1; cf Cahill, 2013; Meylahn, 2014a). It is important for practical theology to make a valuable contribution (Miller-McLemore, 2012) in the form of areas like public worship (Foley, 2004:1) and social healing (Cartledge, 2013:504). The church's stewardship has a duty of care (Le Bruyns, 2009), and in terms of stewardship, there is a call for invitation, investment and inspiration (Coster, 2011). Community interventions include focusing on inclusive love, loving justice, unity, non-violent resistance to evil, investing in social capital to alleviate poverty and increasing social development (see Poling, 2009; Wepener et al., 2010; Ries & Hendriks, 2013; Landman, 2014; De la Porte, 2016). There is a specific need for spiritual and pastoral work in areas such as healthcare (De la Porte, 2016).

The pastoral care and counselling role is a vocational way of existence, and can include being a theologian, pastor and therapist (Day, 2006:535; see Veling, 2011). It is discipline diverse and interdisciplinary (see Park, 2010; Osmer, 2011; Steyn & Masango, 2011; Müller, 2013; Landman, 2014), and involves the

merging of theological systems, theory and praxis (see Johnson, 1997; Poling, 2009; Osmer, 2011; Ganzevoort & Roeland, 2014). It is concerned with the application of pastoral care and counselling in religious contexts and secular society (see Bennett & Graham, 2008; Osmer, 2011; Graham, 2013).

It is important for training to be competency based (Mwangi & De Klerk, 2011:1; cf Scott et al., 2016:202) in areas such as theology, counselling, emotional and mental health, and community interventions (see O'Kane & Millar, 2002; Cartledge, 2004b; Ganzevoort, 2008; Sempene & Masango, 2013; Wilson & Letsosa, 2014). Mentoring is an important part of training (Chiroma & Cloete, 2015:1) with stewardship models of supervision and reflective practice being key aspects of praxis (Morrison, 2005:435; cf Bennett & Graham, 2008:34; Wong, 2009:173). Therapist heart rhythm coherence has been shown to be a necessary part of effective treatment (Bishop & Martin, 2015).

In practice, pastoral care and counselling centres on the whole person (see Foskett & Lynch, 2001; Day, 2006). It is concerned with pastoral care, pastoral therapy, mutual care, emotional support and spiritual sustenance (McClintock Fulkerson, 2012). Models range from psychodynamic (Jung, 1963) to person-centered (Rogers, 1980) to cognitive behavioural (Flynn & Ricks, 2014), religion-adapted cognitive behavioural therapy (de Abreu Costa & Moreira-Almeida, 2022), contemplative prayer in therapy (Rajski, 2003:181) to transpersonal models (Sutherland, 2001; see Dwight, 2011).

Pastoral care and counselling can include focusing on theological and biblical aspects, referencing texts and prayer (Woodruff, 2002). It concentrates on emotions, values, growth, development, transformation, health, well-being as well as spiritual, faith and religious resources (see Woodruff, 2002; Cartledge, 2004a; Manala, 2006; Capps & Carlin, 2007; Manala, 2010; Capps, 2014b; Manala, 2016). It can focus on specific areas such as overcoming traumatic experiences (see Landman, 2012; Sifo & Masango, 2014). The body-soul connection has a central place in Pastoral Care and Counselling in terms of physiological and cognitive experiences, and faith journey (Meiring & Müller, 2010).

2.5. Cognitive and Physiological Approaches, and HeartMath

2.5.1. Cognitive Approaches

There is a strong focus on the cognitive aspect, particularly in economically developed societies, contexts and situations. Many traditional psychological methods and techniques use cognitively orientated approaches (Goldapple et al., 2004:34). An example is the Kübler-Ross Model used in grief and loss therapy (Kübler-Ross, 1969) that focuses on moving through five stages: denial (initial), anger, bargaining, depression and acceptance (final), although these do not always occur in sequential order. A person can be in two stages at once, and might move up and down the stages.

Another is the Wits Trauma Intervention Model, grounded upon psychodynamic and cognitive behavioural theory principles, which is a five-stage therapeutic

process that guides people to recognise and treat their trauma symptoms. It includes telling/retelling the experience, normalising symptomology, addressing survivor guilt/self-blame, encouraging mastery and facilitating the creation of meaning (Eagle, 1998; see Ganzevoort & Falkenburg, 2012). Acceptance and meaning can result in forgiveness of the self and/or other/s, which can be a vital element in overcoming traumatic experiences and an important principle in Christianity (Worthington et al., 2000).

2.5.2. Physiological Approaches

Physiological approaches have long been known and used (Iyengar, 2001, 2005). 'Breath' appears in 14 verses and 'breathe' in 34 verses in the Old and New Testament of the Bible (see Edwards, 2009). Current focus includes, for example, a breath-based apprehension of the Holy Spirit (Edwards, 2009:81). Breathing practices have been used for helping to manage stress, pain perception, depression, anxiety and trauma (Brown & Gerbarg, 2009:54, cf 2005a:189, 2005b:711; Busch et al., 2012:215; Brown et al., 2013:121).

A person's heart beat and therefore heart rate increases during inhalation and decreases during exhalation (Fatisson et al., 2016:36). From a practical perspective, by stimulating the vagus nerve, breathing techniques can disengage the sympathetic nervous system (activation and higher heart rate) and engage the parasympathetic nervous system (relaxation and lower heart rate) (Busch et al., 2012). Six breaths a minute, a 10 second cycle which can be achieved by

counting seconds or tuning into one's heartbeat, is the most efficient ratio for gas exhalation and highest respiratory sinus arrhythmia (RSA) amplitude (Lehrer & Gevirtz, 2014:3).

HRV biofeedback and other psychophysiological procedures are important elements in psychotherapy (Lehrer, 2018). The connection between the heart and the brain was articulated by Claude Bernard over 150 years ago (Thayer et al., 2012:747). HeartMath is a relatively new psychophysiological approach (Institute of HeartMath, 2014).

2.5.3. HeartMath

HeartMath has the potential to create real planetary, societal and personal

change. HeartMath, founded in 1997, is concerned with global, social and individual coherence, as contextually and interconnectedly (Diagram 1) represented below (McCraty & Childre, 2010:10).

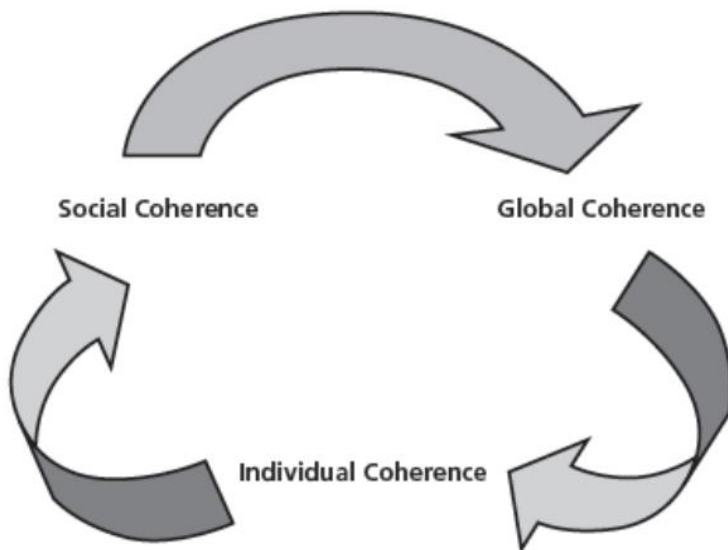


Diagram 1: Global Coherence Initiative View of Interconnected Relationships and Change

Launched in 2008, the aim of the Global Coherence Initiative (GCI) is to unite the world in heart-focused care and intention, as well as to facilitate a shift in global consciousness from instability and discord towards balance, cooperation and enduring peace (McCraty et al., 2012:67). It focuses for example on the influence of heart coherence on synchronisation between HRV and geomagnetic activity (McCraty et al., 2018:42).

Recent research has included focus on HeartMath personal and global coherence data collected before and after the COVID-19 pandemic (Edwards & Edwards, 2021b:626). During the COVID-19 pandemic, findings revealed significant meditation coherence and achievement increases, and significant correlational cluster patterns between meditation data and global coherence increases, magnetometer readings (Edwards, 2020a:1). In terms of GCI measures there is, for example, the Global Coherence App (Edwards et al., 2022:7).

Secondly, in terms of social coherence, group collective coherence can be achieved through heart rhythm synchronisation (Morris, 2010:62). In terms of HRV and social coherence, research is focusing on techniques, technologies and implications for improving group dynamics and outcomes (McCraty, 2017:267) and for instance, in terms of community dynamics, in relation to meditation, specifically the Paradise Landing Meditation can improve coherence (Davis et al., 2019:2).

Thirdly, there is the individual coherence level, which was the primary focus of this study. Outlined in Diagram 2, in terms of the heart-brain communication pathways, the heart communicates with the brain and body in four ways:

- neurological communication (nervous system);
- biochemical communication (hormones);
- biophysical communication (pulse wave);
- energetic communication (electromagnetic fields).

The heart-brain connection is via the medulla, hypothalamus, thalamus, amygdala to the cerebral cortex (Institute of HeartMath, 2014).

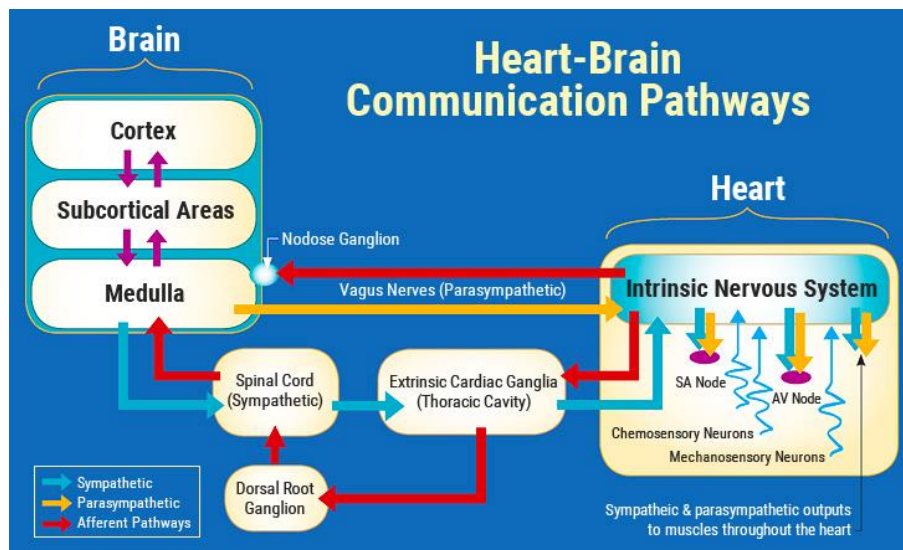


Diagram 2: Heart-Brain Communication Pathways

HRV, also known as heart rhythms, is primarily generated from heart and brain interaction through the neural signals that flow via the branches of the autonomic nervous system (ANS), which are the ascending afferent and descending efferent pathways, and of note is that 80% of the nerve fibres between the heart

and the brain are afferent (McCraty & Rees, 2009). Derived from the electrocardiogram, HRV is a measure of the naturally occurring beat-to-beat fluctuations in heart rate (McCraty, 2003; cf McCraty & Rees, 2009).

A physiological phenomenon happens at each respiration, which is the RSA (Fatisson et al., 2016:36). RSA is the variation in heart rate that accompanies breathing (Lehrer et al., 2000:177). These changes are important as a healthy heart is not a metronome (Shaffer et al., 2014). HRV is now used widely as an index of health (Fatisson et al., 2016:32).

HRV has also been invaluable in studying the physiology of emotions (McCraty, 2003). The amplitudes of HRV are sometimes used to reflect the balance of ANS sympathetic versus parasympathetic nervous system (Lehrer et al., 2000:177). As 80% of the heart to brain nerve fibres are afferent, this is seemingly why people can often have a feeling before thinking, with the finding that the heart seems to receive intuitive information before the brain (McCraty & Rees, 2009). Psychologically, HRV is also associated, for example, with wise reasoning (Grossmann et al., 2016:1). Coherence also focuses on, for example, consciousness (Bischof, 2008:440).

Coherence was theoretically understood but has only more recently been scientifically validated (Institute of HeartMath, 2014). It involves connectivity between all forms of energy (McCraty & Childre, 2010:10). Psychophysiological coherence is an optimal psychophysiological state (McCraty et al., 2009:10). It is synchronisation, harmony and efficiency in the interactions within and among the

physiological, cognitive and emotional systems (McCraty & Rees, 2009), particularly in terms of the heart, brain and ANS (McCraty et al., 2006:10). Specifically, when the human system is operating in the coherent mode, physiological coherence correlates include the following: increased synchronisation between the two ANS branches of sympathetic and parasympathetic nervous system, a shift in ANS balance toward an increase in the parasympathetic system, heart to brain synchronisation and vascular system resonance as well as entrainment between various physiological oscillatory systems of heart rhythms, respiration and blood pressure (McCraty, 2003:4). HeartMath emWave Pro, emWave2 and Inner Balance are devices that can be used to measure physiological coherence (Edwards et al., 2022:7).

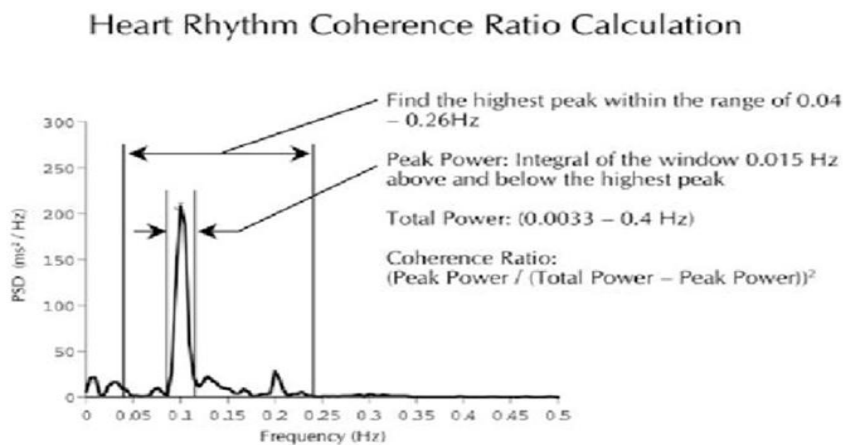


Diagram 3: Heart Rhythm Coherence Ratio Calculation

Diagram 3 is the mathematic transformation of HRV into power spectrum density (McCraty et al., 1995:1089), which is observable via some of the HeartMath devices like the Inner Balance device that was mentioned above and further in

the methodology chapter. Most models demonstrate the human cardiovascular system resonant frequency is determined by the heart and brain feedback loops, which in humans is approximately 0.1 hertz (Hz), which is equivalent to a 10-second rhythm (McCraty, 2003). In this Diagram, the Hz sinusoidal curve is around 0.1 Hz. This 0.1 Hz state is referred to as coherence or otherwise known as resonance (Fatisson et al., 2016:36). The coherent mode is a smooth, sine wave-like pattern in the heart rhythm coherence (heart rhythms) and a narrow-band, high-amplitude peak in the low frequency range of the HRV power spectrum, which is at a frequency of about 0.1 Hz (McCraty, 2003).

Sense of coherence includes the accompanying experience of the three areas of enhanced life, namely comprehensibility, manageability and meaningfulness (Antonovsky, 1987; cf Edwards, 2014c:1264; Edwards et al., 2015:891; Super et al., 2016:869), with the following (McSherry & Holm, 1994:476):

- comprehensibility: internal and external stimuli make sense and are clear, ordered and consistent;
- manageability: having sufficient resources to deal with life's challenges;
- meaningfulness: life has worth in terms of commitment and engagement.

Sense of coherence focuses on the adaptive capacity of human beings (Griffiths et al., 2011:168) and higher sense of coherence is linked with being able to cope better with stressful situations (McSherry & Holm, 1994: 476). The Sense of

Coherence Scale is one measure of this dimension (Antonovsky 1987; cf Klepp et al., 2007).

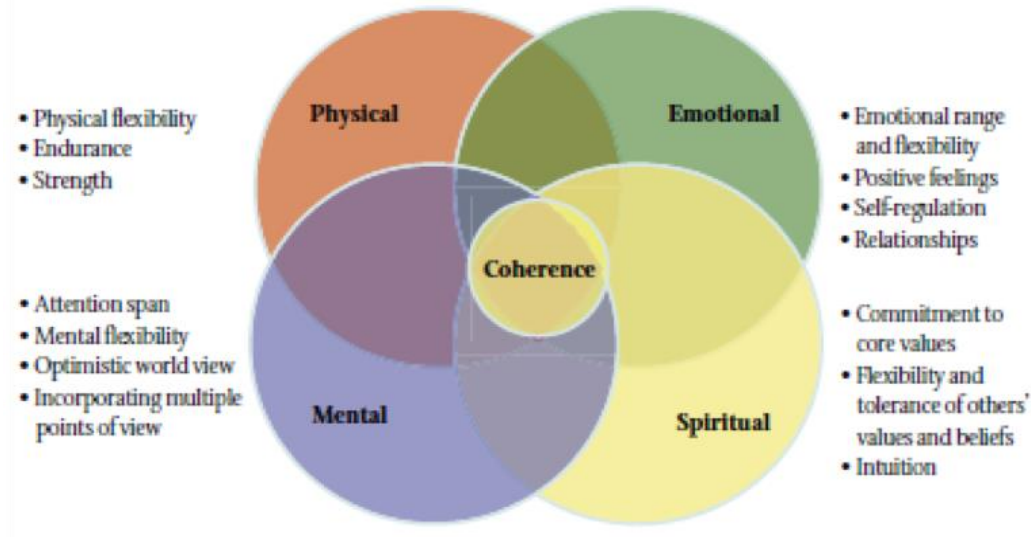


Diagram 4: Dimensions of Resilience

HeartMath also provides a scientific foundation for resilience (Institute of HeartMath, 2014). Resilience refers to the ability to cope with and bounce back from adversity (Smith et al., 2010:166). There is a relationship between resilience, and spirituality, religiosity and faith (Schwalm et al., 2021:1).

From a HeartMath psychophysiological understanding, as per Diagram 4 above, in terms of resilience, human coherence is found at the centre of physical, mental, emotional and spiritual dimensions (McCraty & Childre, 2010:14). These dimensions do not exist in isolation nor can they thrive without one another (Greeff & Loubser, 2008). There are different measures of resilience with one being the Brief Resilience Scale (Smith et al., 2008; cf Smith et al., 2013:177).

The depletion to renewal grid, Diagram 5, is divided vertically by the ANS from sympathetic to parasympathetic, and horizontally with the hormonal system focusing on cortisol and dehydroepiandrosterone (DHEA), with depleting emotions in the upper left quadrant of anger, frustration and anxiety, and lower left quadrant of burnout, withdrawal and resentment, and renewing emotions in the upper right quadrant of excitement, courage and passion, and lower right quadrant of contentment, fulfilment and ease (Institute of HeartMath, 2014).

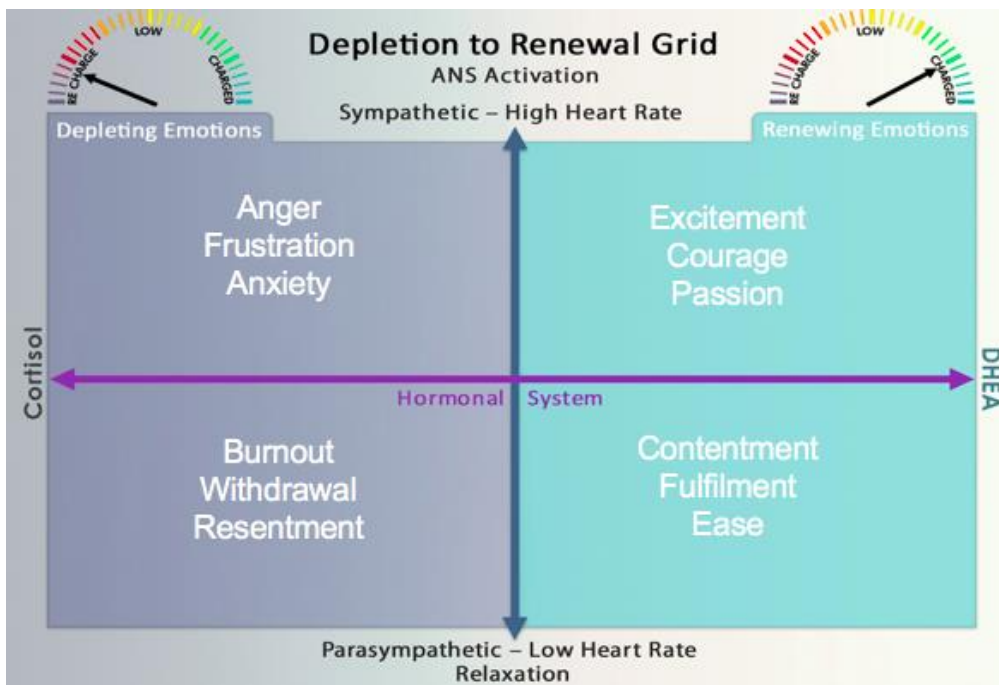


Diagram 5: Depletion to Renewal Grid

Much research has demonstrated the significant improvements, which Heart-Based, positive emotion-focused coherence training techniques designed to help people to self-induce and sustain states of positive emotions with HRV coherence feedback, has on well-being with proven effectiveness in a wide

variety of populations and contexts (McCraty, 2015:59, cf McCraty & Rees, 2009).

HeartMath has been used for improving:

- HRV (Field, 2017:3; cf Field et al., 2017/2018:126);
- psychophysiological coherence (Edwards, 2013, 2014a:236; cf Edwards et al., 2015; Edwards & Edwards, 2021a:1000);
- cortisol and DHEA (McCraty et al., 1998);
- hypertension (Alabdulgader, 2012; cf McCraty et al., 1995:1089; Edwards, 2016a:514);
- sense of coherence (Field et al., 2017/2018:126; cf Edwards, 2013, 2014a:236; Field, 2017:3);
- resilience (Edwards et al., 2015);
- mindfulness and relaxation (Field et al., 2017/2018:126; cf Edwards, 2013);
- burnout, stress, hostility, anxiety, trauma, guilt and depression (McCraty et al., 1998; cf McCraty et al., 2001; McCraty & Atkinson, 2012:7; Ginsberg et al., 2010; Field, 2017:3; Goessl et al., 2017);
- intuitive awareness (McCraty, 2014:64);
- caring (McCraty et al., 1998);
- spiritual perceptions (Edwards, 2013, 2014a:236).

Specific interventions have been used for cohorts such as correctional officers (McCraty et al., 2003, 2009:251), clergy (Bedell & Kaszkin-Bettag, 2010) and is

promising for use with individuals with psychiatric diagnosis (Field et al., 2021:69). HeartMath interventions have also been positively evaluated (Edwards, 2013; cf Field et al., 2017/2018:126).

The Coherent State as Reflected in Synchronised Entrainment of Respiration, Heart Rate Variability and Blood Pressure Rhythms Brought About by the Quick Coherence Technique

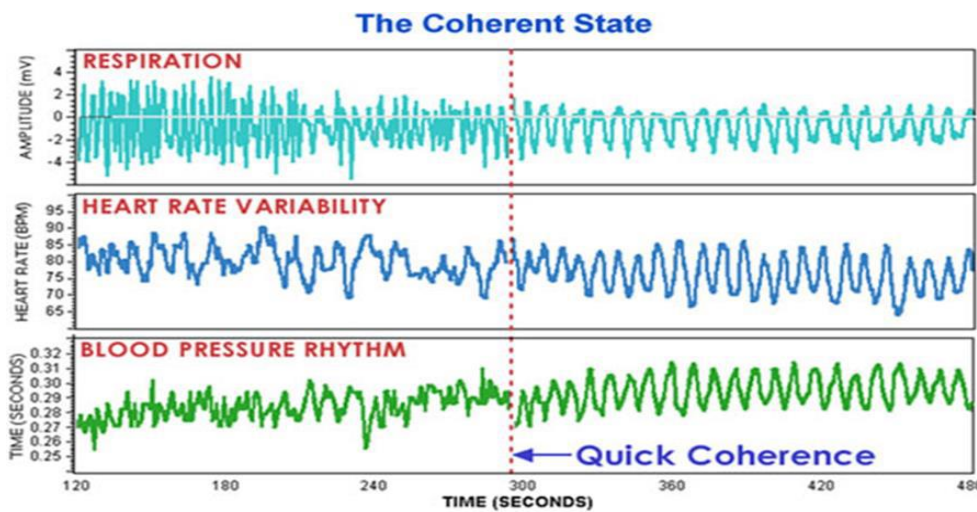


Diagram 6: The Coherent State

There are various HeartMath techniques that can be used for helping to overcome traumatic experiences and improving physiological coherence, sense of coherence and resilience (Childre & Rozman, 2005; cf Ginsberg et al., 2010:52; McCraty & Zayas, 2014:1). These include Heart-Focused Breathing, Quick Coherence, Inner-Ease, Freeze Frame and Heart-Lock Techniques (Institute of HeartMath, 2014). As evidenced in Diagram 6, the coherent state is reflected in synchronised entrainment of respiration, HRV and blood pressure

rhythms brought about by the Quick Coherence Technique, and this is a state of flow.

As represented in Diagram 7, biofeedback training increases the amplitude of RSA and maximally increases the amplitude of heart rate oscillations only at approximately 0.1 Hz (Lehrer et al., 2000:177).

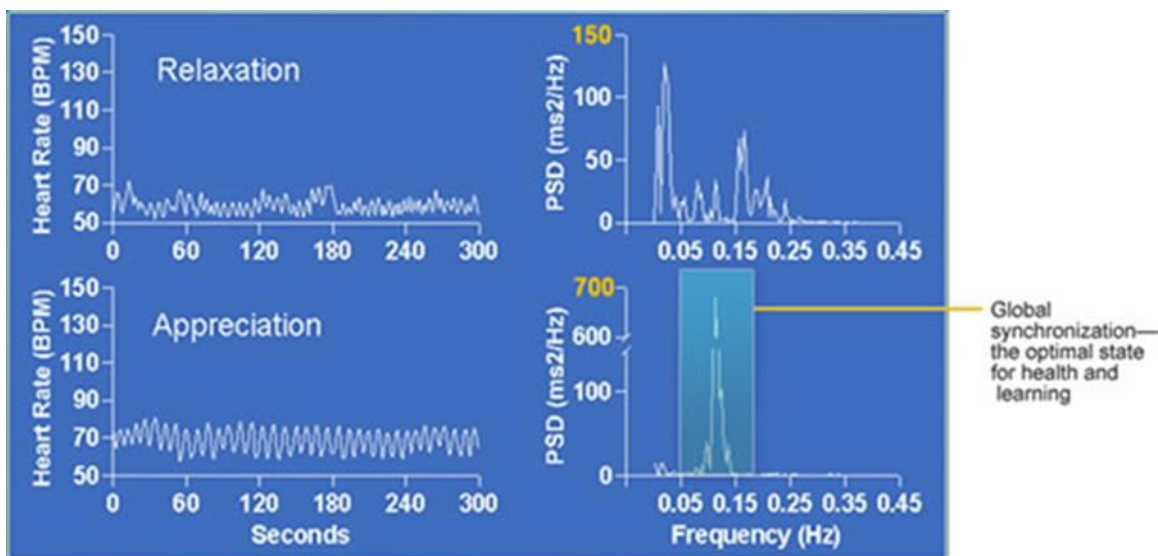


Diagram 7: Power Spectral Density Plots for Relaxation and Appreciation

To perform this task, people slow their breathing to this rate to a point where resonance occurs between respiratory-induced oscillations (RSA) and oscillations that naturally occur at this rate, probably triggered in part by baroreflex activity (Lehrer et al., 2000:177). HeartMath techniques can result in intentionally generated changes in the heart's rhythmic patterns (McCraty & Rees, 2009). A harmonious heart rhythm usually oscillates around six breaths a

minute, which equates to five breaths in and five breaths out six times (McCraty et al., 2006).

The heart period can decrease during and then recover after traumatic experiences (Souza et al., 2007:368). These experiences can activate the sympathetic nervous system (Thurber et al., 2017:74) and attenuate the parasympathetic nervous system (Tan et al., 2011:131). Over time, they can impact the body's stress response systems and deplete the ANS reserves (McCraty & Atkinson, 2012:46). They can affect the cortisol/DHEA balance, and increase cortisol and decrease DHEA (McCraty et al., 2009). They can therefore result in negative HRV hyper states (McCraty et al., 2006:20) as shown in Diagram 8. HeartMath helps to overcome trauma by creating a new baseline (McCraty & Zayas, 2014:1) with physiological, emotional and psychological improvement (see Tan et al., 2011:131).

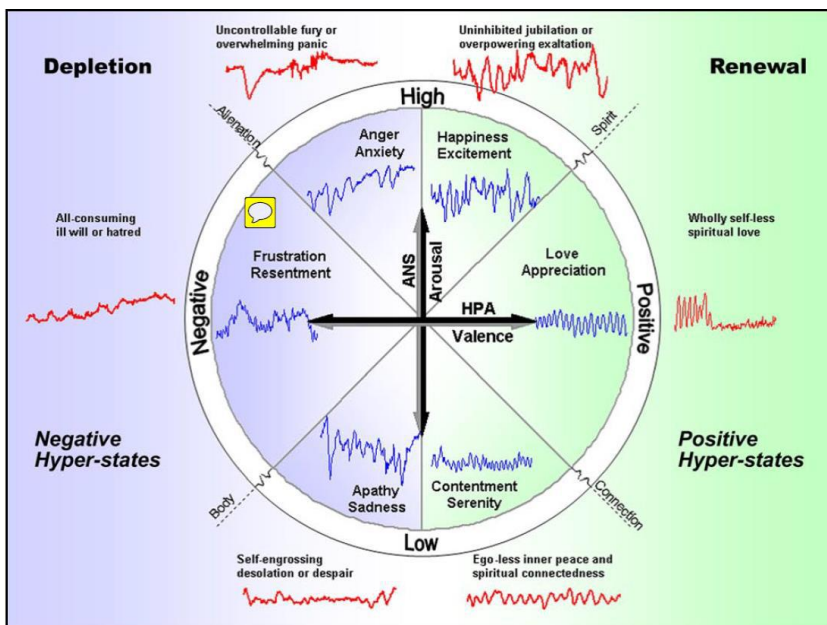


Diagram 8: Psychophysiological Interaction Model

2.6. Integral Theory

This study is integral in conception as related above and described below through the concept of Integral Theory, which is the theoretical model on which this study is based. Humanity strives for connectedness and interconnectedness (see Willard, 1998; Meylahn, 2015). An exemplar of this in Christianity is the perichoresis of the Trinitarian unity of the Creator (referred to as God the Father), the Redeemer (God the Son/Jesus Christ) and the Sustainer/Comforter (God the Holy Spirit) (Kärkkäinen, 2007:14; cf Durand, 2012; Kärkkäinen, 2014).

Teilhard de Chardin (1959) explicated the idea of the 'noosphere', which is interconnectedness evolving from geosphere and biosphere. From a planet earth vista, an example is the Global Coherence Initiative, an international project theorised on earth energy waves and PSI (Wyatt, 1990:199), which is focusing on improving heartfelt care by people extending love to others (McCraty et al., 2012:64). Attaining heart coherence affects others' coherence levels (Langholt, 2019). From a social standpoint, an exemplar is collective coherence amongst groups of people, which can be achieved through heart rhythm synchronisation (Morris, 2010:62). At an individual level, an example is achieving coherence through HeartMath practice (McCraty et al., 2001; cf Institute of HeartMath, 2014).

Integrated and overlapping theories, such as integral Christianity, are key to integral approaches (Smith, 2012). These complement traditional methods and

for example can sequentially move from matter through to body, mind, soul and spirit (Wilber, 1996; see Luskin, 2004). Based on the convergence model, juxtaposition and structural uniformity models, theology and psychology can exist alongside each other, move towards a common invisible point or be indistinguishable (Capps, 2014a). Wilber's work should certainly be taken into consideration by pastoral theologians and pastoral counsellors, and can make a contribution to the field of pastoral theology and pastoral counselling (Bidwell, 1999:81).

From a transpersonal perspective, connectedness and interconnectedness can be conceptualised using Wilber's (2000, 2005, 2007) integral theory, which postulates a non-dual universe continually involving and evolving in descending and ascending movements of consciousness present in every breath inhalation and exhalation. The fundamental elements of the integral model or integral operating system is that it is made up of quadrants, levels, lines, states and types (Wilber, 2005:1).

Wilber's (1997) meta-theoretical approach uses an all quadrants all levels (AQAL) model, consisting of:

- upper left, interior-individual subjective (the inside of the individual), intentional or 'I' quadrant (religious grid);
- lower left, interior-collective, inter-subjective 'WE' cultural quadrant (the inside of the collective);

- upper right, exterior-individual, objective behavioural 'IT' quadrant (the outside of the individual);
- lower right, exterior-collective inter-objective social 'ITS' quadrant (the outside of the collective).

2.7. Summary

This chapter focused on the existing literature with regard to: spirituality, religion and faith; traumatic experiences; practical theology, particularly pastoral care and counselling; cognitive, physiological approaches and HeartMath; and integral theory. These areas were shown to be inter-related and overlapping. The contribution of this study is to investigate and evaluate a HeartMath intervention in relation to people's faith, following a traumatic experience. The following chapter presents the methodology of this research.

CHAPTER 3

METHODOLOGY

3.1. Introduction

This methodology chapter focuses on the research question, aim, objective, hypothesis, research design, sample, intervention, measurements, data collection, data analysis and ethics.

3.2. Research Question

In what way would experiences of faith after a traumatic experience remain the same or change following a HeartMath intervention?

3.3. Aim

The aim of this research was to evaluate participants' experiences of faith following a traumatic experience at pre-test, re-test and post-test, and focusing on before, during and after a HeartMath intervention.

3.4. Objective

The objective was to provide feedback to participants and the wider scientific community on a HeartMath intervention and faith following a traumatic experience, which could have practical theological, in general, and particularly pastoral care and counselling implications.

3.5. Hypothesis

Using participants as their own controls, it was expected that the HeartMath intervention would have a positive effect on the quantitative measurements and qualitative experiences of faith following a traumatic experience.

3.6. Research Design

Framed within Wilber's (1997, 2000, 2005, 2007) integral approach, the study utilised a quasi-experimental, single, within sample design, where the sample acted as its own control, with triangulation, for the purpose of revealing greater truth, that included a case study as well as an appreciative inquiry. The design involved mixed quantitative and qualitative research methods and techniques. Such mixed methods designs are powerful in investigating complex processes in, for example, areas of health and well-being (Fetters et al., 2013:2134). As outlined in This includes pre-test, after two weeks re-test, intervention and then post-test. This design is schematically represented in Diagram 9:

Full sample	Pre-test	Re-test	12-week intervention	Post-test
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Diagram 9: Design

3.7. Sample

In terms of context, the sample consisted of adult participants who were professionals and resided in urban economically developed areas. The purposeful sample consisted of 10 participants, five females and five males, of

Caucasian ethnicity, who had an age range of 29 to 54 years, with a mean age of 36.30 years and standard deviation (SD) of 8.99 years. They all had traumatic experiences. Of the participants who described years of faith, this ranged between 17 and 54 with a mean of 23.20 and SD of 17.73. They all had secondary education levels. They were chosen based on their willingness to undertake a 12-week HeartMath intervention, focusing on psychophysiological coherence, sense of coherence, resilience and faith, and observe and share the effect this had on their faith.

3.8. Intervention

The intervention included experiential learning of the following (Institute of HeartMath, 2014):

- resilience and the four domains of physical, emotional, mental and spiritual resilience;
- the inner battery, energy draining and energy renewing situations, and depletion to renewal grid;
- physiological coherence, sense of coherence and intuition;
- prep, shift, reset and sustain;
- Heart-Focused Breathing, Quick Coherence, Inner-Ease, Freeze Frame and Heart-Lock Techniques.

Handouts were provided and demonstrations of the techniques were undertaken.

Habit formation studies are usually about 12 weeks (Keller et al., 2021:811) so

this was chosen as sufficient time to experientially learn and practice the techniques.

Participants were asked to practice these techniques over a 12-week period whilst using a HeartMath Inner Balance Device, with a sensor attached to their earlobe and connected to a smartphone (which collected the data), as in Diagram 10 below, which measured, via an Inner Balance Application (App): time elapsed, achievement score, average coherence, and low, medium and high levels of physiological coherence, and displayed, for example, the HRV pattern and Power Spectrum. HeartMath devices are non-invasive with an accurate comparison being smart watches, which collect heart rate and other biofeedback information.



Diagram 10: Inner Balance Device and Smartphone Application

3.9. Measurements

3.9.1 Biographical Information

The detailed biographical information (Appendix B) was collected from all the participants in terms of age, gender, ethnicity, educational level and years of experiencing faith, and was analysed so as to provide sample mean, standard deviation and descriptions.

3.9.2. Inner Balance

The HeartMath Inner Balance Device and App were used for physiological coherence biofeedback purposes at pre-test, re-test and post-test. Over a five minute period, it was used to measure: time elapsed, achievement score, average coherence, and low, medium and high levels of physiological coherence.

3.9.3. Sense of Coherence Scale

The Sense of Coherence Scale (Appendix C) consisted of a shortened nine item version of Antonovsky's (1987) scale, with a Cronbach alpha reliability coefficient of .79. Antonovsky's (1987) original scale had three subscales, which measured the degree to which persons perceived their world as comprehensible, manageable and meaningful. The shortened version used in the present research had been shown to demonstrate high internal reliability and concurrent validity when assessed against Antonovsky's original 29 item measure (Klepp et al., 2007). At pre-, re- and post-test, participants reported their feelings in relation to items such as, 'Do you have the feeling that you don't really care about what

goes on around you?' on a nine item, seven-point Likert scale anchored by the terms, 'very often' and 'very seldom'.

The SOC scale was assessed to seemingly be a valid, reliable and cross culturally applicable instrument measuring how people both manage stressful situations and stay well (Eriksson & Lindström, 2005:460).

3.9.4. Brief Resilience Scale

The Brief Resilience Scale (BRS) (Appendix D) (Smith et al., 2008), assessed the ability to bounce back, had six items, which were equally positively and negatively phrased, along a five-point Likert scale with requested answers ranging from 'strongly disagree' to 'strongly agree' on items such as 'I tend to bounce back quickly after hard times'.

Cronbach's alphas for the BRS in six samples were found to be .836, .902, .877, .798, .754 and .702 (Smith et al., 2013:177). The BRS had been translated into various languages and adapted for different samples, and been shown to have good cross-cultural criterion validity and reliability (Fung, 2020; cf Rodríguez-Rey et al., 2016:101; Jacobs & Horsch, 2019:1; Konaszewski et al., 2020). Participants completed this scale at pre-, re- and post-test.

3.9.5. Santa Clara Strength of Religious Faith Questionnaire

The Santa Clara Strength of Religious Faith Questionnaire (SCSRFQ) (appendix E) was a 10-item, measure of religious faith and engagement suitable for use with multiple religious traditions, denominations and perspectives (Plante et al., 1999:3). The scale used a four-point Likert scale ranging from 'strongly disagree' to 'strongly agree' on items such as 'My religious faith is extremely important to me.' The items were scored from one to four with total scores ranging from 10 (low strength of faith) to 40 (strong strength of faith).

Factor analytic studies had universally found that the SCSRFQ was comprised of one factor (Plante, 2010:5; cf Storch et al., 2004). Reliability analyses had indicated Cronbach alpha coefficients ranging from 0.94 to 0.97 (Plante & Boccaccini, 1997:433; cf Storch et al., 2004:480). Studies had also investigated various types of validity of the SCSRFQ. Research examining convergent validity had found correlations between the SCSRFQ and other quality religious faith instruments (Plante, 2010:5). Mean scores were typically about 26 to 33 (SD = 7) among different student populations. In medical populations mean scores have been found to be about 33 (SD = 6). The scale did appear to be sensitive to situational influences. Plante (2010:4) lists various such examples where elevated scores were found. Participants completed this scale at pre-, re- and post-test.

3.9.6. Qualitive Questions

Qualitative information in the form of experiences of sense of coherence, resilience and faith was collected at pre-, re- and post-test (Appendix G). During the intervention participants were asked to keep a diary (Appendix F) of energy draining and energy renewing situations, physiological coherence, and experiences of sense of coherence, resilience and faith, and location on the depletion to renewal grid.

In terms of these areas, understanding the mechanisms for relationship change is important (see Park, 2007). In order to better understand the casual, correlational and relationship mechanisms (Starman, 2013:37; cf Crowe et al., 2011:5) and to obtain further in-depth qualitative information (Patnaik & Pandey, 2020:177), case study data was collected from a smaller group of five selected participants from the original sample, who were willing to describe, in more detail, including their experiences sense of coherence, resilience, faith and HeartMath, before, during and after the intervention, as well in more detail their experiences of the HeartMath intervention (Appendix H). Using appreciative inquiry (Cooperrider, 1986; cf Cooperrider & Srivastva, 1987; Boyd & Bright, 2007:1019; Moore, 2008:214) all the participants were asked to evaluate the intervention at post-testing (Appendix I).

3.10. Data Collection

Due to the COVID-19 pandemic commencing just after data collection had started, data collection was undertaken over a period of nearly two and half years. The COVID-19 pandemic had an impact on the ability to collect the data due to lockdowns and alert levels. Research data was collected with adherence to these levels and PPE equipment used as necessary, and data collected electronically and through paper format as required.

3.11. Data Analysis

3.11.1. Quantitative Data Analysis

If parametric testing is used when the sample is small, not homogenous and normally distributed then the probability of a Type 1 error is larger than the alpha level used (Heiman, 1996). Non-parametric testing can yield valuable results for small sample studies. Owing to its sample size it could not be assumed that the sample was normally distributed or representative of the population, therefore non-parametric testing was chosen. Wilcoxon Signed Ranks Tests (non-parametric equivalent of t-test for dependent samples) and Spearman's (non-parametric equivalent of Pearson's) rank-order correlation coefficient were used to analyse the data. All quantitative data was analysed using SPSS statistical data analysis package. For audit trail purposes (Carcary, 2009:11), all the quantitative data (Appendix J) was included in the study.

3.11.2. Qualitative Information Analysis

Qualitative analysis focuses on implicit meaning (Njie & Asimiran, 2014:35). The qualitative data was coded and analysed using thematic content analysis, which essentially refers to a method of studying and analysing the meanings of communications in a systematic way (Anderson, 2007:1). Thematic content analysis is not bound in a pre-existing theory (Braun & Clarke, 2006:9). It is about identifying and analysing patterns in qualitative information (Clarke & Braun, 2013:120; cf Braun & Clarke, 2012, 2013).

It can include various stages and steps. Following reading and re-reading the information, the process involved:

- capturing words and phrases and noting their consistency through frequencies;
- based on consistency and emergence, grouping these words and phrases into subthemes;
- condensing these subthemes under higher order themes;
- checking that the higher order themes and subthemes reflected the transcripts, through consensual validation by participants and external researchers;
- interpreting the information in the discussion.

For credibility, ATLAS.ti, a qualitative data analysis computer software package, was also utilised with word clouds created. The qualitative information responses

are part of Chapter Four. For audit trail purposes (Carcary, 2009:11), all the diaries (Appendix K) were included.

3.12. Ethics

Ethical clearance was obtained from the University of Pretoria (T013/19). Participant information was provided to each subject and consent was obtained from all participants (Appendix A). Participants were free to withdraw from the research at any time. Participants were allocated a participant number to ensure anonymity and confidentiality. Consent forms, quantitative data and qualitative information were kept separately. All statistical data, and transcribed and thematic information was securely stored on a password protected research computer and in a locked filing cabinet, will be kept for 10 years then will be securely deleted and destroyed. Only the researcher and promoters had access to the raw data. Data and information will be presented anonymously and confidentially in thesis, journal article and conference output formats. Necessary consent to use the diagrams and scales was sought and obtained. This study including, diagrams, techniques and devices, was undertaken with permission from the Institute of HeartMath.

3.13. Summary

This chapter focused on the research methodology in terms of the research question, aim, objective, hypothesis, triangulated research design involving mixed quantitative and qualitative research methods and techniques, sample,

intervention, measurements, data collection, data analysis and ethics. The following chapter focuses on the results from the research.

CHAPTER 4

TRIANGULATED RESEARCH RESULTS AND DISCUSSION

4.1. Introduction

This chapter focuses on the results from the triangulated research, which has been separated into quasi-experimental, case study and appreciative inquiry designs with discussion under each study component.

4.2. Quasi-Experimental Design Results

4.2.1. Quantitative Results

Table 1. Pre-, Re- and Post-Test SOC, BRS and SCSRFQ Total and Inner Balance Scores, Means and Standard Deviations - Wilcoxon Signed Ranks Test for Sample ($N = 10$)

Stage of Testing	SOC		BRS		SCSRFQ		Average Coherence		Achievement Score		Low Coherence Level		Medium Coherence Level		High Coherence Level	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Pre-test	43.70	9.30	21.40	4.30	26.50	6.57	1.86	0.76	112.30	52.59	10.90	9.65	15.60	8.22	74.50	14.34
Re-test	48.70	8.83	23.40	6.38	28.00	5.01	1.51	0.65	93.30	44.79	15.30	11.75	23.50	8.63	61.20	17.57
Post-test	48.40	7.96	24.50	4.01	28.10	7.69	3.63*	1.52	257.00**	181.73	1.10*	2.42	8.40*	11.47	90.50**	12.85

* $p < .05$, ** $p < .01$

Based on the above, the Wilcoxon Signed Ranks Test indicated asymptotic positive significance differences with regard to re-test and post-test at the 1% alpha level for achievement score ($p = 0.009^{**}$) and high coherence level ($p =$

0.009**), and at the 5% alpha level for average coherence ($p = 0.011^*$), and low ($p = 0.012^*$) and medium coherence levels ($p = 0.012^*$). Whilst not significant, results indicated an increase in BRS and SCSRFQ scores but not SOC total score at post-testing. Interestingly, from pre-test to post-test, there was a marked increase on SOC ($p = 0.074$), BRS ($p = 0.016^*$) and SCSRFQ ($p = 0.151$) total scores.

Table 2. Correlational Matrix of SOC, BRS and SCSRFQ Items – Spearman's Correlation for Sample ($N = 10$)

* $p < .05$, ** $p < .01$

	S1	S2	S3	S4	S5	S6	S7	S8	S9	R1	R2	R3	R4	R5	R6	F1	F2	F3	F4	F5	F6	F9	F8	F9	F10
S1																									
S2	.172																								
S3	.209	.927**																							
S4	-.169	.295	.203																						
S5	-.320	.603	.540	.374																					
S6	-.399	.627	.659*	.447	.594																				
S7	-.068	.341	.255	.155	-.121	.506																			
S8	-.207	.611	.669*	.689*	.562	.772**	.269																		
S9	.011	.866**	.793**	.128	.500	.710*	.567	.394																	
R1	-.075	.622	.523	.245	.370	.607	.519	.196	.844**																
R2	.122	.740*	.772**	.340	.394	.654*	.356	.421	.829**	.851**															
R3	-.249	.494	.667*	.316	.357	.671*	.358	.671*	.546	.471	.633**														
R4	-.153	.649*	.633*	-.010	.293	.415	.026	.376	.488	.248	.409	.274													
R5	-.167	.773*	.566	.494	.783**	.666*	.308	.478	.783**	.746*	.630	.269	.350												
R6	-.228	.105	.068	.069	-.026	.108	-.202	-.140	.179	.377	.408	.000	.555	.168											
F1	.000	.000	.028	.000	.282	-.255	-.368	.057	-.259	-.417	-.171	.000	.000	-.102	.259										
F2	-.022	-.295	-.179	.000	.253	-.280	-.661*	.013	-.549	-.632	-.350	-.186	.191	.273	.244	.835**									
F3	-.315	.101	.007	.259	.423	.155	.013	.007	.164	.277	.306	.094	-.028	.381	.185	.595	.407								
F4	-.113	.501	.563	.218	.706*	.344	-.142	.478	.308	.106	.388	.471	.303	.381	-.096	.744**	.575	.645*							
F5	.122	-.117	-.058	-.444	.239	-.518	-.744*	-.350	-.276	-.374	-.268	-.181	-.007	-.210	-.086	.686*	.660*	.225	.470						
F6	.033	-.059	-.042	-.089	.300	-.350	-.490	-.232	-.150	-.117	.020	.000	-.140	.020	-.017	.837**	.687*	.701*	.681*	.805**					
F7	-.108	-.060	-.043	.206	.140	-.164	-.134	.224	-.357	-.535	-.270	.093	-.178	.141	-.500	.857**	.744**	.444	.592	.318	.519				
F8	.465	-.162	-.107	-.191	.007	-.627	-.829**	-.384	-.343	-.262	-.143	-.282	.158	.235	.103	.238	.379	-.121	.050	.728*	.509	-.021			
F9	-.160	-.017	-.050	-.139	.300	-.060	-.268	-.338	-.102	.232	.270	-.093	.031	.201	.381	.503	.425	.859**	.514	.473	.761*	.206	.183		
F10	-.325	.397	.475	.068	.704*	.432	-.046	.403	.337	.150	.339	.498	.269	.356	-.101	.693*	.520	.675*	.945**	.425	.622	.488	-.120	.570	

Based on Spearman's Correlation in terms of SOC, BRS and SCSRFQ items, the following significant correlations occurred: SOC2 with SOC3 ($p = 0.000^{**}$), SOC9 ($p = 0.001^{**}$), BRS2 ($p = 0.014^*$), BRS4 ($p = 0.042^*$) and BRS5 ($p = 0.009^{**}$); SOC3 with SOC6 ($p = 0.038^*$), SOC8 ($p = 0.034^*$), SOC9 ($p = 0.006^{**}$), BRS2 ($p = 0.009^{**}$), BRS3 ($p = 0.035^*$) and BRS4 ($p = 0.049^*$); SOC4 with SOC8 ($p = 0.027^*$); SOC5 with BRS5 ($p = 0.007^{**}$); SOC6 with SOC8 ($p = 0.009^{**}$), SOC9 ($p = 0.021^*$), BRS2 ($p = 0.040^*$), BRS3 ($p = 0.034^*$) and BRS5 ($p = 0.035^*$); SOC7 with SCSRFQ2 ($p = 0.038^*$), SCSRFQ5 ($p = 0.014^*$) and SCSRFQ8 ($p = 0.003^{**}$); SOC8 with BRS3 ($p = 0.034^*$); SOC9 with BRS1 ($p = 0.001^{**}$), BRS2 ($p = 0.003^{**}$) and BRS5 ($p = 0.007^{**}$); BRS1 with BRS2 ($p =$

0.002**) and BRS5 ($p = 0.013^*$); BRS2 with BRS3 ($p = 0.050^*$); SCSRFQ1 with SCSRFQ2 ($p = 0.003^{**}$), SCSRFQ4 ($p = 0.009^{**}$), SCSRFQ5 ($p = 0.029^*$), SCSRFQ6 ($p = 0.003^{**}$), SCSRFQ7 ($p = 0.002^{**}$) and SCSRFQ10 ($p = 0.026^*$); SCSRFQ2 with SCSRFQ5 ($p = 0.038^*$), SCSRFQ6 ($p = 0.028^*$) and SCSRFQ7 ($p = 0.009^{**}$); SCSRFQ3 with SCSRFQ4 ($p = 0.044^*$), SCSRFQ6 ($p = 0.024^*$), SCSRFQ9 ($p = 0.001^{**}$) and SCSRFQ10 ($p = 0.032^*$); SCSRFQ4 with SCSRFQ6 ($p = 0.030^*$), SCSRFQ10 ($p = 0.000^{**}$); SCSRFQ5 with SCSRFQ6 ($p = 0.005^{**}$) and SCSRFQ8 ($p = 0.011^*$); and SCSRFQ6 with SCSRFQ9 ($p = 0.001^*$).

4.2.2. Qualitative Results

4.2.2.1. Descriptions of Experiences of Sense of Coherence

Participant 1: *Pre-test:* My experience of sense of coherence is being in a peaceful state where my mind and my heart are in sync. ***Re-test:*** My experience of sense of coherence, was that I should of had control over my environment, even though not thinking of anything my mind wandered and I lost control of my environment, but once regaining control I could focus and felt my breathing calm and my environment calm around me. ***Post-test:*** I have a positive experience of sense of coherence. I see how important it is to try and maintain coherence and the positive impact it has when I do, it is not always easy and that impacts on the way that one feels.

Participant 2: Pre-test: I feel that I have a strong sense of coherence depending on a situation like if I have planned for a certain thing, curved balls do tend to throw me off. **Re-test:** My experience was not that great as I had too many distractions and had to keep refocusing on my breathing. **Post-test:** I felt I had a high sense of coherence even though there was high activity happening around me.

Participant 3: Pre-test: My sense of coherence is at a rating of approx. 60 %. I'm still trying to manage, understand and better my current mental wellbeing. Trying to understand myself better and be a better person for myself and my family. **Re-test:** My sense of coherence could always be better and stronger. **Post-test:** I have a better understanding and my sense of coherence is more positive than it has been in the past.

Participant 4: Pre-test: Feel unbalanced most of the time. Sense of being out of control overwhelms me and creates frustration and bursts of anger or sadness. I feel the need to always be in control even knowing that it is detrimental to myself and others. **Re-test:** I always feel the need to be in control to ensure everyone is 'safe' or does what needs to be done. This causes great frustration and makes me feel 'unbalanced'. **Post-test:** In the past few weeks I have had a lot going on within the family environment and the dynamics that go with this. I have come to the realisation that I cannot control everything going on around me. That, sometimes, I just need to 'go with the flow' and take advice from those more

qualified than me and to accept the help provided. This has been a tough lesson to learn for me as letting go of control is not who I am. If I don't let it go it will destroy me.

Participant 5:

Pre-test: I can often over think/analyse situations, both basic daily tasks to long term goals. I've grown up being competitive and aiming to try be the best I can be and not disappoint the people around me. I will generally stress about the tasks at hand but once completed and the goal is achieved and feel relaxed and satisfied and self proud. The move to New Zealand was quick scary stressful and only once things were settled and I felt comfortable that I could tackle basic understanding on how things operate here then I was able to start enjoying the basic fun activities in my daily life and enjoy the general normal life around me.

Re-test: New situations/experiences cause me to stress and get anxious. I will continuously analyse the situation, what needs to be done, the different outcomes based on the way the situation is handled. Only once performed and completed do I start to settle and realise that the task was not as scary as I expected. I like to keep various tasks separate, start and then finish before moving on to the next. I battle with spur of the moment or go with the flow actions.

Post-test: I am often determined to complete with the tasks at hand and achieve goal set. I often encounter set backs when performing work, home or social

tasks. Depending on the set backs I generally am able to re focus and adjust to finish strong and complete what was aimed for.

Participant 6:

Pre-test: I cannot really say that I have had much attention to my sense of coherence, thinking about it now I would say that for the most part I have a pretty good sense of coherence, occasionally impulsive but generally of sound mind.

Re-test: I feel that I have a general good sense of coherence, generally don't make rash decisions and am of sound mind. Sometimes impulsive in decision making.

Post-test: My experience of coherence I feel is the feeling of calm/peace that I feel during and after a session. Puts me in a good frame of mind.

Participant 7:

Pre-test: Knowing when to take time out for yourself. Resetting at the end of the day and welcoming the new day with a fresh pair of eyes. Not being hard on yourself for feeling stressed or overwhelmed. Opening up about feelings of concern with the ones closest to me.

Re-test: Not feeling guilty when I need a break from the everyday stresses – and knowing when to ask for help from family and friends – I feel that this is something I experience quite a bit being a stay at home mom. Some days I battle with the monotonous routine of being a stay at home mom, but its knowing when

to open up about these feelings with others before they overwhelm me that helps me get into a better frame of mind.

Post-test: Being a mother you tend to have a high sense of coherence. Looking after kids and working presents a lot of everyday stress and I have learnt to put certain practices and coping mechanisms into place to keep me grounded and on track – two important ones being ‘knowing when to ask for help’ and knowing when I need ‘time out’ to compose myself.

Participant 8:

Pre-test: I am a confident person in myself and try to be as positive as possible even in difficult situations.

Re-test: I am a confident person and tend to do what’s best and right. I bounce back quickly after mishaps in life and am a very positive person. I feel that I am very coherent with what life brings or throws at me.

Post-test: It is about being calm and having clear thoughts and being positive. Keeping your heart rate low and consistent and controlling your breathing, this puts you in a state of calmness and happiness.

Participant 9:

Pre-test: I would describe coherence as the ability to be understood and make sense of a situation/having a clear purpose or aim. I feel that as I’ve got older & my life has become more stable (i.e. finishing study, being settled). I have felt less clear in the direction that I am heading as I have achieved most of what I set

out to achieve and currently feel like I need to work out what my priorities are going forwards and where I want to be in life. This therefore makes big decisions quite challenging.

Re-test: Being in tune with yourself. Feeling stable & in control. At the moment feeling less so that at 1st session.

Post-test: A sense of coherence is a feeling of calm and stillness in which my head is quieter and I feel more at peace and present.

Participant 10:

Pre-test: When all the aspects that are important to me seem to connect in the same way and provide me with a sense of internal peace. God, family, partner, children, work, play, dog and friends – even nature and politics.

Re-test: Making sense of on intra, inter-relationships inclusive of spiritual relationships, by connecting actively on each of these domains.

Post-test: A sense of calmness and clarity. Calm state and clarity of environmental stimuli.

Pre-test: lack of coherence (not focused upon, often unbalanced, lack of direction), internal and external factors (occasionally impulsive, affected by the unexpected, not disappointing others, stability, in control), management (planning, purpose, achieving, enhancing mental well-being, daily resetting), sense of coherence level (approximately 60%, pretty good), sense of coherence (generally sound minded, less thought, confidence, positive person, awareness, understanding oneself more, self-compassion, self-care, mind heart synchronization, better person, peacefulness, open with loved ones, connection with God, others and the world).

Re-test: lack of coherence (not great, less so), internal and external factors (can be impulsive, many distractions, mind wandered, unexpected causes anxiety, lost environmental control, needed control, regained control, stability, orderly, environment calmed), management (focus, much analysis, think things through, understanding internal relationships, understanding external relationships, coping through achievement, focusing on breathing, calm breathing, accessing more support), sense of coherence level (could always improve, good sense of coherence), sense of coherence (less guilt, sound minded, confident, positive, resilient, ethical, in tune, connecting internal and external).

Post-test: work in progress (not always easy), management (achieve goal set, cannot control everything, need to let go, sometimes must go with the flow, being positive, taking time out, accessing support, take advice), sense of level (good

frame of mind, head is quieter, clear thoughts, clarity, generally resilient, more positive, better understanding, high sense of coherence), sense of coherence (important to maintain, positive experience, has a positive impact, clarity of environmental stimuli, impacts way one feels, controlling your breathing, heart rate low and consistent, calm, stillness, present, happiness, peace).

Sub-themes Categorised into SOC Scale Subscales – pre-test: comprehensible (n = 5), manageable (n = 7) and meaningful (n = 9); re-test: comprehensible (n = 6), manageable (n = 14) and meaningful (n = 4); post-test: comprehensible (n = 8), manageable (n = 11) and meaningful (n = 9).

4.2.2.2. Descriptions of Experiences of Resilience

Participant 1:

Pre-test: My experience of resilience is how I am able to tolerate certain events and things that happen in daily life and in major events and how my body and mind responds to them.

Re-test: I have been working through some tough decisions and they have been springing into my mind and I have overcome them with positive thinking and bounced back.

Post-test: I tried to maintain my resilience as this helped me push through days of tiredness and depletion and I feel having strong resilience combined with faith really helped me on days that I was struggling.

Participant 2:

Pre-test: I think that through life you experience situations and that makes you resilient and the older you get more resilient you become.

Re-test: I am a pretty resilient person and try not to let too many things get me down, life is too short, as they say in the classics.

Post-test: I experienced a good sense of resilience so as not to just get up and go but rather absorb the situation.

Participant 3:

Pre-test: My resilience could always be better, understanding my triggers to manage and control them better. A rating of 60% at this current state of mind.

Re-test: My resilience towards stressful situations can be improved, in some cases they have been overwhelming.

Post-test: I feel my resilience is slightly stronger and improving as I focus on it more, it feels better than it has been in the past.

Participant 4:

Pre-test: I try to give off the impression that I am resilient to protect those around me but this can create problems where I may 'bottle' things in and then have outbursts particularly to those I love.

Re-test: I often think I am quite resilient and can bounce back dependant on the situation. However, this facade of believing I am resilient is usually to put others

minds at ease and to ensure my loved one's feel comfortable and safe in a changing environment. I then tend to deal with the change on my own.

Post-test: I still believe that I am quite resilient, I accept change as a challenge. However, I have felt a little more exhausted lately when it comes to things changing but think this is due to everything else going on around me. Eg. With the forever changing landscape of Covid, and day-to-day changes being made because of it, while still caring for family and ensuring their mental, physical and emotional wellbeing.

Participant 5:

Pre-test: I can be strong and competitive depending on the situation. I will normally build up a wall around me to keep to focussed and strong to tackle the tasks the scare me. Often I need to end up breaking down my wall admitting that I'm scared and let my emotional softness out before I can personally realise that even with my care and concern I can still complete the task and end up stronger and happier once achieved.

Re-test: I hide my scared/nervous feelings to be strong when I am nervous about the situation. I can generally analysis when I disagree with others/ have a different belief and try wipe away the negativity if its unnecessary/unhappy to my life and the people around me.

Post-test: I am resilient as I often encounter stressful situations which I can over come. Depending on the level of importance and stress linked to the task my

resilience can get super tested and might that me more personal strength to over come.

Participant 6:

Pre-test: I would say that I am pretty resilient, yes on occasion you get knocked down, but I do not dwell in my failures/bad experiences. Pretty quick to get right back up and carry on.

Re-test: I think that I am very resilient, very few things can get me down, and If for some reason I am down, I am quick to recover.

Post-test: I still feel like a very resilient person, I don't struggle with stressful situations and feel like I handle difficult situations very well.

Participant 7:

Pre-test: Confidence in yourself to bounce back. Knowing where your strengths lie and using that to work through hard times. Not over thinking and looking at solutions as opposed to problems. Knowing when to start being proactive in moving forward.

Re-test: I am quite a strong person and tend to think logically about situations and experiences – I can bounce back quickly from being let down or from hard times, without letting myself linger too much in a negative state of mind. I give myself time to be upset or disheartened and then push myself to move forward from those feelings.

Post-test: I see myself as a very resilient person and have bounced back quickly from disappointment, stressful situations and negative events in my life. To keep moving forward and knowing that the past can't change helps me keep myself resilient and helps me recover from events. I also feel sometimes that I need to be resilient in my family to keep us moving forward as a family unit.

Participant 8:

Pre-test: I would describe myself as very resilient, I have experienced a lot of tough times and dark moments in my life which helped me become more resilient as a person.

Re-test: I am very resilient and not much gets me down in life, I tend to see the positive in life and focus on the good rather than the negative. Not much gets me down, and if so I pick myself up very quickly, and move forward.

Post-test: It is about being mentally tough and having a positive mindset and outlook on situations and life on a daily basis. The more resilient you are the happier you will be with a higher sense of coherence.

Participant 9:

Pre-test: I would define resilience as the ability to be flexible & deal with challenges in life & 'bounce back'. I would historically have said that I feel I have high resilience, however since having my own family & increased responsibility & going through COVID a long way from close family & friends & without access to usual coping strategies (due to lockdowns) this has been harder & I've had less

resilience, however when the challenging situation has resolved I've been able to bounce back quite well.

Re-test: Ability to bounce back after stress feel reasonably good at this but struggle during the events.

Post-test: The ability to recharge after stressful events, and improve energy levels and focus.

Participant 10:

Pre-test: Allowing me time to adapt and learn from it. Positive reflection soon after my experience. Most recent: Moving 3x in one year and latter in New Zealand. Great experience. Most humbling experience (an output of true resilience for me).

Re-test: Getting back into action and making plans about the future rather sooner than later after experiencing the recent move to New Zealand and change of work. Remaining optimistic with process.

Post-test: Restore energy quickly after a stressful day and or events.

Table 4. Pre-, Re- and Post-Test Experiences of Resilience – Thematic Content Analysis and ATLAS.ti Word Cloud (*N* = 10)

Pre-test		Re-test		Post-test	
Response	Frequency	Response	Frequency	Response	Frequency
• COVID-19 lowered resilience	• 1	• Pretend for others	• 1	• Resilience can get really tested	• 1
• Rating of 60%	• 1	• Hide	• 1	• Little more exhausted from COVID-19 change	• 1
• Internalization causing outbursts	• 1	• nervousness/scaredness	• 1	• Absorb the situation	• 1
• Defences	• 1	• Struggle during events	• 1	• Being mentally tough	• 1
• Manage triggers	• 1	• Some stressors overwhelming	• 2	• Positive mindset and outlook	• 1
• Response to events	• 1	• Managing other's negativity	• 1	• Accept change as a challenge	• 1
• Tolerating daily events	• 1	• Not getting down	• 1		
• Tolerating major events	• 1	• Self-reliant	• 1		

<ul style="list-style-type: none"> Managing moving Deal with challenges Being proactive Looking at solutions Resolution Focus on strengths Can be strong Can be competitive Confidence Self-belief Don't dwell Not over thinking Bounce back Get back up Carry on Flexible Pretty resilient High resilience Very resilient. Increases with age Situations increase resilience Learning Post reflection Could always improve 	<ul style="list-style-type: none"> 1 1 1 1 1 1 1 1 1 1 2 1 1 2 1 1 1 1 1 1 2 1 1 1 	<ul style="list-style-type: none"> Making plans sooner Think logically Working through decisions Optimistic Positive thinking Focus on positives Focus on good Bounced back. Move forward Quick to recover Giving oneself time to recover Quite a strong person Little affects me Quite resilient. Pretty resilient person Very resilient Could be improved. 	<ul style="list-style-type: none"> 1 1 1 1 4 2 1 1 1 3 1 1 2 1 	<ul style="list-style-type: none"> Improve focus Helped tiredness Helped depletion Recharge Improve energy levels Restore energy quickly Keep moving forward Good sense of coherence Higher sense of coherence Still quite resilient Still very resilient Handle difficult situations very well I am resilient Strong resilience Very resilient person Slightly stronger Improving with more focus Feels better Maintaining resilience Resilient for family Being happier Faith helped 	<ul style="list-style-type: none"> 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
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The following integrated resilience themes and bracketed sub-themes emerged:

Pre-test: internal and external stressors (defences, internalization causing outbursts, manage triggers, COVID-19 lowered resilience, response to events), coping (tolerating daily events, tolerating major events, managing moving, deal with challenges, being proactive, looking at solutions, resolution, focus on strengths, can be strong, can be competitive, confidence, self-belief, don't dwell, not over thinking), bouncing back (bounce back, get back up, carry on, flexible),

resilience level (rating of 60%, could always improve, pretty resilient, high resilience, very resilient), resilience (increases with age, situations increase resilience, learning, post reflection).

Re-test: conceal emotions (pretend for others, hide nervousness/scaredness), internal and external stressors (struggle during events, some stressors overwhelming, managing other's negativity, not getting down), coping (self-reliant, making plans sooner, think logically, working through decisions, optimistic, positive thinking, focus on positives, focus on the good), bouncing back (bounced back, move forward, quick to recover, giving oneself time to recover), resilience level (quite a strong person, little affects me, quite resilient, pretty resilient person, very resilient, could be improved).

Post-test: internal and external stressors (resilience can get really tested, little more exhausted from COVID-19 change), coping (absorb the situation, being mentally tough, positive mindset and outlook, accept change as a challenge, improve focus), bouncing back (helped tiredness, helped depletion, recharge, improve energy levels, restore energy quickly, keep moving forward), resilience level (still quite resilient, still very resilient, I am resilient, strong resilience, very resilient person), growth (slightly stronger, improving with more focus, feels better, maintaining resilience, handle difficult situations very well, resilient for family, good sense of coherence, higher sense of coherence, being happier, faith helped).

4.2.2.3. Descriptions of Experiences of Faith

Participant 1:

Pre-test: I will often relate certain things in my daily life to faith and later in the day I will reflect back on my day and how faith played a role in it and certain parts where faith is what helped me make a certain decision or not or whether to act upon something or not.

Re-test: I always rely on faith to help me through difficult situations and to help me move forward with my decisions.

Post-test: My experience of faith is strong and again with maintaining a strong sense of faith one feels whole and stimulated, when I had low faith I felt drained and tired and couldn't focus my mind, as soon as I turned to faith my mind was clear and I was able to better handle situations.

Participant 2:

Pre-test: Faith has been with me throughout even though at times I have felt there has been no faith. Through faith I have managed to overcome obstacles and achieve outcomes that I have thought impossible.

Re-test: My faith is giving me the strength to support my family in their new adventures and to guide me into making right decisions.

Post-test: I had a strong experience with faith, which enabled me to deal with what was happening around me.

Participant 3:

Pre-test: Faith has been a roller coaster journey of many ups and downs, but focusing on faith and the Lord has always seen me through some difficult and challenging times. My faith could always be better at a rating of 65%.

Re-test: Faith has been a struggle for me at times, understanding and trusting God's plan has been a challenge at times. However, every stressful situation has brought me closer to God through prayer for guidance and strength.

Post-test: During the testing and during these challenging times (COVID-19 environment) I feel that I have been able to grow with my faith experience.

Participant 4:

Pre-test: Honestly, I wish I could call on my faith more especially during tough times but I tend to dwell on the past and can't let go. I do question why things happen when they happen instead of believing that it is God's will.

Re-test: My faith is good, it could be stronger in the sense that I should rely on my faith to help make decisions in my life. I tend to look at the most logical point of view and leave faith on the outside of my decision-making.

Post-test: I think I did lose my sense of faith for a while, not that I stopped believing, but that I was questioning 'Why' all the time. It's been a bit of a tough season but I realised that unless you have faith in something (for me, God), you are not going to get through it.

Participant 5:

Pre-test: When I was in primary school the parents induced me to faith. I was never forced to continue with my faith or beliefs, it was left open to my own personal choice to embrace my faith where or when ever I felt comfortable. I believe in God and will often turn to Him to ask for advice or thank Him all that He has done for me and people around me. I keep my faith personal and don't often discuss it with people around me because I don't want them to feel any pressure that if they don't have the same faith as me that I have anything against them.

Re-test: I am starting to notice that with the modern society a fair amount of people around me are changing the way they interpret faith. I don't like to push my views and beliefs on other. I prefer to keep my relationship with God personal and reach out to the Lord depending on the situation.

Post-test: Faith is a great guide in my life to help me refresh and think about how I should tackle tasks that I am unsure of.

Participant 6:

Pre-test: When I was younger I used to have what I consider an incredibly strong relationship with my church and God, I have, shamefully so, since grown incredibly distant for no apparent reason.

Re-test: As previously stated, I was very involved with my church and belief at a younger age, have since grown distant.

Post-test: As you will see in the results on the tests above, I am not very active in my faith and the church does not play as big a role in my life currently. I do believe in God and have faith but feel as though my faith is currently dormant.

Participant 7:

Pre-test: Having that comfort in your life that keeps you going. Support and feeling that you're never alone. The voice that is always in the back of your mind when dealing with situations or everyday life events.

Re-test: In this case my faith is my family support as I am not a religious person. My family is the core of my life - my strength through hard times and the upliftment for me in good times. They are always on my mind when making decisions in my life and they are the force that keeps me going.

Post-test: My faith/family is very important to me. They are at the centre of who I am and how I lead my life. They are my source of comfort and my voice of reason sometimes. I seek out their opinion and advise with certain situations in my life and they are the guiding voice in my decision making. I am a firm believer that family is/should be at the centre of everything.

Participant 8:

Pre-test: I grew up in a very religious household with strong morals and values, over the years I have drifted from those practices and no longer put in the time I use too, however still am a believer and carry those values and morals with me and try my best to carry them out.

Re-test: I have strong core values in life and use those values and faith in how I carry myself and treat others around me, and in difficult times it helps me to work through those moments and stay positive.

Post-test: Faith is something that helps me get through tough times/situations. It is knowing that there is always light at the end of the tunnel. It also defines how we act and carry ourselves.

Participant 9:

Pre-test: I would understand faith to relate to religion or belief in a structured religion. I was brought up as a Christian & attended a C of E school but would not say I am religious or have been religious since my teenage years. I would say that I have some 'spiritual' beliefs & believe that religion can be a uniting power that can be very positive for a lot of people (although it can be used in a divisive way), however I would not describe myself as religious and therefore I would not say that faith is a big part of my life as I would perceive faith to relate more to a belief in something that you cannot necessarily experience or know to be true.

Re-test: Belief in organized religion or something that cannot be proven. Would maybe describe myself as having spiritual beliefs but not faith – I feel that faith implies belief in something it is not possible to prove and I tend to rely on my own experience.

Post-test: I still struggle with the term faith as to me that implies belief in something that you have not experienced (i.e. I have faith that things will be ok). I would say that there is more a source of 'oneness' that comes with HeartMath

but I don't think that I would necessarily associate the experience with the word faith.

Participant 10:

Pre-test: Blindly jumping into darkness and just knowing that something/someone will catch me. I refer to this entity as God/Christ/Holy Spirit.

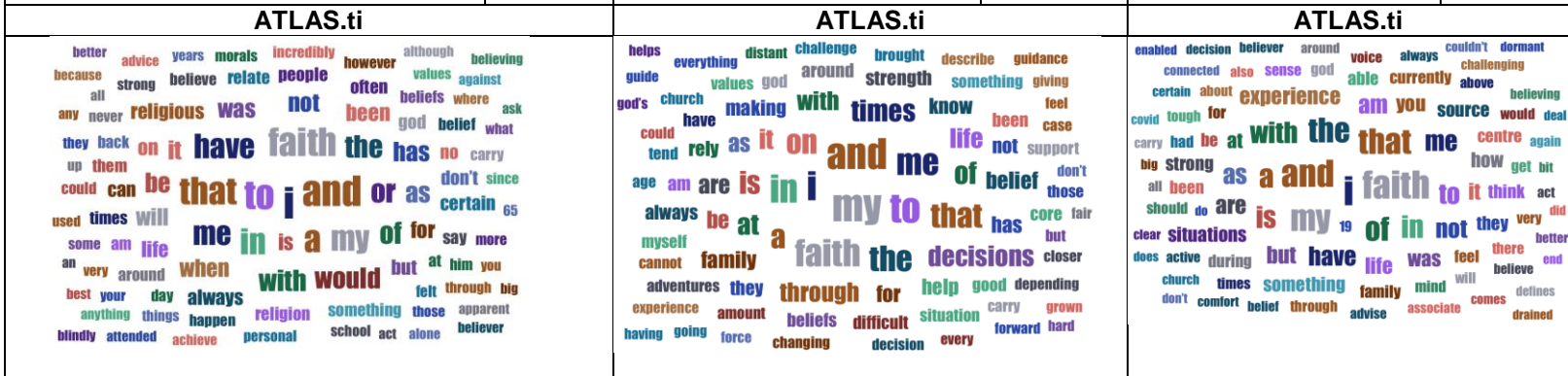
Re-test: To know that I know that I know that there is order and wisdom in everything and a privilege to be part of it in some way – strangely purposeful.

Post-test: Feeling connected with source of love and reaching towards it.

Table 5. Pre-, Re- and Post-Test Experiences of Faith – Thematic Content Analysis and ATLAS.ti Word Cloud (*N* = 10)

Pre-test		Re-test		Post-test	
Response	Frequency	Response	Frequency	Response	Frequency
• Not religious	• 1	• Not religious	• 1	• Struggle with the term	• 2
• Not a big part personally	• 1	• Something that cannot be proven	• 2	• Currently dormant	• 1
• Grown distant	• 3	• Interpretations changing	• 1	• Not very active	• 1
• Strong when I was younger	• 1	• Rely on own experience	• 1	• Low faith	• 1
• Rollercoaster	• 1	• Logical over faith	• 1	• Lost faith for a while	• 1
• Tend to dwell	• 1	• When younger	• 1	• Was questioning why	• 1
• Question instead of believing God's will	• 2	• Grown distant	• 1	• Have faith	• 1
• Religious household	• 1	• Spiritual not faith	• 1	• Faith/family is very important	• 1
• Parents induced faith in primary school	• 1	• Organized religion	• 1	• Stimulated	• 1
• Attended a C of E school	• 1	• Challenging/struggle at times	• 2	• Clear mind	• 1
• Had personal choice	• 1	• Personal	• 1	• A great guide	• 2
• Don't pressure others	• 1	• Don't push on others	• 1	• Helps me get through	• 1
• Faith is personal	• 1	• Could be stronger	• 1	• Handle situations better	• 2
• Rated at 65%	• 1	• Family is faith	• 1	• Always light at the end	• 1
• Faith could be better	• 1	• From situations	• 1	• Strong	• 1
• Wish I could call on my faith more	• 1	• Strong core values	• 1	• Whole	• 1
• Spiritual	• 1	• Be part of it	• 1	• More a source of 'oneness' that comes with HeartMath	• 1
• Religion	• 1	• Always rely on faith	• 1	• Faith is essential	• 1
• Religion as uniting/positive or divisive	• 1	• Order/wisdom in everything	• 1	• Defines us	• 1
• Still believe	• 1	• Help though difficult situations	• 2	• Reaching towards it	• 1
• Faith even when didn't feel it	• 1	• Guiding right decisions	• 1		
• Focusing on faith	• 1	• Pray for guidance and strength	• 1		
• Relate life to faith	• 2	• Gives me strength	• 1		
• Morals and values	• 1	• My faith is good	• 1		
• Role of faith	• 1				
• Never alone	• 1				
• Comfort in life	• 1				

<ul style="list-style-type: none"> • Support • Safety • Faith in decisions • Ask God for advice • Voice through situations/events • Keeps you going • Lord seen me through • Overcoming obstacles through faith • Achieved impossible through faith • Believe in God • Holy Trinity • I thank Him 	<ul style="list-style-type: none"> • 1 • 2 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 			<ul style="list-style-type: none"> • Faith has grown • Feeling connected with source of love • Believe in God 	
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The following integrated faith themes and bracketed sub-themes emerged.

Pre-test: faith development (religious household, parents induced faith in primary school, attended a C of E school, had personal choice, don't pressure others, faith is personal), struggles with faith (not religious, not a big part personally, grown distant, strong when I was younger, rollercoaster, tend to dwell, question instead of believing God's will rated at 65%, faith could be better, wish I could call on my faith more), uncertain (spiritual, religion, religion as uniting/positive or divisive), belief (still believe, faith even when didn't feel it, focusing on faith, relate life to faith, morals and values, role of faith, never alone, comfort in life, support, safety, faith in decisions, ask God for advice, voice through situations/events, keeps you going, Lord seen me through, overcoming obstacles through faith, achieved impossible through faith, believe in God, Holy Trinity, I thank Him).

Re-test: faith development (personal, don't push on others), struggles with faith (not religious, something that cannot be proven, interpretations changing, rely on own experience, logical over faith, when younger, grown distant, organized religion, challenging/struggle at times, could be stronger), belief (family is faith, spiritual not faith, from situations, strong core values, be part of it, always rely on faith, order/wisdom in everything, help though difficult situations, guiding right decisions, pray for guidance and strength, gives me strength, my faith is good).

Post-test: struggles with faith (struggle with the term, currently dormant, not very active, low faith, lost faith for a while, was questioning why), belief (have faith, faith/family is very important, stimulated, clear mind, a great guide, helps me get through, handle situations better, always light at the end, strong, whole, more a source of 'oneness' that comes with HeartMath, faith is essential, defines us, reaching towards it, faith has grown, feeling connected with source of love, believe in God).

4.2.3. Quasi-Experimental Design Results Discussion

In terms of the results, quantitatively, there were positive significance differences between re-test and post-test on average coherence, achievement score, and low, medium and high coherence total scores. This supported previous research on psychophysiological coherence (Edwards, 2013, 2014a:236; cf Edwards et al., 2015; Edwards & Edwards, 2021a:1000). Results also indicated an increase in BRS and SCSRFQ total scores at post-testing. This supported previous

research on resilience (Edwards et al., 2015) and spirituality (Edwards, 2013, 2014a:236). Although not in this study, perhaps due to the large mean SOC score change between pre- and re-test already having occurred, various previous studies had demonstrated post-intervention improvements as measured on SOC (Field et al., 2017/2018:126; cf Edwards, 2013, 2014a:236; Field, 2017:3). Interestingly, there was a marked increase on SOC, BRS and SCSRFQ total scores, from pre- to post-test, which was attributed to being part of the study and the focus on these areas in terms of pre-test questions stimulating thinking in relation to these concepts.

Qualitatively, there were positive thematic changes in experiences of sense of coherence, resilience and faith at post-test. For *sense of coherence*, this included an increase in and level of sense of coherence experiences, and more combined comprehensible, manageable and meaningful sub-themes. For *resilience*, there was a greater number of and more growth in terms of bouncing back experiences. For *faith*, there was an increase in experiences of spirituality and belief (see Fowler, 1981; Streib, 2003; Fowler et al., 2004).

In terms of hypothesis, based on the integrated quantitative results, and qualitative themes and sub-themes, with caution as this is an initial study with a small sample, there seems to be sufficient data and information to support the idea that a HeartMath intervention could potentially have a positive effect on faith following traumatic experiences. This effect could be both direct and indirect.

From a HeartMath psychophysiological understanding, in terms of resilience, coherence is found at the centre of physical, mental, emotional and spiritual dimensions (McCraty & Childre, 2010:14), and thus, through a HeartMath intervention, improving coherence and resilience, could then have a positive effect on faith. This has value in terms of the areas of HeartMath as well as pastoral care and counselling interventions.

The results confirmed that the three theological areas of spirituality, religion and faith (Gall et al., 2011:180; cf Gschwandtner, 2021), and coherence, resilience and faith (see Schwalm et al., 2021:1) are inter-related and overlapping. This was supported by the Spearman's correlation, which revealed various SOC items correlated with BRS and SCSRFQ items, and inter-related and overlapping experiences of sense of coherence, resilience and faith integrated themes and sub-themes.

As a limitation, whilst the sample size is small, the design involved mixed quantitative and qualitative research methods and techniques. Such mixed methods designs are powerful in investigating complex processes (Fetters et al., 2013:2134). These were the results of the initial section of the study. The following section is a case study focusing on the causal, correlational and relationship mechanisms of change, after which follows an appreciative inquiry to evaluate HeartMath as a pastoral care and counselling intervention.

4.3. Case Study Design Qualitative Results

4.3.1. Experiences of Sense of Coherence

Participant 2:

Before: Coherence: you are not really thinking in an orderly manner and jumping to conclusions that are not necessarily the right decisions.

During: Coherence: enables you to calm down be more rational and consider the situation in a more holistic manor and not make rash decisions.

After: Coherence: more in control of your situation and definitely calmer feeling of inner strength.

Participant 3:

Before: Weak and inexperienced, never really gave much thought to it.

During: Steadly understanding my level of sense of coherence in the beginning of the intervention, it was at a low level. Growing stronger during the experience.

After: Experience at the end was a lot more positive, as I had been able to develop and understand the various techniques and how to apply them to have a positive impact during the intervention. Coherence to me felt like a much higher, positive and stronger result than in the beginning.

Participant 5:

Before: My sense of coherence was not as good as it could be. Depending on the situation I would get thrown out of thought and not have the patience to refocus and tackle the current situation on hand.

During: As I did the sessions during the intervention, I was able to build my understanding on how your feelings and breath and focus of positivity can boost your ways of dealing with events in life.

After: Stress can still take over but when the day comes to an end and I remember to breath and think of positive thoughts I can get back to being at ease.

Participant 9:

Before: Never really considered in this context – to me related more to verbal or written sentences and making sense.

During: A state of calm and mental quietness/focus.

After: As above.

Participant 10:

Before: Through prayer, affirmations and yoga practice receiving a sense of calmness, energy and feeling connected with people around me – at work and socially.

During: An induced calmness and mindful increase of optimism and energy. Being at ease with myself and the world around me.

After: Experience contentment – things seem to make sense or gel somehow. Improved acceptance maybe. The mind, body and spirit connecting in a natural way. I believe that my capacity for empathy and compassion has expanded. I

also play out my signature strengths more. I would venture to say that I feel more values driven as opposed to goal driven when I experience and connection.

Table 6. Before, During and After Intervention Experiences of Sense of Coherence – Thematic Content Analysis and ATLAS.ti Word Cloud (N = 5)

Before		During		After	
Response	Frequency	Response	Frequency	Response	Frequency
<ul style="list-style-type: none"> Weak Inexperienced Didn't think much about it Was more about thought and written logic Thinking not orderly Jumping to conclusions Would get thrown off course Had difficulty refocusing Not as good as it could have been Yoga Affirmations Energy Feeling connected to others Sense of calmness Prayer 	<ul style="list-style-type: none"> • 1 • 1 • 2 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 	<ul style="list-style-type: none"> Increase in energy Be more rational Holistic thinking Mental quietness/focus Not being rash Enables you to calm down Induced calmness State of calm At ease Understanding SOC Low SOC is growing Increase in optimism Build understanding of feelings, breath and positivity can increase management of events 	<ul style="list-style-type: none"> • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 	<ul style="list-style-type: none"> As above Things make sense Thinking positive thoughts Much more positive Things gel More in control of situation Remember to breath Can get back to being at ease Calmer feeling of inner strength Contentment More acceptance Core strengths More values than goal driven More compassion More empathy Mind, body and spirit connecting Much higher, positive, stronger coherence 	<ul style="list-style-type: none"> • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1
ATLAS.ti		ATLAS.ti		ATLAS.ti	

The following integrated sense of coherence themes and bracketed sub-themes emerged:

Before: lack of coherence (weak, inexperienced, didn't think much about it, thinking not orderly, jumping to conclusions, would get thrown off course, had difficulty refocusing, not as good as it could have been), change (was more about thought and written logic), coherence (yoga, affirmations, energy, feeling connected to others sense of calmness, prayer).

During: improving (low soc is growing), management (not being rash, be more rational, holistic thinking, build understanding of feelings, understanding soc, mental quietness/focus, induced calmness, breath and positivity can increase management of events), sense of coherence (increase in energy, enables you to calm down, state of calm, at ease, increase in optimism).

After: improving (much higher, positive, much more positive, stronger coherence), management (as above, thinking positive thoughts, remember to breath), sense of coherence (things make sense, things gel, more in control of situation, can get back to being at ease, calmer feeling of inner strength, contentment, more acceptance, core strengths, more values than goal driven, more compassion, more empathy, mind, body and spirit connecting).

Sub-themes Categorised into SOC areas of Comprehensible, Manageable and Meaningful

before: comprehensible (n = 1), manageable (n = 4) and meaningful (n = 2);

during: comprehensible (n = 4), manageable (n = 4) and meaningful (n = 5);

after: comprehensible (n = 4), manageable (n = 6) and meaningful (n = 9).

Mechanisms of Change:

- remembering to breathe;
- can get back to being at ease;
- mind, body and spirit connecting;
- more compassion;
- more contentment.

4.3.2. Experiences of Resilience

Participant 2:

Before: Resilience: it depends on the mood you take on could be one of anger or maybe sadness even joy.

During: Resilience: because you calm down and breathe, so to speak, you become more focused on the type of mood need to be taken and that expresses the type of resilience you need to take.

After: Resilience: this comes from the inner strength and the thought out manor on how to handle a situation whether you need to take a step back or get involved.

Participant 3:

Before: Weak and inexperienced, never really gave much thought to it.

During: Steadily understanding my level of resilience in the beginning of the intervention, which was at a low level. Growing much stronger during each experience.

After: Experience at the end was very positive, as I had been able to develop and understand the various techniques and how to apply them to have a positive impact during the intervention. Resilience to me felt like a much more positive and stronger result than in the beginning

Participant 5:

Before: I would often get stressed or worked up about silly little situations that in the end really did not mean much.

During: My resilience got better and stronger.

After: My resilience is definitely stronger after the intervention.

Participant 9:

Before: Ability to bounce back.

During: Improved ability to bounce back. The term 'recharged' feels very appropriate, or 'centred'.

After: As above.

Participant 10:

Before: Mindful and motivated to take on challenges.

During: I seem to feel recharged after a 5 min breathing (HFB) and sometimes also more relaxed in terms of life's uncertainties – almost like it's okay to let things go a bit or at least slow things down.

After: Increases my psychological energy and motivation to take on more challenges. Recover quickly when feeling drained. I seem to connect with my clients in a different way because I recharge more effectively.

Table 7. Before, During and After Intervention Experiences of Resilience – Thematic Content Analysis and ATLAS.ti Word Cloud (N = 5)

Before		During		After	
Response	Frequency	Response	Frequency	Response	Frequency
<ul style="list-style-type: none"> Weak Inexperienced Didn't think about it much Depends on mood Anger, sadness or joy Stressed over little situations Bouncing back Mindful/motivated for challenges 	<ul style="list-style-type: none"> 1 1 1 1 1 1 1 1 	<ul style="list-style-type: none"> Understanding level of resilience Focused on mood Okay with uncertainty Let things go Slow things down Breathe Centred Calm down Gotten better Growing much stronger during experiences Stronger Improved ability to bounce back Recharged Recharged after HFB 	<ul style="list-style-type: none"> 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 	<ul style="list-style-type: none"> As above Thought through situation management Understand, apply and develop techniques Techniques positive impact Stronger Definitely stronger Inner strength Recovery quickly when drained Connect differently with clients as can recharge more effectively More positive Very positive Psychological energy/motivation to take on challenges 	<ul style="list-style-type: none"> 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
ATLAS.ti		ATLAS.ti		ATLAS.ti	

The following integrated resilience themes and bracketed sub-themes emerged:

Before: low (weak, inexperienced, didn't think about it much), internal and external stressors (depends on mood, anger, sadness or joy, stressed over little situations), bounce back (bouncing back, mindful/motivated for challenges).

During: learning (understanding level of resilience), coping (focused on mood, okay with uncertainty, let things go, slow things down, breathe, centred, calm down), growth (gotten better, growing much stronger during experiences, stronger, improved ability to bounce back, recharged, recharged after HFB).

After: learning (as above, thought through situation management, understand), coping (apply and develop techniques, techniques positive impact), growth (stronger, definitely stronger, inner strength, recovery quickly when drained, connect differently with clients as can recharge more effectively, more positive, very positive, psychological energy/motivation to take on challenges).

Mechanisms of Change:

- understanding the level of resilience;
- recharged after heart-focused breathing;
- improved ability to bounce back;
- quicker recovery after feeling drained.

4.3.3. Experiences of Faith

Participant 2:

Before: Faith: more than likely not the first emotion you would turn to depending on the situation.

During: Faith: balances out any type of emotion you experience making you feel grounded.

After: Faith: is at the forefront of the decision or situation, the power to have faith in yourself and connect as one and accept how to handle any situation whether it be good or bad.

Participant 3:

Before: Fair, could have been stronger at that point before the intervention.

During: Fair, however it did grow much stronger as I experienced more of the positive feedback from the intervention techniques used. I did feel that I was developing in faith and experiencing more positive and closer relationships.

After: I feel that my faith had grown and that I had developed a stronger and more fruitful relationship with the Lord.

Participant 5:

Before: I had had my faith in the Lord.

During: My faith got refreshed and warmed my heart.

After: My faith remains strong and special to my heart.

Participant 9:

Before: Belief in religion or something that you cannot explain.

During: See above – I feel like faith is not really the right word – improved feeling on ‘oneness’ but I would separate this from ‘faith’.

After: As above.

Participant 10:

Before: Acceptance of God’s grace and his presence in some way and form in my life. Contemplating how I could be of service in some form or shape.

During: I was aware with a sense of peace and appreciation. Thoughts of grace and humility was present for me.

After: A subtle shift in terms of self, other and God awareness. Feeling open to listening more as opposed to performing more. A feeling of acceptance and ‘contentment. Might be related to a feeling of ‘integration’.

Table 8. Before, During and After Intervention Experiences of Faith – Thematic Content Analysis and ATLAS.ti Word Cloud (N = 5)

Before		During		After	
Response	Frequency	Response	Frequency	Response	Frequency
<ul style="list-style-type: none"> • Not the first emotion to turn to. • Something unexplainable • Fair • Could be stronger • Belief in religion • Being of service • Had faith in the Lord • God’s grace • God’s presence 	<ul style="list-style-type: none"> • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 	<ul style="list-style-type: none"> • Oneness rather than faith • Fair • Balances emotions • Makes you feel grounded • More positive/closer relationships • Humility • Warmed my heart • Grace • Appreciation • Peace • Got refreshed • Grew stronger with techniques • Developing in faith 	<ul style="list-style-type: none"> • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 	<ul style="list-style-type: none"> • As above • Have faith in oneself • Integration • Connect as one • Acceptance • Contentment • At forefront of situation • At forefront of decision • More open to listening • Accept how to handle situations • Special to my heart • Faith remains strong • Faith has grown • Subtle shift in terms of self, other and God awareness 	<ul style="list-style-type: none"> • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1 • 1

ATLAS.ti	ATLAS.ti	ATLAS.ti

The following integrated faith themes and bracketed sub-themes emerged:

Before: struggle (not the first emotion to turn to, something unexplainable, fair, could be stronger), understanding (belief in religion), belief (being of service, had faith in the Lord, God’s grace, God’s presence).

During: struggle (fair), understanding (oneness rather than faith), growth (balances emotions, makes you feel grounded, more positive/closer relationships, humility, warmed my heart, grace, appreciation, peace, got refreshed, grew stronger with techniques, developing in faith).

After: understanding (as above, have faith in oneself), lived experience (faith remains strong), belief (integration, connect as one, acceptance, contentment, at forefront of situation, at forefront of decision, special to my heart), growth (more open to listening, accept how to handle situations, faith has grown, subtle shift in

terms of self, other and God awareness, stronger/more fruitful relationship with the Lord).

Mechanisms of Change:

- awareness;
- integration;
- feeling connected.

4.3.4. Experiences of HeartMath

Participant 2:

Before: I had no experience of HeartMath before intervention, so it was an unknown.

During: I then had the opportunity to experience HeartMath intervention which in the beginning was a little difficult to control your breathing and feel the connection to your heart, but with more practice and concentration the results were fantastic.

After: After intervention, there is definitely a more calm rational way of thinking and expression feelings.

Participant 3:

Before: Inexperienced before HeartMath products and techniques used, had heard of it but never tried.

During: Steadily getting use to the equipment and enjoying the positive feedback from the use of the techniques and equipment.

After: Experience at the end was fantastic, as I had been able to develop and understand the various techniques and how to apply them to have a positive impact during the intervention.

Participant 5:

Before: I battled to get my breathing calm and be able to stop and refocus on the matter at hand.

During: It was exciting to see how breathing could help your HeartMath and focus.

After: I often need to remind myself to breath. I work better when you plan set regular sessions to not forget and fall out of focus.

Participant 9:

Before: None.

During: A positive tool to quantify and assist in improving mental health and wellbeing.

After: As above.

Participant 10:

Before: Just heard about it – no knowledge of it.

During: Positive and energy creating. A mindful practice. Bio-feedback very useful. Some of the practices will need more time for me.

After: Definitely effective. The idea of coherence works for me. Experienced beneficial stress relief when managing many stressors. Also changes in my mood (more optimistic) and also more mindful of what I can control and what I can not. A letting go experience. A release if you will. Bio-feedback very useful but do become aware of a performance element – a ‘how can I reach the higher levels?’

Table 9. Before, During and After Intervention Experiences of HeartMath – Thematic Content Analysis and ATLAS.ti Word Cloud (N = 5)

Before		During		After	
Response	Frequency	Response	Frequency	Response	Frequency
<ul style="list-style-type: none"> No experience of HeartMath Struggled to calm breathing 	<ul style="list-style-type: none"> 4 1 	<ul style="list-style-type: none"> Getting use to the equipment Controlling breathing and connecting to heart initially difficult Some of the practices will need more time for me Mindful practice Positive Bio-feedback very useful Enjoying positive feedback from equipment Enjoying positive feedback from techniques Positive tool to quantify mental health and well-being Positive tool to improve mental health and well-being Seeing breathing helping HeartMath Seeing breathing helping focus With practice and concentration fantastic results Energy creating 	<ul style="list-style-type: none"> 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 	<ul style="list-style-type: none"> As above Mindful of performance element More mindful of controllables Coherence idea fits Develop and understand techniques Apply techniques positively Fantastic Definitely effective Relives stress from many stressors Calmer thinking Letting go Improves mood Express emotions calmer 	<ul style="list-style-type: none"> 1 1 1 1 1 1 1 1 1 1 2 1 1 1
ATLAS.ti		ATLAS.ti		ATLAS.ti	

stress from many stressors, calmer thinking, letting go, improves mood, express emotions calmer).

Mechanisms of Change:

- experiential practice;
- positive bio-feedback;
- a useful tool to improve mental health and well-being;
- relieves stress;
- facilitates letting go;
- creates energy;
- improves the mood.

4.3.5. Experiences of the HeartMath Intervention

Participant 2: Depending on the type of situation that you deal with, HeartMath gives you the ability to control an outcome in a positive way, and be more wise to decisions. It helps you become more in tune with the type of energy that you project, which then reflects on the surroundings.

Participant 3: This was an amazing experience and the end result is a positive healthy outcome, with many benefits. I try use the methods I have learnt as often as I can on daily basis to continue the positive growth across resilience, coherence experiencing a stronger faith along this journey. At times what I thought of would have a negative score rather than a positive, however from the

experience I now know what positive thoughts will make my experience of coherence, resilience and faith stronger.

Participant 5: The intervention taught me a lot. It's an experience that can be briefly described in words but best understood when experienced yourself. Its amazing how something as simple as breathing and focusing your thoughts can get your mind to change into positive focus, reduce stress, and help you be ready for the next step.

Participant 9: In terms of coherence and resilience, I feel that HeartMath is very effective and helpful. It took me around 2 months to really make sense of HeartMath and really maximise the benefits. I have found it something that I can apply without bio-feedback which is immensely helpful i.e. when driving etc. Using a metronome has really enhanced my experience also. Ultimately able to be significantly more focused when needed and recharge better and separate out feelings from experience. It has also made sure that I at least give myself 10 minutes a day to recharge. I feel like there has been a large focus on faith in this study, and I feel like from a semantic perspective I maybe do the study a disservice by my interpretation of faith. From a subjective and experiential perspective, I feel that the intervention has improved my sense of oneness with the world and connectedness, but I do feel this differs from faith – I also find the word 'spirituality' quite vague and non-descriptive but I feel that would be a better term and in that sense I would say that this has been very helpful from a spiritual

perspective. Furthermore, I feel that the benefits with regard to spirituality are secondary rather than primary. The way I view the world is potentially slightly different (becoming less angry and frustrated, feeling more present and responsive to situations and people). However, the experience of being in coherence, whilst feeling peaceful and calm and aware, does not have the same spiritual meaning or intensity that Wim Hof breathing or other techniques do. In my experience, I have found Wim Hof breathing to have a very significant effect that I would be more likely to describe as spiritual.

Participant 10: Effective in establishing a sense of calm and readiness to learn through actively engaging with my environment. I do believe it stimulates the vagal nerve areas – exercising my autonomic nervous system so to speak. Providing me with more clarity of thought and optimism. I did get a sense that my coherence scores go up if I am a bit more physically active as opposed to being too relaxed. I could also notice that distractions have an impact my ‘wave’ - more spiky when interrupted. Also noticed high coherence figures at times (the graph) but seem to struggle sustaining it and not really figuring out how my breathing changed as to cause it – maybe more practice, maybe a different thought, maybe a different posture – not sure. Making me think of doing more and practicing more. There was times that the bio-feedback triggered my need to figure out new ways to improve the coherence numbers - with different techniques other than the ones provided – looking forward to experiment in the future.

Table 10. Experiences of the HeartMath Intervention – Thematic Content Analysis and ATLAS.ti Word Cloud (N = 5)

Response	Frequency	ATLAS.ti
• Wim Hof breathing more spiritual than coherence	• 1	
• Helped spirituality	• 1	
• Needs to be experienced	• 1	
• Two months to really make sense and maximise benefits	• 1	
• Stimulates vagus nerve	• 1	
• Exercise autonomic nervous system	• 1	
• Experimenting with what works	• 1	
• Distraction affects coherence	• 1	
• Metronome helped	• 1	
• Physical activity enhances coherence	• 1	
• Can apply without biofeedback	• 1	
• More practice on sustaining coherence needed	• 1	
• Using methods as often daily	• 1	
• Thinking of doing more	• 1	
• Thinking of practicing more	• 1	
• Amazing experience	• 1	
• Taught me alot	• 1	
• Many benefits	• 1	
• Simplistic yet so effective	• 1	
• Depending on situation can positively control outcome	• 1	
• More responsive to situations	• 1	
• Positive reflected in surroundings	• 1	
• Learning from environment	• 1	
• More focused	• 1	
• More clarity of thought	• 1	
• More wise with decisions	• 1	
• Know the positive thoughts for strength	• 1	
• Can separate feelings from experiences	• 1	
• Less angry	• 1	
• Less frustrated	• 1	
• Established sense of calm	• 1	
• More present	• 1	
• In tune with energy projected	• 1	
• Given self time to recharge	• 1	
• Recharge better	• 1	
• More optimism	• 2	
• More responsive to people	• 1	
• Improved connectedness	• 1	
• Positive health outcome	• 1	
• Effective for coherence	• 1	
• Effective for resilience	• 1	
• Continuing positive SOC/Resilience/Faith growth	• 1	

The following integrated HeartMath intervention themes and bracketed sub-themes emerged:

- *spirituality*: Wim Hof breathing helped spirituality more than coherence;

- *experiential learning*: should be experienced for at least two months to really make sense and maximise the benefits; it stimulates vagus nerve; it exercises the autonomic nervous system; they can experiment to figure out what works; distractions affect coherence; the metronome helped; physical activity enhances coherence; it can be applied without bio-feedback; more practice on sustaining coherence is needed; effective if methods are used as often as daily;
- *goals*: thinking of doing more; thinking of practicing more;
- *positive experience*: life-enhancing experience; one can learn much from it; it has many benefits; it is simple but effective; depending on the situation one can positively control the outcome; one is more responsive to situations; feeling more positive toward the environment; learning from the environment, feeling more focused; having more clarity of thought; can make decisions more wisely; know how positive thoughts contribute to inner strength; can separate feelings from experiences; is less angry or frustrated; establishes a sense of calm; is more present in the moment; is more in tune with the energy that is projected; giving oneself the time to recharge; recharging more effectively, being more optimistic; being more responsive to people; improved connectedness; positive health outcomes; effective for coherence; effective for resilience; continuing with positive growth with regard to the social environment, one's own resilience, one's faith.

Mechanisms of Change:

- vagus nerve is stimulated;
- the autonomic nervous system is exercised;
- establishes a sense of calm;
- gives time to recharge;
- recharges more effectively;
- has positive health outcome;
- spiritual growth;
- social growth;
- greater resilience.

4.3.6. Case Study Design Results Discussion

Case study results revealed the following emerging mechanisms of change:

- For experiences of a sense of *coherence*, this was relational in terms of: separate and combined increases in SOC comprehensible, manageable and meaningful areas, and focus on the following: breathing, being at ease, mind/body/spirit connecting, greater compassion and contentment.
- For experiences of *resilience*, this was relational in terms of: understanding resilience, techniques leading to recharging, improving bounce back and quicker recovery.
- For experiences of *faith*, this was relational in terms of: awareness, connectivity, integration, remarkability and heart-warming.

- For experiences of *HeartMath*, this was causal in terms of: experiential practice, positive bio-feedback, letting go, creating energy, improving mental health specifically mood and reducing stress, and enhancing well-being.
- For experiences of *HeartMath as an intervention*, this was causal in terms of: stimulating vagus nerve, exercising autonomic nervous system, a metronome helping, establishing a sense of calm, giving oneself time to recharge, recharging better, positive health outcomes, aiding spirituality and continuing positive SOC/resilience/faith growth.

This was correlational in terms of sense of coherence sub-themes including resilience and faith, resilience sub-themes including sense of coherence and faith, and faith sub-themes including sense of coherence and resilience.

Understanding these causal, correlational and relationship underlying mechanisms of change (Starman, 2013:37; cf Crowe et al., 2011:5; see Park, 2007) was credible from a theoretical and practical perspective, and the results demonstrate the value of case study research. Based on the integrated themes and sub-themes, theoretically, the results again attested to the three theological areas of spirituality, religion and faith (Gall et al., 2011:180; cf Gschwandtner, 2021), as well as coherence, resilience and faith (see Schwalm et al., 2021:1), being inter-related and overlapping. They supported the correlation from the quasi-experimental study where various Sense of Coherence Scale items (Klepp

et al., 2007) were correlated with the Brief Resilience Scale items (Smith et al., 2008) and the Santa Clara Strength of Religious Faith Questionnaire items (Plante & Boccaccini, 1997:433). There were inter-related and overlapping experiences of sense of coherence, resilience and faith integrated themes and sub-themes. This study also supported previous HeartMath intervention research on psychophysiological coherence (Edwards, 2013, 2014a:236; cf Edwards et al., 2015; Edwards & Edwards, 2021a:1000), sense of coherence (Field et al., 2017/2018:126; cf Edwards, 2013, 2014a:236; Field, 2017:3), resilience (Edwards et al., 2015) and spirituality (Edwards, 2013, 2014a:236). This case study has worth in terms of the areas of both HeartMath, and pastoral care and counselling interventions. The final results section is from the appreciative inquiry evaluating HeartMath as a pastoral care and counselling intervention.

4.4. Appreciative Inquiry Qualitative Results

4.4.1. Experiences of the Intervention

Participant 1: I felt that this was a positive intervention and it made me take a step back and assess how I need to have stronger faith in helping me guide myself through situations that are beyond my control.

Participant 2: I had a really good experience.

Participant 3: By focusing my thoughts, feelings and emotions on the love that the Lord has for us. This was a very positive experience that made me more mindful and aware of my resilience and coherence.

Participant 4: When I did it, it gave me some time out from everyday life. A moment to experience some quiet time and to focus on more positive experiences. At first, it was really difficult to 'find and stay' in that positive space as my mind drifted to checklists and my reality but after a few minutes it was great.

Participant 5: It was a great experience and I have a much better understanding about tackling tasks.

Participant 6: I found this very enlightening and helpful in our personal lives, it has been relaxing/comforting carrying out the scan before going to bed every night, puts me in a good headspace and leaves me feeling quite peaceful.

Participant 7: I was pleasantly surprised at how easy it is to manage my sense of coherence and to re-centre myself when feeling unbalanced and overwhelmed during the day. I found myself doing the breathing exercises more than once in the day and found that at the end of the day I felt more content.

Participant 8: I felt it was very interesting, learnt a lot about how sense of coherence/resilience/faith affects our wellbeing and daily life.

Participant 9: Very positive – during the trial there have been multiple significant stressors such as being unable to sell the house, having covid, work issues, family bereavement and stressors overseas, selling our home and starting the process to move overseas (which will be completed in the next 3 days). The HeartMath tool has helped me to be more grounded and feel recharged and focused when needed, and also improve my self awareness (i.e. it was interesting to see the changes at times when I was not necessarily feeling stressed however on assessment my coherence was poor). I do feel that it took over 8 weeks before I fully understood the process and how to achieve higher coherence, and I feel like I placed more emphasis on the feeling state rather than the breathing rate and depth, and whilst the feeling states led to more of a feeling of connectedness, the breathing was more important for coherence. The issue may have been due to my understanding of the concept and where I placed most emphasis rather than the description however I feel that it has also improved my interoception whereby I will notice more when I am feeling uneasy or anxious and what feelings accompany that (butterflies etc) and when I notice I am able to use the tools and address this or even just sit and let it be if needed as it has been acknowledged, and by noticing early this prevents emotional changes (such as frustration and anger) which has been very positive.

Participant 10: Absolutely valuable – to feel coherence is different from thinking it. Good for the body, mind and spirit.

Table 11. Experiences of the Intervention – Appreciative Inquiry Thematic Content Analysis and ATLAS.ti Word Cloud – (N = 10)

Response	Frequency	ATLAS.ti
• Positive intervention	• 1	
• Positive experience	• 1	
• Very positive	• 1	
• Really good experience	• 1	
• Great experience	• 1	
• Absolutely valuable	• 1	
• Very interesting	• 1	
• Very enlightening	• 1	
• Improved self-awareness	• 1	
• Understanding breathing and emotion roles	• 1	
• Increased awareness of resilience	• 1	
• Coherence awareness	• 1	
• Increased awareness of coherence	• 1	
• Focus improved	• 2	
• Good headspace	• 1	
• Tackle tasks better	• 1	
• Focusing on positive experiences	• 1	
• Helpful in personal life	• 1	
• Quiet time	• 2	
• Grounded	• 1	
• Feels quite peaceful	• 1	
• Relaxing/comforting before bed	• 1	
• Recharged	• 1	
• Good for body, mind and spirit	• 1	
• Learning how sense of coherence/resilience/faith affects well-being and life	• 1	
• Realised need stronger faith	• 1	
• Focusing on Lord's love	• 1	

The following integrated experience of the intervention themes and bracketed sub-themes emerged:

- *positive experience*: responses such as very interesting, positive intervention, positive experience, very positive, really good experience, great experience, absolutely valuable;

- *experiential learning*: responses such as very enlightening, improved self-awareness, understanding breathing and emotion roles, increased awareness of resilience, coherence awareness, increased awareness of coherence;
- *positive outcomes*: responses such as focus improved, good headspace, tackle tasks better, focusing on positive experiences, helpful in personal life, quiet time, grounded, feels quite peaceful, relaxing/comforting before bed, recharged, good for body), faith growth (mind and spirit, learning how sense of coherence/resilience/faith affects well-being and life, realised need stronger faith, focusing on God's love.

4.4.2. Appreciation About the Intervention

Participant 1: That I was able to realise and grow stronger in my faithfulness to faith and the positive impact it has on our daily lives.

Participant 2: It had a calming effect on me.

Participant 3: That during this process my relationship made me feel closer to God, to understand that not only focusing on prayer is a way to feel and experience God's love.

Participant 4: The time-out it gave me, the sense of wellbeing and learning to breathe through difficult situations and focus on the positives rather than the negatives.

Participant 5: I appreciated the training to refocus and attempt the task with a better mind set.

Participant 6: I appreciate the positive mindset that comes as a result of carrying out the scans daily as well as the ability it has given me to not stay angry in situations where I do experience anger/frustration.

Participant 7: It has given me the tools to keep myself grounded and has taught me a technique to use when I am feeling over-whelmed, stressed or under pressure. I also appreciate that the intervention made me take time to appreciate what I have in my life and what makes me happy.

Participant 8: How it helped me understand the effects the above experiences has on your body and mind and ultimately on my daily life. Also, I appreciate how it made me more knowledgeable on how to control these 3 experiences.

Participant 9: Forced time for myself to recharge, an objective measure to quantify my feelings, strategies that can be used in stressful situation

independent of HeartMath tool, improved interoception and self-awareness, improved focus and ability to let things be as they are.

Participant 10: Simplicity and scalable. Anybody can do it and it leaves space for innovative practice.

Table 12. Appreciate About the Intervention – Appreciative Inquiry Thematic Content Analysis and ATLAS.ti Word Cloud – (N = 10)

Response	Frequency	ATLAS.ti
• Understanding coherence, resilience and faith impact	• 1	
• Improved interoception	• 1	
• Improved self-awareness	• 1	
• Managing coherence, resilience and faith	• 1	
• Simplicity	• 2	
• Measurable	• 2	
• Innovative practice	• 1	
• Improved focus	• 1	
• Refocus	• 1	
• Positive mindset	• 1	
• Focus on the positives	• 1	
• Stress management technique	• 2	
• Time-out	• 1	
• Grounding tools	• 1	
• Emotional regulation	• 1	
• Breathing through situations	• 1	
• Calming effect	• 1	
• Sense of well-being	• 1	
• Recharging	• 1	
• Time to appreciate life	• 1	
• Improved peace	• 1	
• Realised positive impact of faith	• 1	
• Stronger in faith.	• 1	
• In addition to prayer this is a way to feel and experience the Lord's love	• 1	
• Closer relationship with the Lord	• 1	

The following integrated appreciation themes and bracketed sub-themes emerged:

- *learning*: understanding coherence;
- *positive experience*: resilience and faith impact, improved interoception, improved self-awareness, managing coherence, resilience and faith,

simplicity, measurable, innovative practice, improved focus, refocus, positive mindset, focus on the positives, stress management technique, time-out, grounding tools, emotional regulation, breathing through situations, calming effect, sense of well-being, recharging, time to appreciate life, improved peace;

- *growth in faith*: positive impact of faith, stronger in faith, in addition to prayer this is a way to feel and experience God's love and a closer relationship with God.

4.4.3. How the Intervention can be Improved

Participant 1: Some days are busier than others. I was not able to complete all the days of the diary which made me feel guilty when coming to the days that I was able to do.

Participant 2: I do not think it needs to be improved.

Participant 3: From my side, spending more time actively experiencing these moments on a daily basis, especially during stressful and testing times. By allowing myself enjoy and focus more on those experiences without being distracted.

Participant 4: For me, I need to be more disciplined in taking the time to do it. This has nothing to do with the process as such. This is me taking more personal responsibility.

Participant 5: Possible additional notes or phrases to pop up for motivation during the data weeks sessions.

Participant 6: I feel that no improvement is required.

Participant 7: I do not have any suggestions for improvement. The intervention works well the way it is. My only recommendation if I had to choose anything would be to make it over a shorter period for example 8 weeks rather than 12.

Participant 8: I did not have any issues at all. I found it very easy to use and straight forward. It was a pleasure!

Participant 9: I feel that I did not have enough focus on the breathing rate and I found that using a metronome gave me a significant breakthrough. I enjoyed working on the feeling states however found that my coherence was generally limited to around 3-4 on average if I did not pay attention to the breathing. The pacer is useful. However, staring at a phone screen detracts from the experience and feeling states and takes away the interoceptive element. A sound timer or metronome set to 5/4 time I found to be really helpful as this becomes automatic

allowing focus on the feeling state. Also, I was not initially aware that there was a lag between HRV and coherence. When starting out I was watching my coherence score dropping when I felt like I was doing well and my HRV was looking good. This was frustrating and confusing – if this had been more overt it would have been helpful.

Participant 10: More visual stimulation might be good. Would like to see how an activity plus breathing works – Something like yoga & breathing.

Table 13. How the Intervention Could be Improved – Appreciative Inquiry Thematic Content Analysis and ATLAS.ti Word Cloud – (N = 10)

Response	Frequency	ATLAS.ti
<ul style="list-style-type: none"> • Busyness affected practice • No improvement needed • Personally spend more time on it • Enjoy and focus on it more • Motivation prompts • More visual stimulation • Activity like yoga & breathing • Pay more attention to the breathing • Metronome focused breathing rate • Knowing lag between HRV and coherence • 8 week intervention instead of 12 	<ul style="list-style-type: none"> • 1 • 5 • 2 • 1 • 1 • 1 • 1 • 1 • 2 • 1 • 1 	

The following integrated improvement themes and bracketed sub-themes emerged:

- *Awareness:* busyness affected practice; one should spend more time on it, focus on it more and enjoy it more; pay more attention to the breathing;

- *no improvement needed*
- *possible adaptations*: motivation prompts; more visual stimulation; activities such as yoga and breathing; the use of a metronome to focus the breathing rate; understanding the lag between HRV and coherence; 8 week intervention rather than 12.

4.4.5. Appreciative Inquiry Design Results Discussion

Appreciative inquiry results revealed, in relation to experiences of the intervention, that participants had positive outcomes in terms of: improved focus; being in a better headspace; better able to deal with tasks; greater focus on positives; feeling more grounded; feeling more peaceful and relaxed; recharging and being healthier; growing in faith and having a better mind-spirit connection; learning how SOC/resilience/faith affects well-being and life; realising the benefits of a stronger faith and focus on God's love.

Appreciation about the intervention was expressed. It was seen as a positive experience in terms of: impact on resilience and faith, improving interoception and self-awareness, managing coherence, simplicity, measurability, innovative practice, improving focus and ability to refocus, positive mindset, emotional regulation and as stress management technique, breathing through situations, calming effect, sense of well-being, recharging, time to appreciate life and improving peace; and faith growth in connection with realising positive impact of faith, stronger in faith, in addition to prayer this was a way to feel and experience

God's love, and establish a closer relationship with God (see Fowler, 1981; Streib, 2003; Fowler et al., 2004).

Many of the participants thought the intervention should remain the same. Some suggested adaptations such as: motivation prompts and more visual stimulation could be added, it could be combined with activity like yoga and breathing, using a metronome focused breathing rate, knowing from the onset the lag between HRV and coherence, and that the intervention could be eight weeks instead of 12. In terms of this final suggestion, research had been undertaken for example on one minute deep breathing assessment and its relationship to 24-hour HRV measurements (McCraty et al., 2018).

The results attest to the value of appreciative inquiry in evaluating interventions (Cooperrider 1986; cf Cooperrider & Srivastva, 1987; cf Boyd & Bright, 2007:1019; Moore, 2008:214; Whitney et al., 2019:163-166; Merriel, et al, 2022:1). The results supported the previous HeartMath research where there were positive participant evaluations for research on: physiological coherence, sense of coherence, general health, mindfulness and spirituality (Edwards, 2013) and influence of HeartMath training programme on physiological and psychological variables of HRV, sense of coherence, mindfulness and relaxation (Field et al., 2017/2018:126).

Based on the initial quasi-experimental study and case study process evaluation, together with this positive appreciative inquiry, suggests that HeartMath has the potential to be used as a pastoral care and counselling intervention. However, as research in this area is not yet substantial, the recommendation of this initial study would be that larger sample, experimental designs in this regard be undertaken and include covering various practical theology focus areas.

4.5. Summary

This chapter focused on the results from the triangulated research, which were separated into quasi-experimental, case study and appreciative inquiry designs with discussion under each study component. There were post-intervention quantitative positive improvements on the BRS and SCSRFQ total scores but not on the SOC, and qualitatively on sense of coherence, resilience and faith integrated themes and subthemes. Case study results indicated causal, correlational and relationship underlying mechanisms of change. Appreciative inquiry results revealed the intervention was positively evaluated in terms of experience and appreciation with potential areas for improvement expressed. The final chapter focuses on the integrated discussion and conclusion.

CHAPTER 5

INTEGRATED DISCUSSION AND CONCLUSION

5.1. Introduction

This integrated discussion and conclusion chapter focuses on the effect of a HeartMath intervention on faith following a traumatic experience; HeartMath as a pastoral care and counselling intervention; relationship between coherence, resilience and faith; methodological critique; conclusion; limitations; dissemination of results; and recommendations.

5.2. Effect of a HeartMath Intervention on Faith Following a Traumatic Experience

As expected, the HeartMath intervention had a quasi-experiential post-intervention positive effect on both the quantitative The Santa Clara Strength of Religious Faith Questionnaire total score as well as qualitative experiences of faith in terms of growth in spirituality and religious belief (see Fowler, 1981; Streib, 2003; Fowler et al., 2004). In terms of triangulation, this was supported by both the case study and appreciative inquiry integrated themes and subthemes.

The three theological areas of spirituality, faith and religion are inter-related and overlapping (Gall et al., 2011:180; cf Gschwandtner, 2021). These results therefore support previous research on the effect of a HeartMath intervention on spirituality (Edwards, 2013, 2014a:236).

In terms of the relational mechanisms of change, case study themes of awareness, connectivity, integration, remarkability and heart-warming, understood these changes via integral theory (Wilber, 1997, 2000, 2005, 2007) and through HeartMath practice (Institute of HeartMath, 2014). The effect of a HeartMath intervention on faith might be both directly and indirectly related, where improving coherence and/or resilience, could then have a positive impact on faith. There was a post-intervention improvement in Brief Resilience Scale total score, but not Sense of Coherence Scale total score although various other studies (Field et al., 2017/2018:126; cf Edwards, 2013, 2014a:236; Field, 2017:3) have demonstrated this, and positive changes in coherence and resilience integrated themes and sub-themes across quasi-experimental, case study and appreciative inquiry results.

5.3. HeartMath as a Pastoral Care and Counselling Intervention

Based on the integrated quantitative results and qualitative themes and subthemes, from the triangulated design, there seems to be enough evidence to support that HeartMath has the potential to be used as a pastoral care and counselling intervention. In terms of HeartMath intervention applicability, for instance:

- firstly, it focuses on the area of spirituality (Institute of HeartMath, 2014);
- secondly, in practice, pastoral care and counselling centres on the whole person (see Foskett & Lynch, 2001; Day, 2006), and HeartMath is

integrative in terms of physical, mental, emotional and spiritual dimensions (McCraty & Childre, 2010:14);

- thirdly, HeartMath is practiced globally (McCraty et al., 2012:67; cf McCraty et al., 2018:42), with this being imperative as pastoral care and counselling is multi-faith orientated and cross-cultural (Lartey, 2002);
- fourthly, it is valuable for pastoral care and counsellors to demonstrate and practice the HeartMath techniques with those being cared for, as therapist heart rhythm coherence has been shown to be a necessary part of effective treatment (Bishop & Martin, 2015);
- fifthly, for example, Christian faith needs to be a living relationship with God (Oliver, 2021:41) and the heart is at the centre of connectedness, is central to faith (McCraty & Rees, 2009), is the human organ of spiritual perception (Bourgeault, 2016), as well as being linked with spiritual, religious and faith experiences, and vice versa (Anderson, 2020);
- sixthly, as a physiological approach (Institute of HeartMath, 2014), HeartMath devices are non-invasive with an accurate comparison being smart watches, which collect heart rate and other biofeedback information – this has value for all persons including those who have difficulty engaging in pastoral care and counselling talking therapies such as: psychodynamic (Jung, 1963), person-centered (Rogers, 1980), cognitive behavioural (Flynn & Ricks, 2014), religion-adapted cognitive behavioural therapy (de Abreu Costa, & Moreira-Almeida, 2022), contemplative prayer

in therapy (Rajski, 2003:181) and transpersonal (Sutherland, 2001; see Dwight, 2011);

- lastly, it is a cost-effective intervention – this has been shown in the study on coherence and health care cost for clergy by Bedell and Kaszkin-Bettag (2010).

5.4. Relationship between Coherence, Resilience and Faith

Whilst not an initial objective, the results also attested to coherence, resilience and faith (see Schwalm et al., 2021:1) being inter-related and overlapping areas. This was supported by both the Spearman's correlation, which revealed various SOC items correlated with BRS and SCSRFQ items, and triangulated quasi-experimental, case study and appreciative inquiry inter-related and overlapping experiences of sense of coherence, resilience and faith integrated themes and sub-themes.

The results also demonstrate the relational three theological areas of spirituality, religion and faith (Gall et al., 2011:180; cf Gschwandtner, 2021), which has pastoral care and counselling value, as a HeartMath intervention focusing on one of these areas could have a positive effect on the others.

5.5. Methodological Critique

The strength of the study was the triangulation, and that a quasi-experimental, case study and appreciative inquiry design could be completed as part of one

thesis, as well as the mixed quantitative and qualitative research methods and techniques. In terms of paradigms, there was a combination of positivist and interpretive ontology, epistemology and methodology. In terms of reflexivity, the thesis conception developed out of my practice in psychology over the last two decades and how often after traumatic experiences clients would speak about the impact this had on areas such as faith. In 2015, I completed the HeartMath Coach Mentor Programme to become a Licenced HeartMath Coach. There was a focus on avoiding preconceived ideas about the results and instead concentrating on the participant responses. The aim of using the triangulated design was to make full use of and provide a deeper understanding of the quantitative data and qualitative information. Validity and credibility were via the consistent quantitative and qualitative results, through the use of SPSS quantitative and ATLAS.ti qualitative data analysis computer software packages, consensual validation by participants and external researchers, and audit trails. Reliability and dependability were evidenced in the triangulation within sample, quasi-experimental, case study and appreciative inquiry results, however externally this should be tested with larger sample sizes. The aim of the study was not to generalise the results. For that, the sample size was too small. This this small sample, the goal was to provide a perspective on the possible benefits and usefulness of the method for a pastoral care and counselling environment.

5.6. Conclusion

In conclusion, based on the triangulated quasi-experimental, case study and appreciative inquiry design, there seems to be sufficient quantitative and qualitative evidence to firstly, support that a HeartMath intervention could have a positive effect on faith following a traumatic experience. It is valuable for these experiential interventions to include components of physiological coherence, sense of coherence, resilience and faith. Due to overlapping theological areas, these interventions are also applicable to spirituality and religiosity. Secondly, HeartMath has potential to be utilised as a pastoral care and counselling intervention. It is a cost-effective, non-invasive intervention that can be used on its own or in combination with various cognitive and other physiological approaches. It has the potential for real individual, social and global change.

5.7. Limitations

There a number of acknowledged limitations. Firstly, the sample size was small, however this was justified due to the mixed quantitative and qualitative research methods and techniques. Such mixed methods designs are powerful in investigating complex processes (Fetters et al., 2013:2134). A perceived limitation could be that the case study data was only collected from a smaller group of five selected participants from the original sample. However, they were chosen based on their willingness to describe, in more detail, including their experiences of sense of coherence, resilience, faith and HeartMath, before, during and after the intervention, and their experiences of the HeartMath

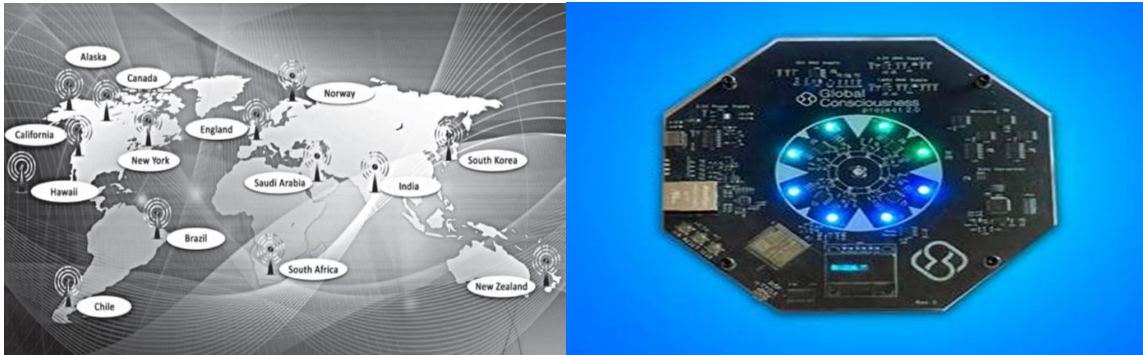
intervention. Secondly, due to the COVID-19 pandemic commencing just after data collection had started, the data collection period was undertaken over a period of nearly two and half years. The COVID-19 pandemic had an impact on the ability to collect the data due to lockdowns and alert levels. Research data was collected with adherence to these levels and PPE equipment used as necessary, and data collected electronically and through paper format as required.

5.8. Dissemination of Results and Recommendations

The objective was to provide feedback to participants and the wider scientific community on a HeartMath intervention and faith following a traumatic experience, which could have practical theological, in general, and specifically pastoral care and counselling implications.

As research in this area has not been completed before, standard recommendations are that larger sample, experimental designs in this regard be undertaken. Individually and socially, this could be measured via HeartMath emWave Pro, emWave2 and Inner Balance devices that can be used to measure physiological coherence (Edwards et al., 2022:7). Globally, as per Diagrams 11 and 12, this could be measured via the GCI monitoring sites (McCraty & Childre, 2010:10; cf McCraty et al., 2012:67; McCraty et al., 2018:42; Edwards, 2020a:1; Edwards & Edwards, 2021b:626) and/or new Global Consciousness Project Octagon Device.

Diagram 11: GCI Monitoring Sites, and Diagram 12: GCP Octagon Device



Many of the participants thought the intervention should remain the same with possible adaptations being: motivational prompts, more visual stimulation, being combined with activities like yoga, using a metronome for breathing rate, knowledge of the lag between HRV and coherence, and the intervention could have varying durations.

HeartMath pastoral care and counselling interventions should focus on different areas, for example HeartMath interventions have facilitated health improvements in patients with: hypertension, arrhythmias, autoimmune disorders, environmental sensitivity, sleep disorders, drug and alcohol addiction, anger, heart failure, chronic pain, fibromyalgia, chronic fatigue, anxiety disorders, depression, PTSD, ADD/ADHD and eating disorders (McCraty, 2015:53).

Based on the convergence model, juxtaposition and structural uniformity models, theology and psychology can exist alongside one another, move towards a

common invisible point or be indistinguishable (Capps, 2014a) and, due to the need for, it would be valuable for practical theology care and counselling to be included in psychology training programmes (Hage, 2006:308).

This study focused on the effectiveness of a HeartMath intervention on faith following a traumatic experience and HeartMath's potential as a pastoral care and counselling intervention. It discussed the inter-related and overlapping relationship between coherence, resilience and faith.

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APPENDICES

APPENDIX A

Department – Practical Theology



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Theology and Religion

LETTER OF INTRODUCTION AND INFORMED CONSENT FOR PARTICIPATION IN ACADEMIC RESEARCH

Title of The Study:

Evaluation of a HeartMath intervention and faith following a traumatic
experience

Researcher:

This research will be conducted by Prof. D.J Edwards, and is promoted by
Prof. Y Dreyer and Prof. B.J.M Steyn

You may ask any questions about the study. Prof. D.J. Edwards is available on
edwards.davidjohn@gmail.com

-
- You are cordially invited to participate in an academic research study due to your experience and knowledge in the research area, namely trauma and faith. Each participant must receive, read, understand and sign this document *before* the start of the study.
 - **Purpose of the study:** The purpose of the study is to evaluate a HeartMath (<https://www.heartmath.org/>, <http://www.heartmath.com/>, <https://www.heartmathsouthafrica.co.za>) intervention and faith following a traumatic experience. The results of the study will be submitted for publication in the following formats: thesis, academic journals and

conferences outputs. You will be provided with a summary of our findings on request. No participants' names will be used in the final publication.

- **Duration of the study:** The study will be conducted over a period of three years with intervention taking three months and its projected date of completion being 2021.
- **Research procedures:** The study is based on the area of HeartMath. If you choose to partake in the research, you will serve as your own control and be asked to complete pre-test, re-test and post-test quantitative and qualitative measurements, with semi-structured interviews audio recorded with consent. Measurements will include the inner balance (<https://www.heartmathsouthafrica.co.za/product/inner-balance-for-ios-lightning-pin-sensor/>), with a sensor attached to your earlobe and connected to a phone (which collects the data), which measures time elapsed, achievement score, average coherence, and low, medium and high levels of physiological coherence. HeartMath devices are non-invasive with an accurate comparison being smart watches, which collect heart rate and other biofeedback information.
- **What is expected of you:** The intervention will involve experiential learning of 1) resilience and the four domains of physical, emotional, mental and spiritual resilience, 2) inner battery, energy draining and energy renewing situations, and depletion to renewal grid, 3) physiological coherence, sense of coherence and intuition, 4) prep, shift, reset and sustain, and 5) heart-focused breathing, quick coherence, inner-ease, freeze frame and heart-lock techniques. You will then be asked to practice these techniques over a 12 week period whilst using an inner apparatus. You will be asked to keep a diary of your energy draining and energy renewing situations, HeartMath training, and sense of coherence, resilience and faith experiences as well as location on the depletion to renewal grid.
- **Your rights:** Your participation in this study is very important. You may, however, choose not to participate and you may also stop participating at any time without stating any reasons and without any negative consequences, however if you decide to withdraw you are requested to submit the notice in writing. The relevant data and information will be deleted and destroyed, should you choose to withdraw.
- You, as participant, may contact the researcher at any time in order to clarify any issues pertaining to this research. The participant as well as the researcher must each keep a copy of this signed document.
- **Confidentiality:** Participants will be allocated a participant number to ensure anonymity and confidentiality. Consent forms, quantitative data and

qualitative information will be kept separately. All statistical data, and transcribed and thematic information will be securely stored on a password protected research computer and in a locked filing cabinet, kept for 10 years then will be securely deleted and destroyed. Only the researcher and promoters will have access to the raw data. Data and information will be presented anonymously and confidentially in thesis, journal article and conference output formats. You are free to withdraw at any stage of the process.

- **Remuneration:** No money / fees gifts or any form of reward will be awarded / offered / can be expected by co researchers / respondents / participants at any time during the research.

WRITTEN INFORMED CONSENT

I hereby confirm that I have been informed about the nature of this research. I understand that I may, at any stage, without prejudice, withdraw my consent and participation in the research. I have had sufficient opportunity to ask questions.

Respondent: _____

Researcher: _____

Date: _____

Contact email of the researcher: edwards.davidjohn@gmail.com

VERBAL INFORMED CONSENT *(Only applicable if respondent cannot write)*

I, the researcher, have read and have explained fully to the respondent, named _____ and his/her relatives, the letter of introduction. The respondent indicated that he/she understands that he/she will be free to withdraw at any time.

Respondent: _____

Researcher: _____

Witness: _____

Date: _____

APPENDIX B

Department – Practical Theology



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Theology and Religion

Biographical Information

Participant code:

Age:

Gender (eg. male, female):

Ethnicity (e.g. Black, White, Coloured, Asian):

Educational level (eg. highest qualification):

Years of experiencing faith:

APPENDIX C

The Sense of Coherence Scale

Circle the number that best describes your present agreement or disagreement with each statement

1. Do you have the feeling that you don't really care about what goes on around you?	1 Very seldom or never	2	3	4	5	6	7 Very often
--	---------------------------	---	---	---	---	---	-----------------

2. Do you have the feeling that you're being treated unfairly?	1 very often	2	3	4	5	6	7 very seldom or never
3. Do you have the feeling that you are in an unfamiliar situation and don't know what to do?	1 very often	2	3	4	5	6	7 very seldom or never
4. Doing the things you do every day is:	1 a source of deep pleasure and satisfaction	2	3	4	5	6	7 a source of pain and boredom
5. Do you have very mixed-up feelings and ideas?	1 very often	2	3	4	5	6	7 very seldom or never
6. Does it happen that you have feelings inside that you would rather not feel?	1 very often	2	3	4	5	6	7 very seldom or never
7. Many people – even those with a strong character – sometimes feel like losers in certain situations. How often have you felt this way in the past?	1 never	2	3	4	5	6	7 very often
8. How often do you have the feeling that there's little meaning in the things you do in your daily life?	1 very often	2	3	4	5	6	7 very seldom or never
9. How often do you have feelings that you're not sure you can keep under control?	1 very often	2	3	4	5	6	7 very seldom

APPENDIX D

The Brief Resilience Scale

Instructions: Use the following scale and circle one number for each statement to indicate how much you disagree or agree with each of the statements.

1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly Agree

1. I tend to bounce back quickly after hard times.	1	2	3	4	5
2. I have a hard time making it through stressful events	1	2	3	4	5
3. It does not take me long to recover from a stressful event	1	2	3	4	5
4. It is hard for me to snap back when something bad happens	1	2	3	4	5
5. I usually come through difficult times with little trouble	1	2	3	4	5
6. I tend to take a long time to get over set-backs in my life	1	2	3	4	5

APPENDIX E

The Santa Clara Strength of Religious Faith Questionnaire

Please indicate level of agreement with the following faith statements where 1 = strongly disagree, 2 = disagree, 3 = agree and 4 = strongly agree

Circle the number that best describes your present agreement or disagreement with each statement	Strongly Disagree	Disagree	Agree	Strongly Agree
1. My religious faith is extremely important to me.	1	2	3	4
2. I pray daily.	1	2	3	4
3. I look to my faith as a source of inspiration.	1	2	3	4
4. I look to my faith as providing meaning and purpose in my life.	1	2	3	4

5. I consider myself active in my faith or church.	1	2	3	4
6. My faith is an important part of who I am as a person.	1	2	3	4
7. My relationship with God is extremely important to me.	1	2	3	4
8. I enjoy being around others who share my faith.	1	2	3	4
9. I look to my faith as a source of comfort.	1	2	3	4
10. My faith impacts many of my decisions.	1	2	3	4

APPENDIX F

Diary

Over the 12 weeks keep a detailed record of your energy draining and energy renewing situations, HeartMath training, and sense of coherence, resilience and faith experiences as well as location on the depletion to renewal grid.

Week/ Day	Energy draining and energy renewing situations	Physiological Coherence						Experience of sense of coherence	Experience of resilience	Experience of faith	Location on the depletion to renewal grid
		Low Score	Med Score	High Score	Length of session	Coherence	Achievement				
Week 1											
Monday											
Tuesday											
Wednesday											
Thursday											
Friday											
Saturday											
Sunday											
Week 2											
Monday											
Tuesday											
Wednesday											
Thursday											
Friday											
Saturday											
Sunday											
Week 3											
Monday											
Tuesday											
Wednesday											

Thursday											
Friday											
Saturday											
Sunday											
Week 4											
Monday											
Tuesday											
Wednesda y											
Thursday											
Friday											
Saturday											
Sunday											
Week 5											
Monday											
Tuesday											
Wednesda y											
Thursday											
Friday											
Saturday											
Sunday											
Week 6											
Monday											
Tuesday											
Wednesda y											
Thursday											
Friday											
Saturday											
Sunday											
Week 7											
Monday											
Tuesday											
Wednesda y											
Thursday											
Friday											
Saturday											
Sunday											
Week 8											
Monday											
Tuesday											
Wednesda y											
Thursday											
Friday											
Saturday											
Sunday											
Week 9											
Monday											
Tuesday											
Wednesda y											
Thursday											
Friday											
Saturday											
Sunday											
Week 10											

Monday											
Tuesday											
Wednesday											
Thursday											
Friday											
Saturday											
Sunday											
Week 11											
Monday											
Tuesday											
Wednesday											
Thursday											
Friday											
Saturday											
Sunday											
Week 12											
Monday											
Tuesday											
Wednesday											
Thursday											
Friday											
Saturday											
Sunday											

APPENDIX G

Sense of Coherence Experience

Pre-test: Describe your experience of sense of coherence.
 Re-test: Describe your experience of sense of coherence.
 Post-test: Describe your experience of sense of coherence.

Resilience Experience

Pre-test: Describe your experience of resilience.
 Re-test: Describe your experience of resilience.
 Post-test: Describe your experience of resilience.

Faith Experience

Pre-test: Describe your experience of faith.
 Re-test: Describe your experience of faith.
 Post-test: Describe your experience of faith.

APPENDIX H

Case Study Questionnaire Questions

Describe your experience of HeartMath before the intervention?

Describe your experience of sense of coherence before the intervention?

Describe your experience of resilience before the intervention?

Describe your experience of faith before the intervention?

Describe your experience of HeartMath during the intervention?

Describe your experience of sense of coherence during the intervention?

Describe your experience of resilience during the intervention?

Describe your experience of faith during the intervention?

Describe your experience of HeartMath after the intervention?

Describe your experience of sense of coherence after the intervention?

Describe your experience of resilience after the intervention?

Describe your experience of faith after the intervention?

Describe in more detail your experience of the HeartMath intervention?

APPENDIX I

Intervention Experience

Post-test: How did you experience the intervention?

Post-test: What did you appreciate about the intervention?

Post-test: How did you think the intervention could be improved?

APPENDIX J

Quantitative Data

Participant (Pre-test)	SOC1	SOC2	SOC3	SOC4	SOC5	SOC6	SOC7	SOC8	SOC9	SOC10	BRS1	BRS2	BRS3	BRS4	BRS5	BRS6	BRS7	RFQ1	RFQ2	RFQ3	RFQ4	RFQ5	RFQ6	RFQ7	RFQ8	RFQ9	RFQ10	RFQ11	RFQ12	Coh	Ach	Low	Med	High	
1	7	7	7	6	6	4	3	6	6	52	4	4	4	4	4	4	24	4	3	3	4	3	4	4	4	3	3	3	35	2.9	168	0	3	97	
2	1	5	5	6	7	6	3	6	5	44	4	3	4	3	4	4	22	3	3	3	3	2	3	3	3	3	3	29	3.4	237	0	3	97		
3	6	3	4	4	4	3	4	4	3	35	3	2	4	2	2	1	14	4	3	3	3	3	4	4	3	3	3	33	2.1	116	7	18	75		
4	7	3	4	2	3	2	1	1	2	25	2	2	2	3	2	4	15	3	3	2	2	3	3	3	4	3	2	28	1.4	80	18	25	67		
5	6	5	2	5	5	3	4	3	5	38	4	2	2	2	3	4	19	3	2	3	2	2	3	3	3	3	2	26	1.1	68	27	17	56		
6	7	6	6	5	5	5	6	5	7	52	5	4	4	2	4	2	21	2	1	2	2	1	2	2	3	2	2	19	1.3	70	22	16	62		
7	6	6	6	3	6	4	3	3	7	44	5	4	4	4	4	5	26	3	2	3	3	4	4	1	4	4	3	31	1.8	101	11	12	77		
8	6	7	7	4	6	6	5	6	7	54	4	3	4	5	4	3	23	3	2	2	3	2	2	3	2	2	3	24	1.9	109	0	16	84		
9	6	5	5	5	2	4	4	5	5	41	4	3	4	4	3	5	23	2	1	1	1	1	1	1	1	1	1	13	1.4	89	8	29	63		
10	6	6	6	5	5	6	6	5	7	52	5	5	4	4	4	5	27	3	2	4	3	1	3	3	1	4	3	27	1.3	85	16	17	67		
										437							214											265	18.6	1123	109	156	745		
Re-test																																			
1	7	7	7	6	6	6	4	7	6	56	5	4	5	4	5	5	28	4	3	4	4	3	4	4	3	3	3	36	2.2	142	0	22	78		
2	7	6	6	6	6	6	5	7	7	56	4	4	4	4	4	5	25	3	3	3	3	3	3	3	3	3	3	30	0.9	36	33	18	49		
3	5	5	4	4	4	3	4	5	4	38	3	2	2	3	3	3	16	3	3	3	3	3	3	3	3	3	3	30	1.7	98	0	23	77		
4	7	5	4	2	5	2	1	7	7	40	4	3	3	3	3	3	19	3	3	2	2	3	3	3	3	3	2	27	0.8	46	30	34	36		
5	6	6	2	6	5	3	3	5	3	39	2	2	2	2	2	12	3	2	3	2	2	3	3	3	3	2	2	25	0.9	48	26	35	39		
6	7	7	6	5	6	7	6	6	7	57	5	5	5	5	5	5	30	3	2	2	2	2	3	2	3	2	2	23	2.8	156	9	13	78		
7	7	7	5	2	6	5	5	6	7	50	5	5	5	5	5	4	29	4	1	3	3	4	4	4	3	4	3	33	1.7	119	10	16	74		
8	6	6	7	6	6	7	6	7	7	58	5	4	4	4	5	5	27	3	2	3	2	3	3	2	3	2	3	26	1.8	144	10	15	75		
9	6	5	6	4	2	3	4	3	5	38	4	3	3	2	3	4	19	2	1	2	2	1	2	2	3	2	2	19	1	69	21	36	43		
10	6	7	7	5	6	6	5	6	7	55	5	5	5	5	4	5	29	4	3	3	4	2	3	3	2	3	4	31	1.3	75	14	23	63		
										431							234											280	15.1	933	153	235	612		
Post-test																																			
1	7	7	6	6	6	6	5	6	6	55	5	5	4	4	4	5	27	4	4	3	3	3	4	4	4	3	3	35	1.8	103	0	18	82		
2	3	5	4	6	3	4	4	6	5	40	4	4	4	4	3	4	23	3	3	3	3	3	3	3	3	3	3	30	2.3	116	4	14	82		
3	6	5	5	5	4	3	4	5	5	42	3	3	3	3	2	3	17	3	3	3	3	3	3	3	4	3	3	31	1.7	100	0	29	71		
4	6	6	3	2	4	3	3	6	5	38	4	3	4	3	4	3	21	4	3	2	2	3	3	3	4	3	2	29	1.8	101	7	23	70		
5	6	6	4	6	6	6	6	5	5	50	4	4	4	4	3	5	24	3	2	3	3	2	3	3	3	3	3	28	5.2	288	0	0	100		
6	7	1	1	6	1	7	7	7	7	44	5	5	5	5	5	5	30	2	2	2	2	2	2	3	3	2	2	22	4.4	324	0	0	100		
7	7	7	6	5	7	6	5	6	5	54	5	4	5	4	4	5	27	4	4	4	4	4	4	4	4	4	4	40	4.6	294	0	0	100		
8	7	6	6	6	7	7	6	7	7	59	5	4	5	4	5	4	27	2	2	2	2	2	3	2	2	3	3	23	4.6	260	0	0	100		
9	6	6	2	5	3	5	6	7	3	43	4	4	3	3	3	4	21	1	1	1	1	1	1	1	1	1	1	12	5.3	701	0	0	100		
10	7	7	7	6	6	7	6	6	7	59	5	4	5	5	4	5	28	4	3	3	3	2	3	4	2	4	3	31	4.6	283	0	0	100		

APPENDIX K

Diaries

Participant 1

Week/Day	Energy draining and energy renewing situations	Physiological Coherence						Experience of sense of coherence	Experience of resilience	Experience of faith	Location on the depletion to renewal grid
		Low Score	Med Score	High Score	Length of session	Coherence	Achievement				
Week 1											
Monday											
Tuesday											
Wednesday											
Thursday											
Friday											
Saturday	moving house	10	15	75	05:23	2.4	148	Experienced a small sense of coherence	resilience was low	faith was high	top left
Sunday	moving house	0	3	97	05:20	2.8	166	Felt coherent	Resilience was average	faith was high	Bottom right

Week 2											
Monday	moving house	15	39	46	05:02	1.1	62	low	low	average	top left
Tuesday											
Wednesday											
Thursday	moving house	16	27	57	05:00	1.1	60	low	low		
Friday	moving house/feeling positive	7	15	78	05:15	2.4	122	high	high	high	bottom right
Saturday											
Sunday											
Week 3											
Monday	Worried about passport	33	38	29	05:25	0.9	56	low	low	low	bottom left
Tuesday	Moving/passport	1	2	97	05:15	1.9	115	medium	medium	high	top left
Wednesday	Waiting for passport	4	10	86	05:21	3.3	195	low	low	Tried to maintain faith	Top left
Thursday											
Friday											
Saturday											
Sunday											
Week 4											
Monday	Tired from Traveling	11	26	63	05:04	1.5	80	low	low	Tried to maintain positive faith	Top Left
Tuesday											
Wednesday											
Thursday	Feeling settled and happy to have help	2	0	98	05:04	2.7	166	high	high	Maintained positive faith	Top Left
Friday											
Saturday											
Sunday											
Week 5	Quiet time and positive affirmations	0	2	98	04:53	4.9	267	High	High	High	Top Right
Monday											
Tuesday											
Wednesday											
Thursday	Being busy with no time to rest	19	32	49	05:24	1.1	65	average	low	maintained faith	Bottom Left
Friday											
Saturday											
Sunday											

Week 6											
Monday											
Tuesday											
Wednesday	Thinking about long flight to come	7	18	75	04:54	2.0	108	Medium	Medium	High	Top Right
Thursday											
Friday	Being with friends and family	11	21	68	05:17	1.4	78	High	High	Had a good sense of faith	Top Right
Saturday											
Sunday											
Week 7											
Monday											
Tuesday	Having quiet time, but being disturbed by children	11	21	68	06:34	1.6	107	High	High	Had a deep sense of faith	Top Right
Wednesday											
Thursday											
Friday	Woke with a sense of calm	0	0	100	05:01	4.1	243	High	High	High	Top Right
Saturday											
Sunday											
Week 8											
Monday	Packing Day	5	28	67	05:02	1.3	68	Medium	Medium	Had some sense of faith	Bottom Right
Tuesday	Travelling Day	14	27	59	05:02	1.4	80	Medium	Low	High	Top Right
Wednesday											
Thursday											
Friday											
Saturday											
Sunday											
Week 9											
Monday	Being together as a family	0	2	98	05:08	3.4	199	High	High	Strong sense of faith	Top Right
Tuesday											
Wednesday	Sense of happiness of those around me	2	10	88	05:05	1.8	101	High	High	Strong sense of faith	Bottom Right
Thursday	Making our new country	2	0	98	05:02	5.0	291	High	High	High	Top Right

	a home										
Friday											
Saturday											
Sunday											
Week 10											
Monday											
Tuesday	Feeling tired, but happy to be together with family	17	16	67	05:25	1.4	82	Medium	Medium	I had a sense of faith	Bottom Right
Wednesday											
Thursday	Feeling togetherness with my husband	4	3	93	05:01	2.5	146	high	high	high	Top Right
Friday											
Saturday											
Sunday											
Week 11											
Monday											
Tuesday	Hearing the enjoyment/happiness of my children	1	3	96	06:04	4.0	287	High	High	High Sense of faith	Top Right
Wednesday	Feeling a sense of calm	0	2	98	05:05	3.5	205	High	High	High	Top Right
Thursday											
Friday	Feeling loved	0	2	98	05:37	4.8	318	High	High	Strong sense of faith	Top Right
Saturday											
Sunday											
Week 12											
Monday	Feeling love and happiness with family	1	2	97	05:25	3.7	218	High	High	High Sense of faith	Top Right
Tuesday											
Wednesday											
Thursday	Sense of Acceptance and happiness	0	0	100	05:09	5.6	333	High	High	High	Top Right
Friday											
Saturday											
Sunday											

Participant 2

Week/ Day	Energy draining and energy renewin g situation s	Physiological Coherence						Experienc e of sense of coherence	Experienc e of resilience	Experienc e of faith	Location on the depletio n to renewal grid
		Low Scor e	Med Scor e	High Scor e	Length of session	Coherenc e	Achieveme nt				
Week 1											
Monday	Happy	5	4	91	4:49	2.1	113	Good	Good	Good	Bottom Right
Tuesday	Anxious	0	0	100	3:44	3.8	157	Amazing	High	High	Top Right
Wednesday	Anxious/ Stressed	0	11	89	7:51	3.1	200	Good	Good	Good	Bottom Right
Thursday											
Friday											
Saturday											
Sunday											
Week 2											
Monday											
Tuesday	Content	13	48	39	3:58	0.9	41	Ok	Ok	Ok	Bottom Right
Wednesday											
Thursday											
Friday	Calm	7	13	80	4:05	1.8	84	Good	High	Great	Top Right
Saturday											
Sunday											
Week 3											
Monday											
Tuesday	Happy	0	15	85	4:42	1.9	100	Good	Good	Good	Bottom Right
Wednesday											
Thursday	Burnout	2	23	75	5:02	1.9	106	Good	High	Good	Bottom Right
Friday											
Saturday											
Sunday											
Week 4											
Monday											
Tuesday	Excited	10	23	67	5:03	1.9	106	Good	Good	Good	Bottom Right
Wednesday	Content	2	2	96	4:09	3.7	170	Good	High	Good	Bottom Right
Thursday											
Friday											
Saturday											
Sunday											
Week 5											
Monday	Excited	0	0	100	4.41	3.6	189	Amazing	Amazing	Excellent	
Tuesday											
Wednesday	Tired	0	0	100	4:17	3.0	144	Great	High	Good	Bottom Right

Thursday											
Friday											
Saturday											
Sunday											
Week 6											
Monday	Happiness	0	4	96	4:12	2.4	114	Great	High	Good	Bottom Right
Tuesday											
Wednesday											
Thursday	Happy	0	0	100	4:44	2.5	133	Good	Good	Excellent	Bottom Right
Friday											
Saturday											
Sunday											
Week 7											
Monday											
Tuesday	Frustrated	0	0	100	4:44	2.9	156	Great	High	Great	Top Right
Wednesday											
Thursday	Content	0	2	98	5:50	4.6	268	Good	Good	Good	Bottom Right
Friday											
Saturday											
Sunday											
Week 8											
Monday											
Tuesday	Happy	2	23	75	4:42	2.7	144	Good	Good	Good	Bottom Right
Wednesday											
Thursday	Happy	0	0	100	4:28	3.8	188	Amazing	High	Great	Bottom Right
Friday											
Saturday											
Sunday											
Week 9											
Monday	Fulfilled	5	17	78	3:47	1.8	74	OK	Good	Good	Bottom Right
Tuesday											
Wednesday											
Thursday											
Friday											
Saturday	Happy	8	32	60	5:22	1.7	104	OK	Good	Good	Top Left
Sunday											
Week 10											
Monday											
Tuesday	Happy	0	12	88	4:36	2.3	120	Good	Good	Good	Bottom Right
Wednesday	Content	0	2	98	4:14	3.1	151	Good	Good	Good	Bottom Right
Thursday											
Friday											
Saturday											
Sunday											
Week 11											
Monday											
Tuesday	Content	10	43	47	4:27	1.3	64	OK	OK	Good	Bottom

											Left Bottom Right
Wednesday	Happy	13	8	79	4:23	1.5	71	OK	Good	Good	
Thursday											
Friday											
Saturday	Happy	0	13	87	4:51	2.5	137	Good	Great	Good	Bottom Right
Sunday											
Week 12											
Monday											
Tuesday											
Wednesday											
Thursday	Excited	8	12	80	4:38	2.1	107	Good	Good	Good	Bottom Right
Friday	Calm	29	20	51	4:16	1.3	58	OK	Good	Good	Top Left
Saturday											
Sunday	Happy	0	5	95	5:08	2.9	170	Great	Good	Good	Bottom Right

Participant 3

Week/Day	Energy draining and energy renewing situations	Physiological Coherence						Experience of sense of coherence	Experience of resilience	Experience of faith	Location on the depletion to renewal grid
		Low Score	Med Score	High Score	Length of session	Coherence	Achievement				
Week 1											
Monday											
Tuesday											
Wednesday											
Thursday											
Friday											
Saturday											
Sunday					0:23 and 5:00	1.4 and 1.7	1 and 98				
Week 2											
Monday					3:56 and 2:10	2.2 and 2.4	98 and 52				
Tuesday											
Wednesday											
Thursday					7:72 and 1.52	1.3 and 0.8	109 and 12				
Friday											
Saturday											
Sunday					5:04	1.3	76				
Week 3											
Monday					5:12	2.3	135				
Tuesday					5:45	2.0	131				
Wednesday					7:13	1.3	107				
Thursday											

Friday											
Saturday											
Sunday											
Week 4											
Monday					5:35	1.4		91			
Tuesday					5:35	1.2		76			
Wednesday											
Thursday											
Friday											
Saturday					5:05	2.1		120			
Sunday											
Week 5											
Monday					8:03	0.9		84			
Tuesday					6:32 and 5:08	1.9 and 2.0		139 and 112			
Wednesday					7:24	1.2		100			
Thursday											
Friday											
Saturday											
Sunday					6:38	1.6		122			
Week 6											
Monday											
Tuesday											
Wednesday											
Thursday					4:16 and 11:10	2.2 and 1.1		105 and 139			
Friday											
Saturday											
Sunday											
Week 7											
Monday											
Tuesday											
Wednesday											
Thursday											
Friday											
Saturday											
Sunday											
Week 8											
Monday											
Tuesday											
Wednesday											
Thursday											
Friday											
Saturday											
Sunday											
Week 9											
Monday											
Tuesday											
Wednesday											
Thursday											
Friday											
Saturday					5:02	2.2		122			
Sunday											
Week 10											

Monday											
Tuesday											
Wednesday											
Thursday											
Friday											
Saturday											
Sunday											
Week 11											
Monday											
Tuesday											
Wednesday											
Thursday											
Friday											
Saturday											
Sunday											
Week 12											
Monday											
Tuesday											
Wednesday											
Thursday											
Friday											
Saturday											
Sunday											

Participant 4

Week/Day	Energy draining and energy renewing situations	Physiological Coherence						Experience of sense of coherence	Experience of resilience	Experience of faith	Location on the depletion to renewal grid
		Low Score	Med Score	High Score	Length of session	Coherence	Achievement				
Week 1											
Monday	Work + Family = renew	3	20	77	5:43	2.3	152				
Tuesday		5	11	84	5:03	3.0	168				
Wednesday	Daughter sick - hospital	8	11	81	5:39	1.7	110	Not good			
Thursday	Daughter unwell - better	0	13	87	5:23	3.1	186	Okay	Good	Okay	
Friday		6	3	91	5:05	2.3	136				
Saturday	Shopping with family	2	12	86	5:11	2.5	147				
Sunday	Spending time with family & friends	3	14	83	5:31	2.2	141				

Week 2											
Monday											
Tuesday	Work settling down	2	6	92	5:31	2.9	185				
Wednesday		0	4	96	6:45	3	233				
Thursday											
Friday											
Saturday											
Sunday											
Week 3											
Monday											
Tuesday											
Wednesday											
Thursday											
Friday											
Saturday											
Sunday											
Week 4											
Monday											
Tuesday											
Wednesday											
Thursday											
Friday											
Saturday											
Sunday											
Week 5											
Monday											
Tuesday											
Wednesday											
Thursday											
Friday											
Saturday											
Sunday											
Week 6											
Monday											
Tuesday											
Wednesday											
Thursday											
Friday											
Saturday											
Sunday											
Week 7											
Monday											
Tuesday											
Wednesday											
Thursday											
Friday											
Saturday											
Sunday											
Week 8											
Monday											
Tuesday											
Wednesday											

Wednesday	Work training	0	2	98	5:20	5.6	323	Medium	High	Low	Burnt-out
Thursday	Doctor Appointment	2	14	84	5:12	3.8	214	Medium	Medium	Low	Anxiety
Friday	Overloaded	0	4	96	5:14	3.2	183	Medium	Low	High	Bottom left
Saturday											
Sunday	Good Hockey & Dinner	0	7	93	5:13	4.2	238	High	High	Medium	Contentment
Week 2											
Monday	Building a puzzle	10	5	85	6:01	3.0	197	High	Medium	Low	Ease
Tuesday	Work & Bake	2	7	91	5:01	3.8	204	Medium	Medium	Medium	Passion
Wednesday	Birthday	3	20	77	5:30	2.5	151	Medium	Medium	Medium	Happy
Thursday	Work Month End	3	8	89	5:46	2.2	139	Medium	Medium	Low	Burnt-out
Friday	Work Stress	0	2	98	5:11	3.8	213	Low	Low	Low	Anxiety
Saturday											
Sunday	Hockey Match	4	11	85	5:57	2.6	172	Medium	Medium	Medium	Frustration
Week 3											
Monday	Month end deadline	8	10	82	7:10	3.3	260	high	High	low	stress
Tuesday	Long working day	2	26	72	6:17	2	129	medium	medium	medium	ease
Wednesday	Long day tired	20	9	71	6:12	2.5	161	High	High	low	Courage
Thursday	Work	0	2	98	5:05	3.6	189	medium	medium	low	angry
Friday											
Saturday	Relaxed Watch hockey	1	4	95	5:05	4.2	230	high	High	medium	ease
Sunday	Hockey loss Wasting time	31	28	41	5:09	1	55	Low	low	low	sad
Week 4											
Monday	Good plan for the week.	5	4	91	5:08	4.1	223	high	high	medium	ease
Tuesday	Yummy dinner	0	15	85	6:43	4.5	333	high	high	medium	Contentment
Wednesday	Missed a celebration	0	0	100	5:07	3.7	204	medium	medium	low	Frustration
Thursday	Productive work/home	0	4	96	5:17	5	275	high	high	medium	Fulfillment
Friday	No stress day	0	0	100	5:13	4.3	244	high	high	medium	Courage

Saturday											
Sunday	Hockey Match	0	4	96	5:03	3.5	190	medium	medium	medium	Frustration
Week 5											
Monday	Productive tasks	0	0	100	5:07	3.9	213	High	High	Medium	Ease
Tuesday	Work	20	13	67	5:04	1.7	88	Medium	Medium	Low	Courage
Wednesday											
Thursday											
Friday	Busy Tired	41	28	31	5:21	0.8	33	Medium	Medium	Low	Sad
Saturday											
Sunday	Hockey	0	2	98	5:10	3.5	193	High	High	Medium	Frustration
Week 6											
Monday	Long day	7	10	83	6:23	3.4	238	High	High	medium	Ease
Tuesday	Work	0	1	99	06:20	4.2	293	High	High	Medium	Courage
Wednesday	Work Watch cricket indoor cricket	0	2	98	05:17	3.8	219	High	High	Medium	Fulfillment
Thursday	Work	0	0	100	5:05	3.9	213	Medium	medium	low	Anxiety
Friday	Work Mini exercise	24	13	63	5:12	2.3	129	Medium	medium	low	Burnout
Saturday	Relaxed Watch sport	0	2	98	07:21	4.3	352	High	High	Medium	Contentment
Sunday	Chilled Shop Sport	0	4	96	5:04	4.1	224	High	High	Medium	Courage
Week 7											
Monday	Month end Work	2	2	96	5:02	3.9	217	medium	medium	low	courage
Tuesday	Work	3	1	96	4.5	6:42	339	high	high	medium	content
Wednesday	Work Hockey	6	7	87	3.1	6:07	208	High	High	Medium	Frustration
Thursday	Work	0	0	100	6.4	5:06	352	High	High	Medium	Courage
Friday	Work Month end	0	9	91	3.4	5:02	186	High	High	Medium	Burnout
Saturday											
Sunday	Evening sick										
Week 8											
Monday	Work	0	0	100	5.2	5:24	304	Medium	Medium	Medium	Burnout
Tuesday	Work	0	0	100	4.7	5:31	285	Medium	Medium	low	Content
Wednesday	Work Lockdown	1	0	99	3.1	7:00	245	Medium	Medium	Medium	Anxiety
Thursday	Work Home	0	0	100	48	5:23	278	High	High	Medium	Ease
Friday	Work	14	10	76	2.8	6:45	202	Medium	Medium	Low	Courage
Saturday	Relaxed Cleaning Productive	11	11	78	2.9	5:04	154	High	High	Medium	Fulfillment

	ve										
Sunday	Quick day	0	0	100	6.2	5:06	338	Medium	Medium	Medium	Courage
Week 9											
Monday	Work	5	12	83	2.4	5:24	142	High	High	Low	Excitem ent
Tuesday	Work	0	2	98	5	5:40	303	Medium	Medium	Low	Anxiety
Wednesda y	Work	0	0	100	3.7	5:06	204	High	High	Low	Ease
Thursday	Work	8	7	85	3.6	8:31	334	medium	medium	low	Anxiety
Friday	Work 3km walk	0	5	95	3.4	5:35	207	high	high	medium	content
Saturday											
Sunday	Friends & family	0	0	100	4.5	05:33	271	high	high	high	content
Week 10											
Monday	Work stress	0	0	100	4.4	06:50	333	low	low	low	Burnout
Tuesday	Work	0	0	100	4.6	8:12	415	high	high	medium	ease
Wednesda y	Work	2	7	91	2.9	5:11	162	medium	medium	medium	courage
Thursday	Work	0	2	98	3.8	10:12	432	high	High	medium	content
Friday	Work	3	6	91	3.6	7:03	278	high	high	high	ease
Saturday											
Sunday	Relax Over think	71	9	84	2.6	5:19	144	medium	medium	high	Anxiety
Week 11											
Monday	Work	9	8	83	2.5	5:08	133	medium	medium	medium	Anxiety
Tuesday	Work Month end	4	9	87	3	9:02	305	low	low	low	burnout
Wednesda y	Work	7	25	68	2	5:28	119	medium	medium	medium	anxiety
Thursday	Work	16	7	77	2.5	5:38	152	medium	medium	medium	burnout
Friday	Work	2	0	98	3.1	5:02	171	high	high	medium	ease
Saturday											
Sunday	Golf finger prints	22	22	56	1.9	8:29	174	medium	medium	low	ease
Week 12											
Monday	Work	2	7	91	2.5	5:08	142	high	high	medium	burnout
Tuesday	Work	0	0	100	3	5:25	175	medium	medium	low	Frustrati on
Wednesda y	Work Hockey	0	2	98	4.4	5:11	241	medium	medium	high	Anger Excitem ent
Thursday	Work spin Hair appointment	10	7	83	3.5	5:20	201	high	high	medium	Ease
Friday	Work friends	0	2	98	5.9	5:06	327	High	high	medium	ease
Saturday											
Sunday											

Participant 6

Week/ Day	Energy draining and energy renewing situations	Physiological Coherence						Experience of sense of coherence	Experience of resilience	Experience of faith	Location on the depletion to renewal grid
		Low Score	Med Score	High Score	Length of session	Coherence	Achievement				
Week 1											
Monday	work	0	0	100	5:09	4.1	231	high	high	low	Bottom right
Tuesday	work	7	11	82	6:32	1.8	131	medium	high	low	Top left and right
Wednesday	Work cricket	3	11	86	5:15	3.7	209	medium	medium	low	Right top and bottom
Thursday	Work Hockey	1	11	88	5:55	2.8	184	medium	medium	low	Bottom left
Friday	Work	11	11	78	5:02	2.2	120	low	low	low	Bottom left
Saturday	Went to rugby										
Sunday	Cycling Dinner	6	12	82	6:07	1.9	126	low	medium	low	Left top and bottom
Week 2											
Monday	Work	20	27	53	5:07	1.4	77	low	low	low	Top left, and right top and bottom
Tuesday	Work Wife's birthday	0	1	99	6:46	4.1	300	high	high	low	right top and bottom
Wednesday	Wife's birthday Cricket	0	0	100	6:34	5.5	395	high	High	low	right top and bottom
Thursday	Work hockey	6	8	86	6:54	2.8	212	high	high	low	right top and bottom
Friday	Work shopping	0	1	99	6:30	4.2	303	high	high	low	Bottom right
Saturday											
Sunday	Wife's hockey Family time	0	3	97	6:35	4	294	high	high	low	right top and bottom
Week 3											
Monday	Work Games	0	0	100	6:42	5.9	446	high	high	low	right top and bottom
Tuesday	Work Sick	0	0	100	6:43	5.4	403	high	high	low	sick
Wednesday	sick	0	15	85	6:51	2.8	209	low	low	low	Sick
Thursday	sick	0	0	100	6:50	4.3	326	medium	medium	low	sick
Friday	Work	0	0	100	6:44	4	302	medium	medium	low	sick

	sick										
Saturday	Tired Sick	0	0	100	6:43	5	367	medium	medium	low	sick
Sunday											
Week 4											
Monday	Healthy	0	0	100	6:44	6.1	457	high	high	low	happy
Tuesday	Work	0	0	100	6:43	5.3	396	high	high	low	happy
Wednesday	Work dinner	2	3	95	6:40	3.2	233	high	high	low	happy
Thursday	Work Training	6	11	83	5:49	2.6	164	medium	medium	low	tired
Friday	work	0	0	100	5:59	4.4	289	high	medium	low	Stiff tired
Saturday											
Sunday	Family time hockey	0	0	100	6:43	4.2	312	high	high	medium	happy
Week 5											
Monday	work	12	14	74	7:02	2.4	189	medium	medium	low	burnout
Tuesday	Gym work	0	1	99	6:10	501	346	medium	medium	low	happy
Wednesday	work	0	0	100	6:01	4.2	277	high	high	low	excited
Thursday											
Friday	Trivia	8	8	84	5:53	3.1	196	high	high	low	happy
Saturday	Hockey friends	0	0	100	6:47	5.6	423	high	high	low	Happy relaxed
Sunday	hockey	28	20	52	6:16	1.2	81	low	low	low	bored
Week 6											
Monday	golf	0	1	99	6:45	5.1	377	high	high	low	ease
Tuesday	work	0	0	100	6:47	6.2	457	high	high	low	content
Wednesday	Work cricket	4	8	88	6:42	3.5	258	medium	medium	low	Anxious
Thursday	hockey	0	0	100	6:43	4.7	347	high	high	low	Excited
Friday	work	5	0	95	6:43	4	290	high	high	low	excited
Saturday											
Sunday	chilled	0	0	100	6:41	5.6	411	high	high	low	ease
Week 7											
Monday	Work	0	1	99	6:39	4.4	327	medium	medium	low	burnout
Tuesday	work	0	9	91	10:01	3.2	351	medium	medium	low	Frustration
Wednesday	Work Cricket	0	0	100	6:40	5.7	421	high	high	low	passion
Thursday	Work Hockey	0	0	100	6:39	5.1	370	high	high	low	passion
Friday	Work	2	5	93	6:40	3.8	274	high	high	low	excited
Saturday	Hockey	0	8	92	6:47	3.4	252	medium	medium	low	burnout
Sunday	Family Wife's hockey	9	10	81	8:58	2.6	261	high	high	low	Content
Week 8											
Monday	Work	0	1	99	6:42	4.9	365	high	high	low	burout
Tuesday	work	0	0	100	6:43	5.3	393	high	high	low	burnout
Wednesday	work	0	4	96	6:49	43	3.5	high	high	low	anxious
Thursday	work	8	25	67	7:49	1.9	164	low	low	low	Anxious burnout
Friday	work	3	4	93	6:40	4.6	339	high	high	low	excited
Saturday	cycle	0	1	99	6:41	5.9	433	high	high	low	ease
Sunday	Frisbee	1	12	87	6:47	2.9	214	high	high	low	ease

	chilled										
Week 9											
Monday	work	0	0	100	6:41	4.7	346	high	high	low	content
Tuesday	work	2	5	93	6:53	3.5	265	medium	medium	low	anxious
Wednesday	work	20	25	55	6:56	1.4	109	medium	medium	low	Anxious
Thursday	work	0	0	100	6:54	4.2	314	high	high	low	excited
Friday	work	0	0	100	6:43	4.5	337	high	high	low	excited
Saturday											
Sunday	Family	10	12	78	6:42	2.5	184	medium	Medium	low	Anxious
Week 10											
Monday	work	5	18	77	6:42	2.1	157	medium	medium	low	anxious
Tuesday	work	0	0	100	6:39	4.6	342	low	low	low	Angry
Wednesday	Work run	6	4	90	7:14	2.4	191	medium	medium	low	content
Thursday	work	0	4	96	6:53	5.3	401	high	high	low	Content
Friday											
Saturday											
Sunday	cycle	6	20	74	6:54	1.6	122	low	low	low	Anxiety
Week 11											
Monday	work	9	6	85	9:55	2.9	322	medium	medium	low	Content
Tuesday	work	2	5	93	9:50	4.17	516	high	high	low	Ease
Wednesday	work	1	1	98	8:38	5.1	492	high	high	low	ease
Thursday	Work hockey	0	1	99	6:55	2.5	191	medium	medium	low	Ease
Friday	Work BBQ	5	18	77	6:55	2.5	191	medium	medium	low	ease
Saturday											
Sunday	golf	0	0	100	9:56	5.2	582	high	high	low	ease
Week 12											
Monday	work	1	6	93	10:17	3.8	438	medium	medium	low	Anxiety
Tuesday	work	0	1	99	10:33	5.7	667	high	high	low	Ease
Wednesday	work	1	2	97	9:48	4.9	546	high	high	low	Ease
Thursday	Work hockey	0	3	97	10:02	4.5	514	high	high	low	Ease
Friday	work	0	1	99	9:59	5.9	670	high	high	medium	happy
Saturday											
Sunday											

Participant 7

Week/Day	Energy draining and energy renewing situations	Physiological Coherence						Experience of sense of coherence	Experience of resilience	Experience of faith	Location on the depletion to renewal grid
		Low Score	Med Score	High Score	Length of session	Coherence	Achievement				
Week 1											
Monday	Husband's car being hit. Son refusing	0	0	100	5:29	6.5	395	low	med	med	frustration

Tuesday	his nap. Spending time with friend/family time	0	0	100	6:00	6.5	436	med	med	med	Contentment
Wednesday	Seeing my mom and sister	13	17	70	5:43	3.4	216	med	med	high	fulfillment
Thursday	Argument Good news	13	2	85	5:44	4.8	295	med	med	med	proud
Friday	Family time	11	13	76	5:41	3.1	189	high	high	high	Contentment
Saturday											
Sunday											
Week 2											
Monday											
Tuesday	Good day with kids	0	0	100	6:22	5.8	409	med	high	med	burntout
Wednesday	Lack of sleep Quality time w/hubby	29	23	48	5:34	0.9	45	med	med	med	Tired/burntout
Thursday	Good day with friends	0	2	98	5:12	4.2	242	high	high	high	contentment
Friday											
Saturday											
Sunday	Tired/burntout Good day with family	17	18	65	7:04	1.9	147	low	low	low	Tired/burntout
Week 3											
Monday	Tired Argument with husband	6	13	81	5:13	2.5	135	med	med	med	burntout
Tuesday											
Wednesday	Tired & low	25	29	46	6:19	0.9	52	low	med	med	Low/burntout
Thursday	Hard day with son Nice evening	0	2	98	5:29	5.1	311	high	med	med	contentment
Friday											
Saturday	Bad night with kids	12	16	72	5:04	1.6	70	low	low	med	burntout
Sunday	Chilled day at home	0	5	95	5:09	3/0	169	Med	med	med	contentment
Week 4											
Monday	Productive work	0	0	100	5:09	4.8	272	high	high	high	Contentment

	day Children not sick										
Tuesday	Work stress/m anic evening routine	21	34	45	5:14	0.9	41	low	low	med	anxious
Wednesday	Ok day at work Sick kid	16	33	51	5:16	1.4	62	low	med	med	Content & tired
Thursday	Sick kid at home	27	25	48	5:42	1.1	47	Low	low	low	burntout
Friday	Nice evening w/family Good day at work	0	0	100	5:10	4.9	277	high	high	high	Content ment
Saturday	Nice family day	0	0	100	5:13	4.4	251	high	high	high	content ment
Sunday											
Week 5											
Monday	Full on first day of the week & sick child	21	32	47	5:19	1.0	57	low	low	low	burntout
Tuesday	Good day at work Frantic evening	1	4	95	5:09	2.2	121	high	med	high	Content ment
Wednesday	Sick child at home Difficult day	9	5	86	5:16	1.8	102	low	low	low	burnout
Thursday	Hard night with sick child	20	33	47	5:26	1.1	43	low	low	low	Burnout
Friday	Good day & nice family time	0	0	100	5:07	4.9	279	high	high	high	Content ment
Saturday	Busy day of chores	24	36	40	5:18	1.4	62	low	low	med	tired
Sunday	Great day with family	0	0	100	5:15	3.5	205	high	high	high	Content ment
Week 6											
Monday	Good day at work Had coffee	2	0	98	5:13	2.9	163	high	med	high	Content ment

	with mom										
Tuesday	Nice day in the office	2	2	96	5:05	4.0	223	high	high	high	Content ment
Wednesday	Bad night	21	21	58	6:11	1.2	77	low	low	med	burntout
Thursday	Average day, feeling tired	15	32	53	5:43	1.4	86	low	low	med	Tired
Friday	Good day at work	1	4	95	5:25	3.2	179	high	med	high	Content
Saturday	Busy but good day	3	8	89	6:15	4.1	263	high	high	high	Content
Sunday	Nice day with the family	14	16	70	8:53	2.0	200	high	Med	high	Content
Week 7											
Monday	Frantic morning Feeling tired	23	16	61	5:52	2.2	103	Med	low	med	tired
Tuesday	Feeling sick	15	37	48	7:26	1.1	88	low	low	med	burntout
Wednesday	Bad night & feeling sick	32	26	42	5:26	0.9	52	low	low	low	burntout
Thursday	Feeling a bit better Still sick	1	13	86	5:05	2.9	164	Med	med	med	tired
Friday	Happy for the end of the week	10	16	74	5:34	2.5	266	med	med	high	Content
Saturday	Busy day & late night	4	15	81	6:01	1.8	122	Med	Med	high	Content
Sunday	Great day out with family	0	1	99	5:07	4.3	362	high	high	high	Content
Week 8											
Monday	Stressful day at work	26	32	42	5:02	2.6	242	low	low	med	Tired
Tuesday											
Wednesday											
Thursday	Productive week and nice family time	7	16	77	5:46	4.6	427	high	med	high	Content
Friday	Happy for end	3	17	80	5:16	3.1	262	Med	Med	med	content

	of week										
Saturday											
Sunday	Busy but lovely weekend	2	6	92	6:02	4.1	386	high	high	high	Content
Week 9											
Monday											
Tuesday	Bad night sleep	22	17	61	5:17	18	126	low	low	med	burnout
Wednesday	Hasn't been a good week at work	32	21	47	5:22	1.6	87	low	low	low	Burntout
Thursday											
Friday											
Saturday											
Sunday	Not feeling great but nice day	6	17	77	6:17	2.7	242	med	med	high	Content
Week 10											
Monday	Sick day at home	27	22	51	5:03	0.8	72	low	low	low	Burntout /sick
Tuesday											
Wednesday											
Thursday	Feeling better Ok day at work	7	14	79	5:32	2.6	269	Med	med	Med	tired
Friday											
Saturday	Great day with family	2	16	82	5:04	3.7	284	high	Med	Med	Content
Sunday	Productive day at home	6	12	82	5:52	4.2	321	high	high	high	Content
Week 11											
Monday											
Tuesday											
Wednesday											
Thursday											
Friday											
Saturday											
Sunday											
Week 12											
Monday											
Tuesday											
Wednesday											
Thursday											
Friday											
Saturday											
Sunday											

Participant 8

Week/ Day	Energy draining and energy renewing situations	Physiological Coherence						Experience of sense of coherence	Experience of resilience	Experience of faith	Location on the depletion to renewal grid
		Low Score	Med Score	High Score	Length of session	Coherence	Achievement				
Week 1											
Monday	New car got bumped Coming home to family	0	2	98	5:24	3.2	192	medium	high	medium	Top left
Tuesday	Insurance claims Positive outcome work	13	17	70	5:11	1.7	78	low	medium	medium	Top left
Wednesday	Stuck in traffic Nice day at work	0	0	100	5:03	4.9	272	high	high	high	Top right
Thursday	Woke up very early. Left work early.	0	0	100	5:04	4.1	231	medium	high	high	Bottom right.
Friday											
Saturday											
Sunday											
Week 2											
Monday											
Tuesday	Fresh long weekend See family	0	0	100	5:26	4.8	285	high	high	high	Bottom right
Wednesday	Had a bay eye-test. Day off work	0	0	100	5:03	4.2	237	high	high	high	Bottom right
Thursday	Bad traffic. Good day at work.	0	4	96	5:04	4.1	223	Medium	high	high	Bottom right
Friday	Bad day at work Friday. afternoon.	0	0	100	5:05	4.3	243	Medium	Medium	medium	Top right
Saturday	Went for a cycle.	3	7	90	5:22	3.1	185	Medium	Medium	Medium	Bottom left.

	Fight with wife.										
Sunday	Feeling sick. Spent day at home.	17	3	80	5:59	3.8	251	low	low	medium	Bottom left
Week 3											
Monday	Sick. Spent day with fam.	0	0	100	5:25	3.9	235	medium	medium	medium	Bottom right
Tuesday	Good day at work. Bad traffic.	0	0	100	5:13	4.6	267	High	High	High	Bottom right
Wednesday	Finished work early. Baby is sick.	2	3	95	5:17	3.5	204	medium	medium	medium	Bottom right
Thursday	Good day at work. Bad traffic.	0	0	100	5:10	4.4	252	high	high	high	Bottom right
Friday											
Saturday											
Sunday											
Week 4											
Monday	Good day at work. Bad traffic.	3	2	95	5:20	3.8	227	high	high	high	Bottom right
Tuesday	Pressure at work. Got home to see fam.	0	0	100	5:30	4.2	254	medium	high	high	Bottom right
Wednesday	Good day at work. Bad traffic.	0	0	100	5:29	5.3	325	high	high	high	Bottom right
Thursday	Very tired, no sleep. Finished work early.	0	2	98	5:23	4.0	243	low	low	medium	Top right
Friday											
Saturday											
Sunday											
Week 5											
Monday	Good day at work. Feeling	0	0	100	5:18	4.5	2.67	medium	medium	high	Bottom right

	sick.										
Tuesday	Good day at work. Nice eve with boys.	0	0	100	5:24	5.0	295	medium	medium	medium	Bottom right
Wednesday	Exhausted, no sleep. Finished work early.	0	2	98	5:23	4.0	243	low	low	medium	Top right
Thursday	Tired, no sleep. Sick kids.	0	0	100	5:15	3.7	214	low	low	low	Top right
Friday											
Saturday											
Sunday	Tired. Good exercise.	6	2	92	5:30	3.8	235	medium	medium	medium	Top left.
Week 6											
Monday	Happy family. Good day at work.	0	0	100	5:18	4.9	287	high	high	high	Bottom right
Tuesday	Tired, bad day at work.	0	0	100	5:20	3.5	221	low	low	medium	Bottom left
Wednesday	Good day at work. Happy family.	0	0	100	5:16	5.3	305	high	high	high	Bottom right
Thursday	Good day at work. Bad traffic.	0	0	100	5:20	4.4	258	medium	medium	high	Bottom right
Friday	Good day at work. No traffic	0	0	100	5:29	5.5	333	high	high	high	Bottom right
Saturday											
Sunday											
Week 7											
Monday	Half day work. Happy family	0	0	100	5:12	5.4	308	high	high	high	Bottom right
Tuesday	Good day at work. Anxious about lots.	0	2	98	5:31	4.6	278	medium	medium	medium	Top right
Wednesday	Stressful day. Feeling	0	0	100	5:11	4.7	271	medium	medium	medium	Top right

Thursday	sad. Late night at work. Good day.	0	0	100	5:15	5.5	317	high	high	high	Bottom right.
Friday	Good day. Left work early.	0	0	100	5:41	5.3	340	high	high	high	Bottom right.
Saturday											
Sunday											
Week 8											
Monday	Left work early, family sick.	0	0	100	5:34	5.0	308	high	high	high	Bottom right
Tuesday	Good day at work.	0	0	100	7:05	5.2	369	high	high	high	Bottom right
Wednesday	Busy day at work. Got home late.	0	0	100	5:29	4.3	240	medium	medium	medium	Top right
Thursday	Bad day at work. Got home late.	1	9	90	6:03	2.6	176	low	low	low	Top left
Friday	Good day. Weekend with fam.	0	5	95	5:43	4.1	264	medium	medium	medium	Bottom right
Saturday	Busy. Late day at work.	0	0	100	5:31	4.3	268	medium	medium	medium	Bottom right
Sunday											
Week 9											
Monday	Late at work. Saw fam.	0	0	100	5:31	4.3	268	medium	medium	medium	Bottom right
Tuesday	Son cut his foot badly.	0	3	97	5:27	3.1	190	medium	medium	medium	Bottom left
Wednesday	Bad traffic. Late at work.	0	2	98	5:17	3.7	217	medium	medium	medium	Top right
Thursday	Long day	0	0	100	5:12	3.6	201	medium	medium	medium	Bottom left
Friday	Long day, weekend	0	2	98	5:13	4.2	244	high	high	high	Bottom left
Saturday											
Sunday											

Week 10											
Monday											
Tuesday	Good day at work. Light traffic.	0	0	100	5:38	4.9	311	High	High	high	Bottom right
Wednesday	Busy day, left work early.	0	0	100	5:27	4.3	260	High	High	high	Bottom right
Thursday	Long day, busy with kids till late.	0	4	96	10:06	3.9	419	medium	medium	medium	Bottom right
Friday	Worked late. Good day.	0	0	100	5:45	4.3	275	High	High	high	Bottom right
Saturday											
Sunday											
Week 11											
Monday	Long day, tired. Saw kids.	0	0	100	10:13	3.8	439	High	High	high	Bottom right
Tuesday	Bad traffic	18	23	59	5:15	1.7	96	low	low	low	Top right
Wednesday	Busy day, feel rushed.	0	0	100	5:29	2.2	134	medium	medium	medium	Top right
Thursday	Long day, but good.	0	1	99	5:59	4.2	284	High	High	high	Bottom right
Friday	Good day at work. Left early.	0	3	97	5:37	5.3	336	High	High	high	Bottom right
Saturday											
Sunday											
Week 12											
Monday	Long day, but good	0	0	100	5:22	4.8	283	High	High	high	Bottom right
Tuesday	Good day. Bad traffic.	0	0	100	5:34	4.2	254	High	High	high	Bottom right
Wednesday	Long day, gone into lockdown.	0	8	92	5:28	4.3	260	medium	medium	medium	Top right
Thursday											
Friday											
Saturday											
Sunday											

Participant 9

Week/ Day	Energy draining and energy renewing situations	Physiological Coherence						Experience of sense of coherence	Experience of resilience	Experience of faith	Location on the depletion to renewal grid
		Low Score	Med Score	High Score	Length of session	Coherence	Achievement				
Week 1											
Saturday 29/01	Fly to Wanaka, prepare for open home viewings, busy morning and travel	7	17	76	11:18	2.2	291	Mod-low	Mid-high	Mod	Top mid
Sunday 30/01	First day of holiday, outdoor trips with children, disappointment at open home outcomes	0	0	100	5:00	4.9	295	Mod-low	Mod-low	Low	Bottom left
Monday 31/01	Day trip out to farm with children, lots of walking, nice weather	0	0	100	6:52	3.2	247	Mod	Mod	Mod	Left mid
Tuesday 01/02	Walks, eating out, anticipation with	6	11	83	12:43	2.2	293	Mod	Mod	Mod	Bottom left

	private house viewing										
Wednesday 02/02	Bad weather, went for run	0	5	95	13:06	3.3	505	Mod-high	Mod-high	Mod	Bottom-mid
Thursday 03/02	Bad weather, last full day of holiday with other family	1	1	98	14:56	2.8	488	Mod	Mod	Mod	Bottom left
Friday 04/02	Bad weather ++, travel Wanaka to Queenstown, disappointment with house, had to change hotels as initial hotel not suitable	7	24	69	5:07	2	118	Low	Low	Low	Left mid
Week 2											
Saturday 05/02	Bad weather, flight back to Auckland	1	9	90	21:47	2.7	702	Low	Low	Low	Bottom left
Sunday 06/02	Bad weather, prep for final open home – no attendees, back home so childcare easier	0	0	100	8:52	5	519	Mod-low	Mod-low	Low	Bottom mid
Monday 07/02	Day off, exercise, walk, quiet day	0	0	100	12:02	3.9	545	Mod-high	Mod-high	Mod-high	Bottom right

Tuesday 08/02	First day back in work	0	1	99	10:20	3.9	469	Mod	Mod	Mod-low	Mid left
Wednesda y 09/02	Busy work day with lots of travel and preparati on for auction next day, multiple patients	0	2	98	15:10	3	531	Mod	Mod-low	Mod-low	Bottom left
Thursday 10/02	Prep for house sale, admin+, day off work but lots of other admin needed, nice weather and start of time off work	0	0	100	10:17	3.9	473	Mod	Mod	Mod-low	Mid left
Friday 11/02	House did not sell at auction yesterda y, tired and fatigued, day off at home alone, thoughts about plan for next steps and putting plan into motion to sell house	1	4	95	20:51	3.9	967	Mod	Mod	Mod-high	Bottom mid
Week 3											
Saturday 12/02	Poor sleep, tired++,	0	0	100	10:02	4.3	505	Low	Low-mod	Low-mod	Bottom left+

	prep for open home										
Sunday 13/02	Cyclone overnight, stress about house and open homes and cyclone damage	0	8	92	12:16	3.3	474	Low	Low-mod	Low	Bottom left
Monday 14/02	Off from work with family, relaxed day at home, nice weather, trip to beach	2	8	90	11:20	3.2	422	Low-mod	Mod	Mod	Bottom mid
Tuesday 15/02	Family trip to Piha, nice weather, busy morning	4	10	86	13:28	2.2	349	Mod	Mod	Mod	Bottom mid
Wednesday 16/02	Family trip to Butterfly Creek, internet not working, went for drink with uni colleagues in evening	0	4	96	33:39	3.5	1383	Mod	Mod	Mod	Bottom mid
Thursday 17/02	Day trip with wife to winery, walk, food, relaxed day, played music in evening	1	6	93	15:13	3.9	693	Mod	Mod	Mod	Bottom right

Friday 18/02	Day off with wife, work sorting storage unit in morning, rock climbing afternoon, picked up son and went to beach in evening, prep for open homes	0	2	98	23:51	3.7	1046	Mod	Mod	Mod	Bottom mid
Week 4											
Saturday 19/02	Open homes, spent afternoon and evening with friends, tired	1	7	92	10:09	4.1	484	Mod	Mod	Mod	Bottom mid
Sunday 20/02	2 x open homes, tired and busy, went to beach in afternoon, went out in evening with friends for a drink	3	8	89	21:43	2.9	735	Low-mod	Low-mod	Low-mod	Bottom mid
Monday 21/02	First day back in work, son not wanting to go back to daycare in morning, computer issues	0	15	85	16:14	2.5	480	Low-mod	Low-mod	Low-mod	Bottom mid

Tuesday 22/02	Poor sleep night before, lots of admin, work, negative feedback from open homes, meeting with estate agents	5	9	86	11:04	3.1	405	Low-mod	Low	Low	Bottom mid
Wednesday 23/02	Busy work day, rock climbing, childcare, used app to help with focus during work, might have fallen asleep during this session which affected my average	7	20	73	16:34	2.2	433	Low-mod	Low-mod	Low-mod	Bottom mid
Thursday 24/02	Busy work day; lots of admin	0	1	99	12:12	3.0	422	Low-mod	Mod	Low-mod	Bottom mid
Friday 25/02	Russian invasion of Ukraine underway; busy work day; started dancing again; late	0	4	96	10:43	3.6	446	Low-mod	Low-mod	Low-mod	Bottom mid

	session										
Week 5											
Saturday 26/02	Feeling tired+; open homes; childs party in morning ; swim in sea	1	2	97	11:02	2.9	378	Low	Low	Low	Bottom left
Sunday 27/02	Had friends over in morning ; music in evening; grandpa rent moved to palliative ; discussi on around current war	0	2	98	15:04	3.4	606	Low	Low	Low	Bottom left
Monday 28/02	Tired, admin+ in work, meetings about house, exercise	2	7	91	12:18	2.7	387	Low-mod	Low-mod	Low	Bottom left
Tuesday 01/03	Webinar, tired	0	4	96	09:44	3.5	399	Mod	Mod	Low-mod	Bottom mid
Wednesday 02/03	Meetings, started to feel unwell towards end of day	5	1	94	12:13	2.8	401	Low	Low	Low	Bottom left
Thursday 03/03	Unwell++ with covid, barely moved all day, fever, chills, high BP, grandpa rent died	7	26	67	10:10	1.6	192	Low	Low	Low	Bottom left

Friday 04/03	Still unwell, slightly better than previous day by end of day but minimal	2	7	91	5:08	2.3	129	Low	Low	Low	Bottom left
Week 6											
Saturday 05/03	Starting to feel a bit better, filled out forms for covid with work, rest of family all positive and unwell	0	1	99	10:17	3.8	457	Low	Low	Low	Bottom left
Sunday 06/03	Feeling a bit better but still fatigued and struggling to concentrate	3	4	93	11:34	3.2	435	Low	Low	Low	Bottom left
Monday 07/03	Started working from home, very fatigued and difficult to concentrate, lots of report checking	2	10	88	11:47	2.4	336	Low	Low	Low	Bottom left
Tuesday 08/03	Wife feeling worse with Covid, still tired, long MH webinar	0	1	99	10:39	3.9	479	Low-mod	Low-mod	Low	Bottom left

	and early wake with son who is feeling much better										
Wednesday 09/03	Feeling a lot better, busy working from home, wife feeling worse, son back to normal, able to get out today for walk, early start this morning with son	1	5	94	20:28	2.7	653	Low-mod	Low-mod	Low	Bottom left
Thursday 10/03	Tired, lead meeting in morning, lots of phone calls and admin, exhausted and tired PM	3	6	91	10:06	2.7	313	Low	Low	Low	Bottom left
Friday 11/03	Less tired than previous day but still tired, busy work in AM	0	5	95	12:57	3.7	570	Low-mod	Low	Low	Bottom left
Week 7											
Saturday 12/03	Early wake, uni online session in	12	17	71	14:15	2.0	343	Low-mod	Low	Low	Bottom left

	morning, went out with family AM, tired PM, fell asleep at end of session which may skew coherence level										
Sunday 13/03	Wake later, feeling slightly better than yesterday, morning out at park with family	0	3	97	11:23	3.7	495	Low-mod	Low	Low	Bottom left
Monday 14/03	First day back in work, lots of admin for house, son back in daycare, feeling better but still fatigued by end of day	0	3	97	13:28	4.0	626	Low-mod	Low-mod	Mod	Bottom mid
Tuesday 15/03	Lots of admin for house sales – some promising news in terms of sale, family struggling in UK	0	0	100	10:33	5.0	612	Mod	Mod	Mod	Top right
Wednesday 16/03	New patient Ax;	0	2	98	14:07	3.9	646	Mod	Mod	Mod	Bottom mid

	concern over calf pain; ultrasound scan; feel like starting to understand coherence better; tired by end of day										
Thursday 17/03	Felt unwell in afternoon – headache and tired – able to improve how feeling with coherence training; tired and exhausted; some difficult emails RE house telling people want to work with others; made firmer plan for going overseas	0	0	100	13:34	4.1	653	Low-mod	Low	Low-mod	Bottom left
Friday 18/03	Feeling better than yesterday; work from home; lots of phone	1	2	97	22:23	4.3	1138	Mod	Mod-high	Mod	Right-mid

	calls and admin; rental appraisal completed; used coherence a lot to help recharge										
Week 8											
Saturday 19/03	Lie in; quiet day; stayed in and rested as much as possible; few short walks; tired but less headaches	0	0	100	15:04	4.4	780	Mod	Mod	Mod	Bottom mid
Sunday 20/03	Quiet day; reading; tired; spoke to family in evening	1	7	92	12:47	4.0	607	Mod	Mod	Mod	Bottom mid
Monday 21/03	Bad weather; heavy rain; busy day in work; less headaches and starting to feel better	2	3	95	13:03	3.7	559	Mod	Mod	Mod	Bottom mid
Tuesday 22/03	Weather slightly better but still bad; busy in work; sorting paperwork for	5	27	68	12:11	1.7	241	Low	Mod	Mod	Bottom left

	listing house on market – lots of admin for moving to UK; not much time for coherence practice										
Wednesday 23/03	Lots of work and prep for open homes; windy and concerned about tree blowing down; photos taken and house prep; got to go for food with wife midday – son in daycare extra day	0	4	96	10:33	2.8	336	Mod	Mod	Mod	Bottom mid
Thursday 24/03	Lots of meetings in work; exhausted; minimal time for coherence practice; windy++ concerned about tree; slept poorly; house live on market	4	10	86	22:40	2.5	671	Low	Low	Low	Bottom left

Friday 25/03	Motivati onal intervie wing course; busy; open home viewing last minute organise d; tired in evening; tree chopped down	3	3	94	13:14	2.7	415	Low	Low-mod	Low-mod	Bottom left
Week 9											
Saturday 26/03	Open home prep; early morning start; play music in afternoo n with friends – felt really good to be out of the house with other people; friends over till late in evening; lots of prep for moving to UK	0	0	100	10:12	4.2	496	Mod	Mod	Mod	Right mid
Sunday 27/03	More open homes; early start; went for walk; went to driving range with friends	1	1	98	10:12	4.5	527	Mod	Mod	Mod	Top right

	in afternoon then went for drinks and food; really good to be out seeing friends; coherence done in evening										
Monday 28/03	Early morning ; tired; meeting with university lecturer RE plans to move overseas; walk; slow day; not working on bereavement leave; long talk with family	0	0	100	11:06	4.4	572	Mod	Mod	Mod	Bottom mid
Tuesday 29/03	Final day of bereavement leave; early start and busy day working through plans for moving to UK; walk; weather good	0	2	98	10:17	3.6	435	Mod	Mod	Mod	Bottom Left
Wednesday 30/03	Back in work; busy with	4	21	75	08:56	2.0	203	Low-mod	Low	Low	Bottom left

	catching up after leave; 2 open home viewings for wife whilst trying to do childcare – all very tired and busy with house prep but please that things seem to be moving; advised to expect building inspection on Friday										
Thursday 31/03	Busy with patients and house prep; new complex patient in AM; anticipation for building inspection tomorrow++; may expect pre-auction offer	2	8	90	10:16	2.8	324	Mod	Mod	Mod	Bottom left
Friday 01/04	Disappointment and frustration with building report –	6	6	88	10:25	3.4	415	Low	Low	Low	Top right

	still AW more info and difficult to communicate feelings; trying to help with house situation but unsure what to do; busy with work; went out with friends for drink in evening										
Week 10											
Saturday 02/04	Open homes; trip to skytower; meet with friends in evening; daylight savings; very busy day but enjoyable family time and time with friends without too much thought of house or work or travel	3	21	76	10:07	2.2	260	Mod	Mod	Mod	Bottom mid
Sunday 03/04	Busy with open homes; potential good news	1	9	90	18:32	3.8	824	Mod	Low-mod	Low-mod	Bottom left

	with another interested party; busy with family outside; bit of time to self										
Monday 04/04	Early start and busy day+++ sorting house things and work; starting to hand over patients and tie things up to leave; awaiting updates about house	0	0	100	10:18	4.6	552	Mod	Mod	Mod	Bottom mid
Tuesday 05/04	Shadowing orthopaedic surgeon; tired+; lots of work to do and prep for house; still no news about interest	1	1	98	11:13	4.0	517	Low-mod	Low-mod	Low	Bottom left
Wednesday 06/04	Busy day, evening got pre-auction offer but not able to view until tomorrow	0	1	99	14:11	5.5	909	Mod	Mod	Mod	Top left

Thursday 07/04	Pre-auction offer, busy++ trying to get sorted and sorting admin – lots of time demands from work and house; new viewings	0	0	100	14:40	5.0	859	Low-mod	Mod	Mod	Mid left
Friday 08/04	New viewings and house admin	3	2	95	08:24	4.1	396	Low-mod	Mod	Mod	Bottom left
Week 11											
Saturday 09/04	Building inspection and open home – very busy in and out of house	0	1	99	13:15	4.1	627	Mod	Mod	Low-mod	Bottom left
Sunday 10/04	Building inspection and open home – very busy day and prep for auction Monday	0	5	95	11:05	3.4	438	Low-mod	Low-mod	Low-mod	Bottom left
Monday 11/04	Auction and house sale, very tired and exhausted after	0	0	100	11:48	4.6	637	Low-mod	Low-mod	Mod	Bottom mid
Tuesday 12/04	Exhausted after yesterday, meeting	0	1	99	10:14	4.1	488	Low-mod	Low-mod	Mod	Bottom left

	s and handovers for leaving; coordinate and finalise leaving prep										
Wednesday 13/04	New assessments; tired and exhausted	0	5	95	11:33	3.7	493	Low-mod	Mod	Mod	Bottom left
Thursday 14/04	Calmer day but still lots of admin before long weekend, fun family evening	0	4	96	11:27	4.8	643	Mod	Mod	Mod	Bottom mid
Friday 15/04	Good Friday – day with family starting to get packed; took son out for trips during day; met friend PM	4	13	83	12:56	2.5	371	Mod-high	Mod-high	Mod-high	Bottom right
Week 12											
Saturday 16/04	Easter Saturday – went busking at park; day with family	0	0	100	11:38	5.6	760	Mod-high	Mod-high	Mod-high	Bottom right
Sunday 17/04	Easter Sunday – morning at home, afternoon with friends had really	1	0	99	12:46	5.8	860	High	High	High	Bottom right

	good relaxing evening										
Monday 18/04	Easter Monday – weather not quite so good, sorting admin; had started using metronome for coherence which was helpful	1	3	96	12:40	4.9	727	Mod	Mod	Mod	Bottom mid
Tuesday 19/04	First day back in work; leaving lunch, busy sorting admin	0	0	100	14:18	6.5	1089	Mod	Mod	Mod	Bottom mid
Wednesday 20/04	Busy with patients/ trying to sell car/get packed ready for stuff being collected next day	0	0	100	10:27	5.8	699	Low-mod	Low-mod	Low-mod	Bottom left
Thursday 21/04	Long wait for things to get collected; using coherence regularly through day to assist and finding helpful	0	0	100	11:56	6.1	852	Mod	Mod	Mod	Bottom left
Friday	Leaving	0	0	100	14:05	6.4	1048	Mod	Mod	Mod	Bottom

22/04	lunch; busy day at work										left
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Participant 10

Week/Day	Energy draining and energy renewing situations	Physiological Coherence						Experience of sense of coherence	Experience of resilience	Experience of faith	Location on the depletion to renewal grid
		Low Score	Med Score	High Score	Length of session	Coherence	Achievement				
Week 1											
Monday											
Tuesday	Work reports draining and time with family and dog running – energy giving. Businesses accounts – draining and giving	1	6	93	5:50	2.9	194	HFB technique. More energy after	Energy increased. Calmer	Felt connected	Top and lower right
Wednesday	Work reports draining and time with family and dog running – energy giving	0	5	95	5:13	2.9	174	HFB technique. More energy after	Energy increased. Less fatigue and Calmer and optimistic	Felt a bit less connected than yesterday	Right – possibly bottom right more
Thursday	Hard psych session. Tired waking up. Stomach discomfort	1	8	91	5:40	1.8	118	QCT – relaxed after	Fatigued today but more relaxed after	None	Top left - frustration

Friday	Work drained but also renewed . Finished work and went for a brisk walk. Then did the practice. I was tired after walk – very humid. I Ate a bit of protein and drank chocolate milk	7	4	89	7:58	3.9	359	CCT – felt much more relaxed and less tired. Strangely optimistic	Angry start to the day but calmer as day went on. Used more breath during the day and appreciation	Appreciating God's plan – more acceptance	Bottom right but earlier morning top left
Saturday											
Sunday											
Week 2											
Monday	Work reports. Felt calm today. In the moment more. But sleepy around 3pm. Took a power nap.	3	17	80	7:54	1.8	161	CCT-felt fearful somehow. A letting go of the body almost shocked me	A calm day for most. Back to my routine of exercise, fasting.	Letting go to be a conduit – thoughts.	Contentment – bottom right for most of the day.
Tuesday	New report writing. Dog sick. Admin work at home in SA	13	15	72	9:31	1.6	180	CCT but struggled with appreciation	Stressed about completing work and dog being ill	Acceptance	Bit of frustration emerging. But funny enough enjoying the work – somewhere in the north

											part in the middle between excitement and frustration
Wednesday	Busy day on the road and therapy. Frustrated not getting to admin	0	14	86	6:06	2.4	160	CCT focussed on love	More accepting today	More open and accepting	Bottom right
Thursday	Busy day and mowed the lawn at 5pm	0	3	97	5:49	2.6	170	CCT and my family	Smiling day – enjoyment decision	Personal mantra	Top right more
Friday											
Saturday	No work and just house activities – nice walk with dog	0	3	97	6:56	3.5	277	HFB only viewing the flower	Feel calm	Letting go	Bottom right
Sunday	Relaxed day just with family. Doing some work in between	0	0	100	5:04	3	166	HFB only looking at expanding flower	Calm with a bit of stress	Open up to receive	Bottom right
Week 3											
Monday	Eye infection .. Report writing all day with two therapy sessions	0	0	100	5:48	2.6	170	CCT with mantra	A bit of pain from eye	Acceptance	Bottom right and a bit of upper right
Tuesday	Full day with sessions . Picking up daughter . Had an active	0	0	100	3:55	6	260	CCT with appreciation	Open minded and tibettans	Acceptance	Top right

	day										
Wednesday	Report writing day – and helping a colleague	0	0	100	5:34	4.2	262	CCT with appreciation	Doze off when breathing - relaxing	Appreciate	Bottom right
Thursday	A busy day at work. Some concerns and some rework. Good walk with dog and family. Dog nice and healthy. Do session later at the day after walk.	0	3	97	6:36	3.4	255	HFB wathcjing flower	Love	Appreciation	Bottom right
Friday											
Saturday											
Sunday											
Week 4											
Monday	Work, Dog walk, Little sleep. Not my normal routine.	0	0	100	5:42	3.5	220	HFB	Open minded and positive self talk	Anticipatory – war question	Between bottom right top right
Tuesday	Sneezed . Hot day. Had a good nights rest	1	3	96	6.52	3.6	275	HFB	Stressed about residency but also sense of joy about my job	Spiritual enagement toady	Top right
Wednesday											
Thursday	Forgot yesterday. Had a	0	4	96	7:11	2.4	192	HFB	Tired	Not so much	Bottom left and bottom right

	busy day and worked hard. Took a chock chip biscuit and felt it in my heartrate										
Friday											
Saturday											
Sunday											
Week 5											
Monday	Good dy or report writing. Ad some bad sleep but used HFB to rest at tnight	0	0	100	6:54	5.5	444	CCT	Good day of appreciati on	Love love and lowv	Bottom right and some top right
Tuesday	Saw clients all day and on road	0	0	100	6:04	5.7	394	CCT	Appreciati on	Same love love	Bottom right
Wednesda y	Drove far. Had a nap at 6pm for 30 min	0	0	100	5:36	4.1	261	CCT with love	love	Love memory	Bottom right but a bit tired – heat?
Thursday	Stressed and worried	0	7	93	8:32	2.5	247	CCT with appreciati on	Appreciati on	Thankful	Bottom left
Friday											
Saturday											
Sunday											
Week 6											
Monday	Bad night sleep	4	7	89	6:25	2.1	150	HFB	unfocused	Discomfor t	Bottom left more
Tuesday	Some form of subtel	6	12	82	6:34	2.3	174	HFB	Aware	Acceptanc e	Bottom right

	anxiety										
Wednesday	Good nights rest – hard day at work lots of driving.	0	0	100	5:00	5.0	255	HFB	Slowing it down	Joy resonating	Top right
Thursday											
Friday	Early day at work lots of driving	5	16	79	8:20	2.8	266	CCT with space thought	Joy	Joy	Bottom right
Saturday	Had a walk	5	11	84	5:08	3.7	205	HFB	Focus on pic	Joy	Top right
Sunday	Good day with family – just relaxing	0	0	100	5:29	2.7	164	HFB	Slowing thoughts in the moment	Focus on Heart connection	Bottom right
Week 7											
Monday	After dog walking at the river. Lovely. Also had more than 6 hours sleep – not my norm	1	3	96	6:33	4.2	312	CCT with care	In the present	Giving over to just being	Top right
Tuesday	Rather fatigued today. Had good sleep but heart felt tired – thought it was omicron	6	3	91	8:02	3.1	282	CCT with love resonating out	Do what is needed not expected	Relinquishing and giving over	Bottom left and right
Wednesday	Walked the dog and measured directly after	0	0	100	5:49	4.7	313	HFB	In the moment	Appreciate love and forgiveness	Bottom right

Thursday	Calm day but worried about my partner	0	0	100	5:14	3.8	226	HFB	Here and now thinking	Humble	Bottom right
Friday											
Saturday											
Sunday											
Week 8											
Monday	Work and stress of falling behind	0	1	99	6:35	4.0	303	HFB	In present	Give thanks	Bottom right
Tuesday	Client setup for the week with Omicron very difficult	0	0	100	5:33	4.7	289	HFB	In Present	Speak love	Bottom right
Wednesday	Dog walking and eating right after – financial contemplations	0	0	100	5:09	5.3	299	HFB	In present moment	Speak love	Top right
Thursday											
Friday											
Saturday											
Sunday	C19 – sick and fatigued – people out	0	0	100	5:00	4.4	253	HFB	Present moment	Open up to receiving	Bottom right
Week 9											
Monday	C19 – slept and organised work changes	0	4	96	6:17	3.7	257	HFB	Acceptance thoughts	Giving thanks	Bottom right
Tuesday	C19 –	0	6	94	5:29	3.1	191	HFB	Calming thoughts	Giving over	Left middle

	feeling a bit better and tried some work today										
Wednesday	C19 continue – very foggy thoughts but somewhat ok	0	10	90	6:56	2.5	203	HFB	Calming thoughts	Letting go	Right bottom
Thursday	C19 but feeling a bit better. Family aspects more under control Did some slow eye movement exc	0	5	95	8:25	3.3	314	HFB	Excitement thoughts	Interconnected thoughts	Right top
Friday											
Saturday											
Sunday	Getting better – taking a slow day but worry about clients. Took some time to calm – then as high as 7.1 coherence for a while.	5	7	88	9:32	2.9	310	HFB	Thinking about work and just letting it flow	Surrender	Bottom right after a while
Week 10											
Monday	Back to work and feeling well	0	0	100	5:15	4.1	245	HFB	Tapping into happiness and contentment	Allowing and giving over	Bottom right
Tuesday	Work stress	0	0	100	5:22	6.0	363	HFB	In the moment	Gratitude	Top right

Wednesday	Work stress	0	0	100	5:20	4.5	276	HFB	Present only	Gratitude	Bottom right
Thursday	Lots of traveling	0	0	100	5:27	4.5	280	HFB	Present only	Gratitude	Bottom right
Friday	Break day but big family day	0	2	98	5:52	3.4	227	HFB	Present only	Abundance	Bottom right
Saturday											
Sunday	Just time with family	0	2	98	5:20	4.3	259	HFB	Enjoy the day thoughts	Grace and abundance	Bottom right
Week 11											
Monday	Holiday with family	0	0	100	5:24	3.6	220	HFB	Thoughts many	Questioning	Bottom left
Tuesday	Working again. Still feeling C19 symptoms	0	0	100	5:19	4.1	243	HFB	Calm	Peace	Right bottom
Wednesday	Family difficulties at home. Worried about stability and uncertainty	0	0	100	5:11	3.3	194	HFB	Anxious	Questioning	Top left
Thursday	Stressed for some reason – feeling anxious	0	0	100	5:12	4.6	271	HFB	Anxious	Absent	Top left
Friday	Feeling anxious	0	2	98	5:40	3.5	218	HFB	Stress/Anxious	Alone	Top left
Saturday	Day off	0	12	88	5:25	3.1	186	HFB	Slow day	Acceptance	Bottom right
Sunday	Day off	0	0	100	5:26	4.6	283	HFB	Remining present in the moment	Grace in mind	Bottom right
Week 12											
Monday	Stressful day and	0	3	97	5:30	2.3	143	HFB	Scattered mind	Distant	Bottom left

	much driving										
Tuesday	Appreciating the privilege of work	0	0	100	5:20	4.1	240	HFB	Slow breath and just focus on it	Grace in mind	Bottom right
Wednesday	Very busy but thankful	0	0	100	5:17	3.5	209	HFB	Slow breath and soft breath	Acceptance	Bottom right
Thursday	Long drive to work. Busy day ahead	0	0	100	5:20	4.3	256	HFB	Soft breath and present	Acceptance and love in mind	Bottom right
Friday	Just after shower and early morning	6	18	76	6:10	2.0	137	HFB	Struggle to breath – mind all over	Disconnected feeling	Bottom left
Saturday	Just after yoga and running	0	0	100	5:17	4.5	272	HFB	Slow breath	Appreciation	Bottom right
Sunday											