A Global Exploration of Programme Theory within Surf Therapy.

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Abstract

Mental health problems have been estimated as the biggest challenge facing global health in recent years (Vigo et al., 2016) and has been further exacerbated by the COVID-19 pandemic (Usher et al., 2020). One novel approach to addressing this mental health crisis is the emergent 'surf therapy' paradigm which combines surf instruction/surfing and structured individual and/or group activities to promote psychological and physical well-being (International Surf Therapy Organisation, 2019). While surf therapy has been associated with a positive impact on mental health across many populations, a recent scoping review prioritised empirical understanding of surf therapy programme theory as a key priority for future research (Benninger et al., 2020).

To address this knowledge gap, this programme of study conducted a qualitative investigation into surf therapy programme theory for a range of populations (military veterans in the USA, youth in post conflict Liberia, and youth at-risk-of or with mental health diagnosis in Australia). Findings from these studies had practical implications for optimisation of surf therapy delivery and were then compared to identify generalisable theoretical mediators. Physical and Emotional Safe Spaces, Positive Social Connections, Respite from Negative Emotions / Symptoms, and Transferable Mastery emerged in multiple studies. The consistent identification of the importance of safe spaces within intervention structures presents a learning of significance for mental health provision both for and out with the surf therapy paradigm. Alongside this the identification of the potential symptom reliving impact of 'flow' states (Csikszentmihalyi, 2002) as experienced within surf therapy provide a novel research priority for the future. Subsequently a Delphi style consultation with a different population (emergency service/healthcare workers in Scotland) built upon these findings to provide a framework for a novel surf therapy intervention with this population and an example of contextual adaption of theoretical mediators.

The findings from the current research programme have presented an original and significant contribution to knowledge around programme theory within surf therapy and mental health. Taken together, all these conclusions make significant contributions to surf therapy's aim of becoming a trusted, prescribed, and standard means of care in supporting global mental health (International Surf Therapy Organisation, 2018).

Presentations and Publications Generated by this Research.

Publications

Marshall, J., Ferrier, B., Ward, P. B., & Martindale, R. (2020). "When I was surfing with those guys I was surfing with family." A Grounded Exploration of Programme Theory within the Jimmy Miller Memorial Foundation Surf Therapy Intervention. *Global Journal of Community Psychology Practice, 11*(2).

Marshall, J., Ferrier, B., Ward, P. B., & Martindale, R. (2020). I feel happy when I surf because it takes stress from my mind": An Initial Exploration of Programme Theory within Waves for Change Surf Therapy in Post-Conflict Liberia. *Journal of Sport for Development*.

Marshall, J., Martindale, R., Ward, P. B., & Ferrier, B. (2021). A Grounded Theory Exploration of Programme Theory within Waves of Wellness Surf Therapy Intervention. Pre-submission. *The Australian & New Zealand Journal of Psychiatry*

Marshall, J., Martindale, R., Ward, P. B., & Ferrier, B. (2021). A Delphi Study Exploring Barriers and Facilitators to a Proposed Surf Therapy Intervention for Scottish First Responders and Emergency Healthcare Workers. Pre-submission. *International Journal of Emergency Services*

Presentations

Marshall, J., Ferrier, B., Ward, P. B., & Martindale, R. (2018) A Grounded Exploration of Programme Theory within the Jimmy Miller Memorial Foundation Surf Therapy Intervention. Presentation at the Society for Mental Health Research Conference, Noosa, Australia.

Marshall, J., Ferrier, B., Ward, P. B., & Martindale, R. (2019) An Initial Exploration of Programme Theory within Waves for Change Surf Therapy in Post-Conflict Liberia. Presentation at International Society of Behavioural Nutrition and Physical Activity Conference, Prague, Czech Republic

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Marshall, J., Ferrier, B., Ward, P. B., & Martindale, R. (2019) An Initial Exploration of Programme Theory within Waves for Change Surf Therapy in Post-Conflict Liberia. Presentation at Leisure Studies Association Conference, Dundee, Scotland

Marshall, J., Ferrier, B., Ward, P. B., & Martindale, R. (2019) Insights from Comparing Surf Therapy Programme Theory on a Global Scale. Panel at International Surf Therapy Organisation Conference, Los Angeles, USA

Marshall, J., Ferrier, B., Ward, P. B., & Martindale, R. (2020) A Grounded Exploration of Programme Theory within the Waves of Wellness Surf Therapy Intervention. Presentation at International Community Psychology Practice Conference, Melbourne, Australia (moved online due to COVID 19)

Author Declaration

Edinburgh Napier University, July 2021

I hereby declare that:

a) I have composed this thesis,

b) This thesis is my own work and,

c) This work has not been submitted for any other degree or professional qualification except as specified.

Dedicated to Jonny Lambe who introduced me to the joy of surfing, who taught me to question and investigate with due rigor, and who inspired me to combine both for the benefit of those in need.

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List of Abbreviations

ADHD - Attention Deficit Hyperactivity Disorder

ASD – Autism Spectrum Disorder

JMMF – Jimmy Miller Memorial Foundation

LMICs – Lower Middle-Income Countries

PTSD – Post Traumatic Stress Disorder

PYD – Positive Youth Development

RCT – Randomised Controlled Trial

SDT – Self Determination Theory

SfD – Sport for Development

TBIs – Traumatic Brian Injuries

USAF – United States Air Force

USMC – United States Marine Corps

VA – Department of Veterans Affairs

W4C – Waves for Change

WOW – Waves of Wellness

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Chapter 1 : Introduction

Oldest known photograph of surfers c.1890. Credit Herbert Smith.

Mental health problems are one of the biggest contributors to overall disease burden worldwide accounting for 21.2% of years lived with disability (Vos et al., 2015). It has also been suggested these figures are underestimations and that mental illness is a distant first in terms of global health burdens accounting for 32.4% of years lived with disease (Vigo et al., 2016). In recent years, this burden has risen across all countries and contexts. These negative effects have been further compounded upon by a collective lack of response and investment in support, leading to mental ill-health being identified as a preventable global health crisis (Patel et al., 2018). This crisis has been heightened by the recent COVID-19 pandemic both directly in terms of anxiety, fear and bereavement associated with the virus (Usher et al., 2020; Kokou-Kpolou et al., 2020; Mortazavi et al., 2020), alongside the indirect socio-economic impact linked to control measures (Nicola et al., 2020). This includes the discontinuation of many community-based metal health support services at a time when a targeted response to mental health challenges is most needed (Ghebreyesus, 2020). Considering this global mental health crisis and its exacerbation by the COVID-19 pandemic, there is a clear need for accessible and evidence-based mental health interventions across a range of contexts and countries. The focus of such interventions should not only be focused on repairing mental ill health but also building and working towards the positive components of well-being in line with the positive psychology model (Seligman & Csikszentmihalyi, 2000). One example of this has been within the surfing community, where a sport previously exclusively considered as leisure or competition has recently been associated with health outcomes. These novel applications of surfing have recently been utilised on a global scale to address health and social challenges, including mental health. The use of surfing in addressing health or social challenges has been termed ‘surf therapy’.

1.1 Surfing; definition and a brief history.

Before exploring the emergent surf therapy paradigm, a brief exploration of the definition and history of surfing is appropriate. Surfing is defined within the Encyclopaedia Britannica as a “sport of riding breaking waves toward the shore, especially by means of a surfboard” (Booth, 2021). This description seems apt as it encompasses different ways of riding waves such as riding prone, on one’s knees or standing. The description allows for different types of surf craft to be utilised (e.g., bodyboard, kneeboard, shortboard, longboard) as well as permitting the riding of

waves without a board, known as body surfing, to be included within the definition. It should be clarified within the context of this work that in surfing the breaking wave itself is the primary method of propulsion (Young, 2008).

The origin of surfing is a contentious subject within both academic and surfing culture itself. Within popular culture, surfing's origins are undisputedly tied to Polynesia, most notably the Hawaiian Islands. This perception is largely tied to descriptions of surfing from Captain James Cook's journals about the discovery of Hawaii in 1777 (Beaglehole, 2017). This observation has been challenged recently by the recognition of depictions of surfing within paintings and engravings in Peru that predate the initial population of Polynesia (Sales, 2016). Wherever its origins, the popularity of surfing has continued to grow exponentially over the past two centuries, from its initial revival in the Waikiki beachboys movement, through the post war boom on the West Coast of America, the development of a professional surfing tour in the 1970s and to the modern day where developments in neoprene wetsuit technology have made surfing accessible to cold water locations such as Scotland, Canada and Iceland (Warshaw, 2011). This historical increase in exposure, popularity and accessibility has led to significant growth around the sport including associated economics and industry.

In parallel to this growth of surfing, a large industry has developed with a recent study estimating the modern global surf industry contributes approximately $50 billion in global economic activity each year (McGregor & Wills, 2017). Much of the economic contribution associated with the surfing industry is not directly around surfing, but associated industries, notably fashion. As a result, surfing has developed from a countercultural niche sport to having an increasingly mainstream status (Warshaw, 2011). This can be seen with the role surfing has been utilised within the marketing sphere to advertise completely unrelated items such as music, colognes, and alcohol (Norton, 2014). This mainstreaming of the sport has also recently impacted the competitive side of the sport, and the postponed Tokyo 2020 Olympics held in July 2021 included surfing as an Olympic sport, building further momentum and exposure around the sport.

The latest paradigm shift around surfing has been the development of artificial waves, bringing comparable surfing experiences to areas far from the coast. Recently, wave-pool technology providers Wavegarden (https://wavegarden.com/) supported the development of an

artificial wave pool in Sion, Switzerland, with a further 30 facilities in the development, globally. The development of the pool in Sion has for the first time brought surfing to the Swiss Alps, 150 miles from the nearest coastline and highlights the potential for wave pool technology in bringing surfing to new audiences. Engineered wave pools and the Olympic games emphasize how surfing has expanded and changed, although the personal appeal of the surfing experience remains broadly similar. Captain Cook's 18th century description of the 'supreme pleasure' experienced by surfers he witnessed (Beaglehole, 2017) remains integral to the sports' continuing momentum in the 21st century. Understanding this individual experience may offer insight regarding the continued growth in surfing and the transition it has made into health and well-being paradigms through surf therapy.

The individual surfing experience has fostered a long history of discussion around spirituality, philosophy and psychology around experience of surfing and the culture (Young, 2008). The history of surfing is littered with attempts to understand its phenomenology, from 18th century missionaries' critique of the sexualisation and pagan influences on the sport in Hawaii, Freudian discussions in the 60's, the soul surfer movement and its engagement with zen and meditation in the 70's and through to more recent developments linked with performance psychology (Warshaw, 2011). Connections between the phenomenology of surfing and senses of enlightenment, freedom or zen have now manifested in active interest and rigorous investigation regarding the benefits of surfing to health, both physical and mental. The benefits of the sport, previously the realm of beach party small talk or surf brand marketing, are now being actively explored through the lens of science. It should be noted that surfing's connections to health have not always been positive. While injury and death in sport participation remain rare, surfing's connection to alcohol and drugs have been well documented. From psychedelics in the 60's to opioids throughout the 90's and 00's this relationship has cost many lives, including individuals at the very pinnacle of the sports achievements (Warshaw, 2011). While not a focus of this work, this relationship should always be noted within any discussion of surfing and health, not least given the dependency the sport itself can induce (Partington et al., 2009). It is into this modern landscape of increased and more rigorous awareness of the potential health benefits and dangers of surfing, that the surf therapy paradigm has emerged.

1. 2 Defining ‘surf therapy’.

The history of surf therapy is not well documented, and the term has only been used with any regularity in the past decade. In 2019 surf therapy was defined by the recently-formed International Surf Therapy Organisation (ISTO) as “a method of intervention that combines surf instruction/surfing and structured individual and/or group activities to promote psychological, physical, and psychosocial well-being” (International Surf Therapy Organisation, 2019). This definition is useful as it provides a clear separation between targeted surf therapy, and perceived benefits from leisure-based surfing activities. This ‘structured approach’ is an important distinction that needs to be stressed. The simple act of taking an individual surfing is not inherently surf therapy. A recent scoping review into surf therapy highlighted different ways that this structured approach could manifest, including but not limited to individual mentoring, social skills development, psychoeducation, group discussion, personal growth and holding an inclusive social environment (Benninger et al., 2020). The review also highlighted further empirical investigation into these therapeutic structures as a research priority for surf therapy practitioners.

As outlined in the ISTO definition, the populations targeted within surf therapy interventions remains broad, with outcomes including psychological, psychosocial, and physical domains (International Surf Therapy Organisation, 2019). The aforementioned scoping review highlighted that within research literature the following populations have been impacted by surf therapy: children and youth with a range of disabilities, children and youth with Autism Spectrum Disorder, children and youth in need of social and emotional support, military service veterans, active duty military service members, adults with various addictions and co-occurring psychological disorders, adults with disabilities, and young adult cancer survivors (Benninger et al., 2020). Other populations that have been served by surf therapy identified in wider media reporting and organisational evaluations include police, fire and other emergency service workers (Tourky et al., 2021), adults with Autism Spectrum Disorder (Flemister, 2019), children formerly associated with armed forces and armed groups (Dahir, 2018), gender-based violence survivors (Roth, 2021), ex-gang members and individuals recently released from prison (Freeman, 2020).

The breadth of different populations being served is also matched by surf therapy’s broad geographical distribution. While the United States has the highest concentration of surf therapy

providers according to recent ISTO reporting (International Surf Therapy Organisation, 2020), surf therapy has been delivered across all continents apart from Antarctica. This breadth of geography and population begs the question as to how surf therapy addresses such heterogeneity. Rigorous investigation into how surf therapy achieves its outcomes would be of significant benefit both in identifying whether there are any universal elements to surf therapy that transcend population or context, and in better understanding how such interventions contextually adapt their implementation.

1. 3 Surf Therapy; research momentum.

The surf therapy paradigm has seen a recent upsurge of academic study in the past decade. A brief review of surf therapy literature, as collated by ISTO in a regularly updated bibliography (https://intlsurftherapy.org/isto-bibliography-2/) highlights exponential growth, as demonstrated in Figure 1.1. A large proportion of this research has been focused on exploring the associated impact of surf therapy with limited recent research beginning to explore effectiveness through rigorous Randomised Controlled Trial (RCT) studies. The limited number of RCT's exploring surf therapy is unsurprising at this stage given their complexity, cost and level of intrusion they can involve on the running of an intervention. RCTs may be the gold standard for exploring efficacy but they are not always appropriate in measuring complex interventions that occur in the real world

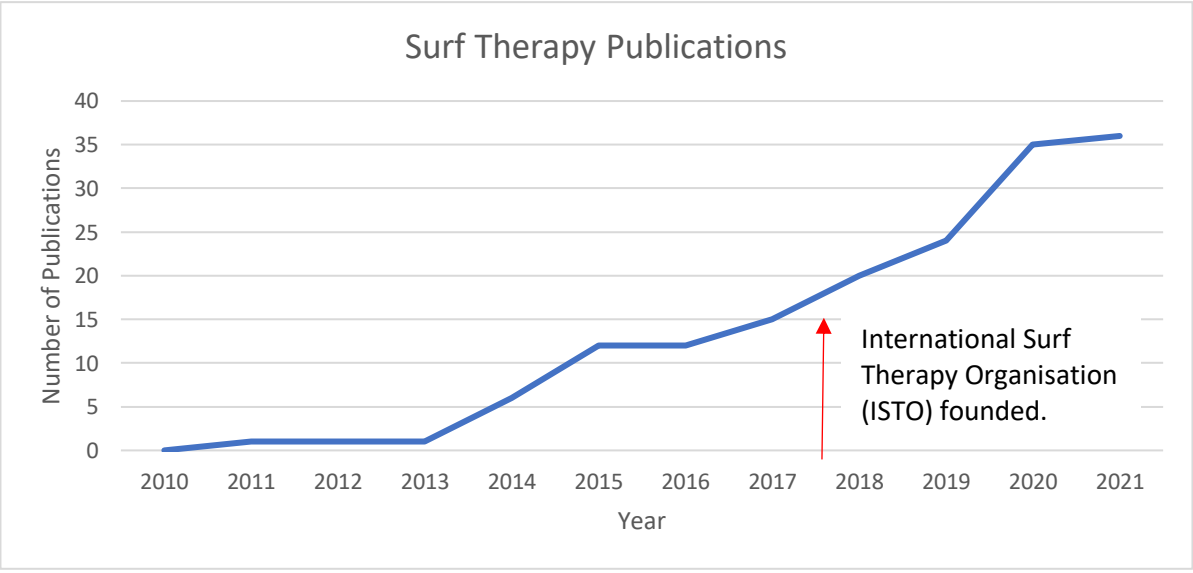

Figure 1.1 Timeline of academic publications around surf therapy.

and can be open to disruption through uncontrollable external confounds and as such should occur concurrently with empirical examination of underlying mechanisms (Bonell et al., 2012). There also exists the ethical question around withholding treatment, which is especially true in contexts where surf therapy may be one of the only forms of mental health support that participants have access to. One approach to this is the use of wait list study designs. Waiting lists are something that surf therapy organisations are already dealing with due to high demand and these could be harnessed to fulfil research aims while ensuring all participants still get access to the intervention. Pragmatic approaches to RCTs in Sport for Development (SfD) may offer valuable insight for the appropriate use of RCTs within surf therapy going forward (Richards et al., 2014). The focus on impact within a newly emergent paradigm is unsurprising due to novel organisations and interventions needing to demonstrate impact to ensure sustainability and suitability, but the need for research exploring *how* surf therapy achieves its outcomes remains an open and important question.

Surf therapy research has largely been conducted in the USA and Europe. Of research associated with surf therapy in the ISTO bibliography over 80% is based in the United States and Europe. Rigorous exploration of surf therapy in different contexts such as Lower and Middle Income Countries (LMICs) is a priority to increase the diversity of surf therapy research and inform wider dissemination. The western focus of existing research is a challenge that exists not only within surf therapy, but also within wider mental health literature. Conceptual understandings of mental health are skewed towards western traditions in what has been described as a form of western cultural imperialism (Rogers & Pilgrim, 2021). Future research into surf therapy in non-western contexts needs to remember this reality. Surf therapy does however present an opportunity in this regard. Given the novelty of the paradigm, it is less susceptible to entrenched approaches to both surf therapy delivery and research which can in turn allow for the emergence of more culturally and contextually appropriate processes. This would be of benefit, both for the surf therapy paradigm, and wider mental health discussions.

Existing research has also highlighted the variety of modalities of surf therapy structure that exist. Within the studies explored, interventions varied from one day surf camps (Sarkisian et al., 2020) to weekly sessions within three-year intervention cycles (Gomes et al., 2020). This range

of delivery timeframes should be recognised when considering and comparing research into the impact of surf therapy. Furthermore, this diversity of delivery modality highlights the need for rigorous research into the theoretical mediators and programme theory associated with surf therapy, to further support exploration of impact and/or effectiveness.

This overview of surf therapy research highlights the need for rigorous exploration of the programme theory and theoretical mediators for this modality of intervention, *how* does surf therapy work. This is especially true given the diversity seen within surf therapy programmes in terms of their delivery structures. As already highlighted, this includes delivery timeframes, the targeted population, the background of practitioners (clinician vs non-clinician) and the context in which the intervention is delivered. Within such a diverse paradigm, understanding similarities and differences between the theoretical underpinnings of different programmes would be of benefit for future surf therapy optimisation, proliferation, evaluation, and management. The learnings around how different surf therapy programmes achieve their associated impacts on mental health could also facilitate related paradigms such as mental health, sport for development, and blue space theory. For these reasons, the focus of this thesis is the rigorous exploration and comparison of programme theory within a variety of surf therapy interventions.

1. 4 Objectives of the thesis

In response to the identified need for rigorous investigation into the programme theory and theoretical mediators underpinning surf therapy and to support the development of novel evidence-based surf therapy, the current research programme seeks to address the following objectives:

1. To investigate and where appropriate generate programme theory within a diverse selection of surf therapy interventions.
2. To critically compare and contrast these programme theories to understand any potential foundational theoretical mediators within surf therapy alongside better understanding of contextual differences.
3. To offer a worked through case study of adapting theoretical mediators to provide the framework for a novel surf therapy intervention for emergency service and healthcare workers in central Scotland.

1. 5 Overview of the research programme

To address these objectives, the research programme for this thesis consists of a further eight-chapter structure following on from this introduction.

Chapter 2 will provide a theoretical and empirical overview of the current state of academic literature exploring surf therapy for mental health. The overview will initially examine evidence for the effectiveness of surf therapy in supporting positive mental health before reviewing the primary focus of this thesis, programme theory and theoretical mediators within surf therapy. Given the paradigms nascent state and the limited amount of associated literature, research from other paradigms that may be applicable to surf therapy will also be explored. The other paradigms explored are Physical Activity for Health, Blue Space research and Sport for Development literature. These specific paradigms were selected given their natural association with the broadest range of surf therapy programmes that serve varied populations. It is worth noting that there exist other paradigms that may offer significant insight into surf therapy that targets specific populations of diagnoses. For example, some surf therapy interventions specifically target populations who have experienced trauma. Wider approaches to trauma informed care may offer insight for this modality of surf therapy (Maté, 2008; Van der Kolk, 2015). In a similar vein, surf therapy targeting women would benefit from critical feminist approaches to mental health (Ballou & Brown, 2002). Many such paradigms (including but not limited to; empowerment theory, blue humanities, blue growth/tourism, embodiment theories) offer unique and valuable insight. However, these factors were not included within this programme of study due to their focused nature in contrast to the broad applicability of the 3 reviewed paradigms. Future research into surf therapy situated within these theoretical landscapes would be worthwhile. Overall, this critical review highlighted the lack of targeted research exploring programme theory within surf therapy alongside no extant meta-reviews on surf therapy. These gaps provide the justification for the objectives of this thesis as an original and significant contribution to the surf therapy research.

Chapters 3, 4, and 5 describe original research exploring theoretical mediators and programme theory within deliberately varied surf therapy contexts. These pieces of research have value independent of each other (addressing Objective 1) but together also allow for comparison of commonalities and differences within the paradigm (addressing Objective 2). Chapter 3 focused

on the Jimmy Miller Memorial Foundation surf therapy intervention to build an initial programme theory. The study examined a sample of US military veterans who have been supported by the intervention and its findings have implications for the intervention itself, surf therapy targeting similar populations and wider veteran targeted mental health literature.

Chapter 4 centred on the Waves for Change Liberia surf therapy intervention. The sample consisted of local youth who use the intervention to help overcome the daily challenges they face due to poverty and a post-conflict setting. The study's findings have implications for the intervention itself, surf therapy targeting similar populations, the Sport for Development paradigm and post-conflict mental health literature.

Chapter 5 focused on the Waves of Wellness surf therapy intervention. The sample consisted of young Australians referred to the intervention by a range of mental health support networks. This study was unique in that the intervention was delivered by clinicians on the beach. The study's findings have implications for the intervention itself, surf therapy targeting similar populations, and clinical psychiatric practice.

Chapter 6 will consolidate the conclusions of these three studies to provide an overview of key theoretical considerations when designing surf therapy interventions. This consolidation will be combined with a Delphi study exploring how to pragmatically implement evidence-based surf therapy to support the mental health of emergency first responders and health workers (fire service, police, paramedics, nursing staff, coastguard, RNLI crew, emergency doctors) based at the Wavegarden Scotland artificial wave site. This original research explores barriers and facilitators, for emergency first responders and health workers to taking part in the proposed intervention and will also be of benefit to wider intervention development targeting this population. This process will produce a pragmatic, targeted and evidence-based intervention plan for future implementation. Chapter 6 consolidates on Objective 2 of the thesis and directly targets Objective 3.

Chapter 7 offers a general discussion and conclusion of the programme of research. This general discussion will initially highlight best practice guidelines in terms of key theoretical mediators to surf therapy alongside discussions around the importance of contextual awareness. These findings have substantial implications for both surf therapy and wider paradigms. This discussion will also highlight key limitations and challenges within this programme of study

alongside recommendations for future research both in terms of practice and direction. Finally, an overall summary of research findings will be offered as a conclusion to this programme of research.

Chapter 2 : Theoretical and empirical overview

Beach workshop at the 2019 International Surf Therapy Organisation Conference. Credit Christina Cernik

2.1 Introduction

Prior to the original research conducted within this programme of study it was appropriate to conduct a theoretical and empirical overview of surf therapy and associated paradigms. Before the thesis aims could be explored, the effectiveness of surf therapy in positively impacting on mental health and well-being was interrogated. The first section of the review consists of an overview of research exploring the impact of physical activity, blue space interventions and SfD on mental health and well-being. These paradigms are associated with surf therapy for a variety of reasons. Given the sport of surfing exists as a form of physical activity, research within these established paradigms may offer surf therapy interventions. Blue space (aquatic) interventions also are a relatively novel paradigm however surfing-based interventions, whether conducted in natural or artificial settings, remain intrinsically tied to a blue space context leading to a likely theoretical association. Finally, sport for development and positive youth development through sport research includes significant discussion around skill transfer and curriculum-based interventions (Gould & Carson, 2008; Super et al., 2021), a modality that exists within surf therapy offering further insight. This will be followed by an in-depth review of research exploring effectiveness within surf therapy for mental health.

The second part of the review will explore the current state of academic literature related to theoretical mediators or programme theory within surf therapy. Given the nascent nature of the paradigm and the very limited amount of research that has explored how surf therapy achieves its outcomes', related paradigms were also explored. The same related paradigms that were explored in terms of effectiveness/impact were also explored in terms of theoretical mediators or programme theory (physical activity, blue space and SfD). Combined exploration of research into both effectiveness and programme theory within surf therapy and associated paradigms characterise the theoretical landscape in which this programme of study is located.

2.2 The Impact of Physical Activity, Blue Space and Sport for Development on Mental Health and Well-being

While surf therapy may be a nascent paradigm in terms of supporting positive mental health and well-being, other associated paradigms have more established evidence bases around such

impact. Meta-analyses on the effectiveness of physical activity on mental health, have shown have positive effects on depression/depressive symptoms (Rebar et al., 2015; Rosenbaum et al., 2014; Rosenbaum et al., 2015; Conn, 2010a; Morres et al., 2019), anxiety/anxiety symptoms (Rebar et al., 2015; Conn, 2010b), Post Traumatic Stress Disorder (PTSD)/PTSD symptoms (Rosenbaum et al., 2015), schizophrenia (Rosenbaum et al., 2014) and self-concept (Babic et al., 2014). These meta-analyses explored many studies, including, longitudinal, cross-sectional, controlled, and randomised study designs and effectiveness claims can be considered robust. Intervention structure varied considerably with duration ranging from 1 day to 1 year though the majority remained focused on physical activity promotion as the primary intervention objective. These positive effects are also replicated within meta-analysis on studies working with children (Ahn & Fedewa, 2011). One of the primary research priorities identified within these reviews was a better understanding of theoretical mediators that underpin the positive relationship between physical activity and mental health.

Blue space research is a newer paradigm compared to physical activity. An initial systematic review and meta-analysis found that blue space is associated with a positive impact on mental health and well-being (Gascon et al., 2017; Britton, Kindermann, Domegan, et al., 2020). A meta-analysis by Gascon et al. (2017) explored the impact of blue spaces on human health identifying 12 studies that specifically address mental health. The quality of studies was deemed high based on a range of established criteria including study design, confounds, bias, statistical analysis and reporting, multiplicity, and outcome measures. It should be noted that the studies were overwhelmingly longitudinal or cross sectional in design suggesting that exposure to blue spaces can have a natural positive effect outside of any intervention structure. All studies within this meta-analysis were located within developed Western contexts so generalisability cannot be presumed for other settings and further research examining longitudinal impacts of blue spaces on mental health in LMICs would be beneficial. Contrasting with this health geography approach Britton, Kindermann, Domegan, et al. (2020) conducted a meta-analysis explicitly exploring interventions conducted within blue space settings finding positive association with mental health and well-being indicators. It is worth noting that surfing was the most common form of intervention utilised within the studies reviewed (11 out of 33). Interventions varied considerably in terms of duration (from 1 day to 6 months in length) with almost one third of studies not reporting this variable.

Almost half of studies did not describe intervention objectives or aims which may be a reporting issue but could also reflect a lack of therapeutic structure within some interventions. There was a lack of studies using any kind of controlled study design, and this was ascribed to the pilot nature of most studies along with the challenges of conducting RCTs with these kinds of interventions. Further, more robust research could bolster positive associations between blue space interventions and mental health, though as highlighted within this meta-analysis, future research into the mechanisms of blue space-based interventions is also an imperative.

The relationship between SfD and mental health is not well established and is generally lacking in rigor, with further research required to support any effectiveness claims (Hamilton et al., 2016). Hamilton et al. (2016) conducted a review of SfD for mental health specifically targeting youth in post conflict settings, identifying 3 studies on the subject. Intervention duration varied from 9 weeks to 28 weeks. Two of the studies were identified as robust RCTs within the review process and these found either no significant changes or small but significant negative changes to mental health outcomes. These negative findings challenge widespread preconceptions of the positive impact of sport within post conflict settings (Hamilton et al., 2016) and research into mechanisms underpinning presumed impacts is a priority.

Evidence for the effectiveness of paradigms related to surf therapy on mental health outcomes is mixed, ranging from robust evidence for a positive relationship with physical activity through to the limited evidence surrounding SfD. A theme that emerged consistently was the need for further research that explored mechanisms and mediators for both captured and supposed impact. This aligns directly with the key aims of this thesis. Having reviewed the state of evidence for the effectiveness of related paradigms on mental health and well-being, the next step was to review the literature regarding the impact of surf therapy.

2.3 The Impact of Surf Therapy on Mental Health and Well-being

A review of the literature on the impact of surf therapy with specific parameters was conducted. Inclusion criteria for this review consisted of: (1) explorations of outcomes associated with well-being and mental health, (2) use of a validated measurement or diagnostic tool, and (3) surfing was the primary mode of intervention delivery. The selection of studies only utilising validated tools was decided upon to provide a succinct but sufficient overview of the impact of

surf therapy to justify the core aim of this programme of study in exploring programme theory within surf therapy. Future in-depth explorations of surf therapy impact could also include qualitative studies to add further depth and nuance to descriptions of impact within the paradigm. Firstly, the Benninger et al. (2020) scoping review was reviewed for studies that matched the inclusion criteria. Secondly the search protocols from the Benninger et al. (2020) scoping review (keywords "surf therapy" OR "surfing" AND "treatment" OR "surfing" AND "therapy") were repeated for new publications since the review's publication date and inclusion criteria applied. Databases searched included EbscoHost, ProQuest, PubMed and GoogleScholar. At conclusion of the search protocols 9 studies from the Benninger et al. (2020) scoping review were included alongside 5 studies published since. A summary of the papers reviewed can be seen in Table 2.1. Alongside surf therapy population other important factors tabulated included location, the structure of surf therapy delivery, validated mental health or well-being measures utilised, control measures/groups, sample size and a summary of outcomes. These studies were grouped by population (youth with general mental health challenges or at risk of social exclusion/isolation, youth with developmental or genetic disorders, active military personnel and military veterans, and cancer survivors) for further discussion.

The impact of surf therapy on youth with general mental health challenges or at risk of social exclusion/isolation was the population most frequently examined, with seven publications identified. The earliest peer-reviewed study on this population was conducted in the United Kingdom by Godfrey et al. (2015) which found a significant increase to the well-being of children pre to post attending the surf therapy intervention. Building upon these findings, Devine-Wright and Godfrey (2020) found significant increases to positive outlook amongst a larger sample from the same intervention. It should be noted that the validated measure utilised within this study was adapted and reliability and validity testing would further strengthen these findings. Both these studies sampled a mixed population at risk of or facing mental health/physical challenges and/or social isolation. A separate intervention investigated in the UK by Hignett et al. (2018) working with children at risk of or currently excluded from education found non-significant increases in a range of well-being domains, alongside a significant increased satisfaction with appearance. The study also found significant improvements to self-rated connectedness with school and friends and significant improvements in social skills and motivation on a teacher-rated measure. These two

Table 2.1 Review of published research on the impact of surf therapy

Authors	Population	Location	Structure of Surf Therapy	Validated Measures	Control Measures	Sample Size	Summary of Outcomes
Cavanaugh & Rademacher (2014)*	Youth with ASD	USA	2 day camp	Social Skills Improvement System, Piers-Harris Children's Self-Concept Scale	NA	11	Positive but non-significant changes across both measures. Some significant changes within individual domains of SSIS
Crawford (2016)*	Military veterans with PTSD	USA	x1 a week for 5 weeks	PTSD Checklist for DSM-5 (PCL-5), Beck Depression Inventory II (BDIII) and General Self-Efficacy Scale (GSE)	NA	95	Significant increase to Self-Efficacy, lessened but still significant change 30 days after exposure. Significant decrease to depression symptoms, lessened but still significant change 30 days after exposure. Significant decrease to PTSD symptoms, lessened but still significant change 30 days after exposure.
Devine-Wright & Godfrey (2020)	Youth with physical or mental health challenges or at risk of social Isolation	UK	x1 a week for 6 weeks	Adapted Stirling Children's Well-Being Scale	NA	347	Significant Increase to Positive Outlook
Glassman et al. (2021)	Active duty military with psychological or physical diagnosis	USA	x1 a week for 6 weeks	4-item Patient Health Questionnaire (PHQ-4), The Positive Affect Schedule (PAS),	NA	74	Within sessions significant decrease in depression/anxiety symptoms and significant increase in positive affect. Signifcant interaction for gender with female particpants experiencing positive impact.
Godfrey et al. (2015)*	Youth with mental health challenges or at risk of social exclusion	UK	x1 a week for 6 weeks	Stirling Children's Well-Being Scale	NA	84	Significant increase to well-being
Gomes et al. (2020)	Youth affected by poverty and social exclusion	Portugal	x1 a week for 3 years	Strengths and Difficulties Questionnaire (SDQ)	NA	69	Significant large positive effect on pro-social behaviour and significant large negative effect on general difficulties
Hignett et al. (2018)*	Youth at risk of or having been excluded from education	UK	x1 a week for 12 weeks	Youth British Panel Household Survey Wll-Being Section	NA	58	Significant increase to satisfaction with appearance, insignificant increases to life, school, school work and friends well-being domains.
Marshall et al. (2021)	Youth at risk of poor mental health	Sierra Leone	x1 a week for 10-12 weeks	Stirling Children's Well-Being Scale	NA	58	Significant large positive effect on well-being in 3 out of 4 sites measured. Non-signifcant small negative effect at 1 site with very low attendance
Matos et al. (2017)*	Youth in foster system	Portugal	x2 a week for 8 weeks	Strengths and Difficulties Questionnaire (SDQ)	NA	32	Significant decrease in behavioural problems domain, non-significant reduction in overall difficulties.
Oits et al. (2020)	Active duty military with PTSD or MDD	USA	x1 a week for 6 weeks	4-item Patient Health Questionnaire (PHQ-4), The Positive Affect Schedule (PAS)	NA	47	Significant decrease in symptoms of depression/anxiety and significant increase in positive affect. Variation based on comorbidities
Rogers et al. (2014)*	Military veterans with PTSD	USA	x1 a week for 5 weeks	The PTSD Checklist—Military Version (PCL–M), Major Depression Inventory (MDI)	NA	11	Significant moderate to large negative effects on PTSD and depression symptoms.
Rosenberg et al. (2014)*	Young adults cancer survivors	USA	6 day camp	Body Image Scale (BIS), Self-Compassion Scale–Short Form, Psychological Screening Inventory-2 (PSI-2)	Wait List Control	488	Significant positive changes to body image, self-esteem, self-compassion and wide range of pshycological indicators when compared with a wait list. Not enduring however (not only surfing).
Sarkisian et al. (2020)	Youth at promise	USA	1 day event	Children's Hope Scale	NA	152	Significant and sustained improvement to hope.
Snelling (2015)*	Youth at risk of long term social exclusion	South Africa	x2 a week for 32 weeks	Strengths and Difficulties Questionnaire (SDQ), Children's Hope Scale, The Social and Health Assessment Scales (SAHA)	RCT	115	No significant changes in outcomes compared to control but fidelity issues around program delivery highlighted
van Ewijk et al. (2020)	Youth with Down Syndrome, ASD or ADHD	Netherlands	x1 a week for 3 weeks	Parent-rated KIDSCREEN (KIDSCREEN-27)	NA	84	Significant increase in the children's quality of life total score, as well as subscale scores for Psychological well-being, Social support & peers and School.
Walter, Otis, Ray et al. (2019)*	Active duty military with psychological or physical diagnosis	USA	x1 a week for 6 weeks	8-item Patient Health Questionnaire (PHQ-8), The Positive and Negative Affect Schedule (PANAS), PTSD Checklist for DSM-5 (PCL-5)	NA	74	Significant decrease in symptoms of depression, PTSD and negative affect while significant increase on positive affect. Within sessions significant decrease on depression/anxiety symptoms and significant increase in positive affect.

studies in the UK highlight diverse goals for surf therapy in the same geographical context. The mental health-focused programme found significant improvements within that domain while an education-focused intervention saw significant improvements in education-based domains. Outside of the UK, a Portuguese study (Matos et al. 2017) found a significant reduction in behavioural problems and non-significant reductions in wider difficulties for foster youth who attended surf therapy. The study highlighted how these positive findings were tied to a theoretically informed framework and appropriate clinical supervision. Another Portuguese study by Gomes et al. (2020) found surf therapy had a large significant positive effect on prosocial behaviour and a large significant negative effect on general difficulties for youth affected by poverty and social exclusion. This intervention had the longest planned structure of the published studies at 3 years, compared with between 6-12 weeks for the previous studies discussed. These results were based on three annual cohorts and the study raises questions around optimal programme length in surf therapy. This longer study suggests long term changes associated with surf therapy, though other studies based on shorter term programmes do not include long term follow up to enable comparison. Sarkisian et al. (2020) found a one-day event of surf therapy had a significant positive effect on hope for youth at risk in California. The study was the first published with this population to carry out a one month follow up with a subset of the sample and found this significant positive effect was maintained. These findings suggest that even limited exposure to surf therapy can have lasting effects, however the one-day event was conducted as part of wider support delivered to the sample by external support agencies. There could be a large range of confounds contributing to the positive effects and the study had no way of demonstrating that the sustained effect was causally related to surf therapy. Accounting for confounds should be a priority for future research with this population, especially in terms of longer term follow up measurements.

All the studies explored so far have occurred in Western developed contexts and while the following studies do focus on child and youth mental health, the very different contexts these occurred in must be noted. Marshall et al. (2021) measured changes in well-being following 10–12-week surf therapy interventions delivered across multiple sites in post conflict Sierra Leone. A significant large positive effect was found on well-being at 3 out of 4 sites measured. One site recorded a non-significant small negative effect though this site also had very low attendance (37%) suggesting there may be a threshold of exposure to surf therapy before well-being can be

affected. This contradicts findings suggesting single day programmes can have a significant effect however the already discussed ongoing support for the sample within the US study is not comparable with the wide range of contextual challenges and complete lack of mental health infrastructure faced by youth living in post-conflict situations. A separate study in a more comparable context carried out the only randomised controlled trial on surf therapy to date for youth at risk of long-term exclusion in Cape Town, South Africa (Snelling et al., 2015). The RCT found no significant changes in any well-being outcomes but highlighted serious challenges to the fidelity of the programme measured, namely around disrupted programme delivery and low attendance by participants. The study suggests the considerably reduced exposure to surf therapy that many of sample experienced may account for the lack of measured change. Overall, the studies reviewed suggest that surf therapy is associated with improvements for youth with general mental health challenges or at risk of social exclusion/isolation. While these studies included validated measures and medium to large sample sizes (32-347), they were limited by a lack of control measures and as such only surf therapy correlations can be discussed, rather than effectiveness. The one RCT conducted does not support these conclusions but as highlighted within the study, there were programme fidelity challenges that may have had a large confounding effect on outcomes measured. Comparing the studies also highlights the importance of understanding context (for example when comparing youth with additional mental health support in the US to youth in Sierra Leone with no access to mental health infrastructure) and future research exploring the optimal length of time of surf therapy delivery for this population.

The effect of surf therapy on youth with developmental or genetic disorders has been explored within two studies identified within this review. A recent study by Van Ewijk et al. (2020) found significant increases in parent-rated quality of life for surf therapy participants with Down Syndrome, Autism Spectrum Disorder (ASD) and Attention Deficit Hyperactivity Disorder (ADHD) in the Netherlands. The study also highlighted that the positive associations seen were contingent on the theoretical framework and clear structure of the 3-week intervention. Based in the USA, Cavanaugh and Rademacher (2014) found a 2-day surfing-based camp had non-significant positive impacts on overall social skills and self-concept for participants with ASD, though significant improvements were found in assertion, responsibility, and engagement subscale items. The small sample size (11) and limited significant findings in this study offer little in terms

of generalisable findings for surf therapy, though may correlate with similar findings with different youth populations around a minimum exposure requirement for surf therapy. Overall, the evidence for surf therapy supporting youth with developmental or genetic disorders remans mixed with further research, ideally with control groups, required. The current literature once again stresses the importance of clear theoretical frameworks alongside or integrated within the activity of surfing.

The second most explored population supported by surf therapy was active military personnel and military veterans with four published studies identified. Rogers et al. (2014) explored surf therapy delivered once a week for 5 weeks for US military veterans with PTSD and found that surf therapy had moderate to large significant effects in reducing PTSD and depression symptoms. This form of surf therapy included group discussion supervised by an occupational therapist and volunteer-supported surfing. The study had a small sample size (11) due to the pilot nature of the intervention, but Crawford (2016) built upon this work exploring the same intervention and a larger sample (95). The Crawford study found surf therapy significantly increased self-efficacy and significantly decreased PTSD and depression symptoms and that these changes all remained significant 30 days post final surf therapy, though all were lessened to some degree. Both these studies identify associations between surf therapy and reduced PTSD and depressive symptoms within a structured and clinically-supervised model of surf therapy. They also suggest surf therapy is especially suitable for this population due to related stigma and as an alternative to prevalent risk-taking behaviours. More recent research (Walter, Otis, Ray et al., 2019) found surf therapy significantly reduced PTSD and depression symptoms and significantly improved positive affect for active-duty military with psychological or physical diagnoses pre and post a 6-week intervention delivered once a week as part of routine clinical practice by the US Navy. The intervention did not have a processing component like previous programmes, but participants worked on individually tailored goals (e.g., reduce anxiety in the water, safely and independently surf waves) with a one-to-one surf instructor. The study also measured within session change, finding significant immediate reductions to anxiety and depression symptoms alongside an immediate significant increase in positive affect. In another study working alongside the same intervention delivered by the US Navy, Otis et al. (2020) found surf therapy significantly reduced depression and anxiety symptoms and significantly increased positive affect for active-

duty military with PTSD or major depressive disorder. The study also noted there was variation of effect associated with co-morbid and single diagnosis participants. Participants with comorbid diagnosis experienced significantly greater reductions to depression/anxiety and significantly greater improvements to positive affect. Finally, Glassman et al. (2021) found significant reductions in anxiety and depression alongside significant increases to positive affect for active-duty military participants after individual surf therapy sessions within the same US Navy intervention. That surf therapy with this population can have immediate effect, especially in relation to symptom reduction, is noteworthy. Interestingly the study also found a significant interaction effect for gender with female participants experiencing both greater decreases to anxiety and depression alongside greater increases to positive affect. Given this interaction the study highlights the need for consideration of gender within future surf therapy research and if findings are corroborated, research into why such interactions occur. Surf therapy is associated with a reduction of depression, anxiety, and PTSD symptoms for the active-duty military and veteran population alongside increasing positive affect. Interestingly the research with this population has also explored changes after individual sessions, at the conclusion of 5-6 weeks of delivery and sustained follow-up a month post completion. Positive results can be seen across all timepoints which highlights the need for further investigation of the optimum length of intervention. The immediate symptom reduction associated with individual sessions is of special interest and may have implications for the integration of surf therapy into treatment plans. Research with this population included large sample sizes, objective diagnostic tools and frequent involvement with clinical practitioners, adding strength to findings. While at present it is impossible to discuss effectiveness of surf therapy for this population, the protocols for a randomised controlled trial were recently published and the study is currently underway with the support of the United States Navy (Walter, Otis, Glassman et al., 2019).

One study reviewed explored the effect of surfing, alongside other adventure activities, on the mental health of young adult cancer survivors (Rosenberg et al., 2014). This study utilised a non-randomised wait list control to explore effect of the adventure activities over the course of a 6-day camp. Significant positive changes to body image, self-esteem, self-compassion, and a wide range of psychological screening measures were observed for the intervention groups in comparison to no change in the control group. The study also found these changes were not

sustained by comparing pre-test data for participants attending their first camp or participants returning for a second camp. That both pre-tests were similar suggests positive effects dissipated with time, though the time between first and second exposure for these participants is not clear from the publication. While the study's findings support the use of adventure therapy to support the mental health of this population, the breakdown of exposure to surfing compared with other activities was not explored. Given this lack of information, the study's usefulness in evaluating surf therapy per se is diminished.

Overall, current research using validated measures supports a positive association between surf therapy and improved mental health across a range of very different populations and contexts. The biggest gap in this evidence base is the general lack of studies that utilise control measures and/or randomisation within their study design to allow for more definitive evaluation of the effectiveness of surf therapy. Such research should be a priority for the field, and it is encouraging to see that such studies are currently underway with certain populations such as US active-duty military with major depressive disorder (Walter, Otis, Glassman et al., 2019). It is noteworthy that the positive associations seen varied amongst the different studies reviewed. Some of this variation could be accounted for through different research methodologies, measures utilised and methodological rigor however it is noteworthy that there was also significant variance in terms of intervention structure. The studies reviewed involved surf therapy with different durations (1 day – 3 years), different facilitation (clinically-led vs community-led), and different structures (curriculum vs sport-structured). These differences, alongside the significant variation in population and context underline the importance of not only exploring associated outcomes of surf therapy, but also *how* these outcomes are achieved by investigating programme theory. Such exploration would provide better context for understanding variations in surf therapy's effects, alongside further optimisation of intervention design. The second phase of this literature review explored the current research landscape in terms of programme theory and theoretical mediators within the nascent surf therapy field.

2.4 Programme theory and theoretical mediators

Before proceeding with an overview of programme theory and theoretical mediators within surf therapy and associated paradigms, these concepts must be defined for the purpose of this

study. Programme theory interprets pathways that explain the theory of change linking intervention inputs to intervention outputs, exists as both a product and an ongoing process, and is by its very nature interpretive (Vogel, 2012). Within this interpretation, the key components of a programme theory are intervention context, personnel involved (intervention practitioners, support roles and participants) and a series of logically linked components leading to outcomes (Vogel, 2012). The individual components or events within a programme theory can be identified as theoretical mediators which can be explored in-depth individually or as component parts within a wider programme theory (Bauman et al., 2002; Bauman & Nutbeam, 2014). A priority in quality programme theory research is that it is as participatory as possible involving stakeholders, especially those directly targeted by interventions whenever possible (Vogel, 2012). Rigorous and contextual consultation with such stakeholders around their experiences best allows for exploration of theoretical mediators and a range of qualitative methods (such as interviews, focus groups, surveys, and journaling) lend themselves exploratory research around processes inherent within novel programme theory (Bauman & Nutbeam, 2014). The data associated with such methods requires sufficient depth to not only identify key theoretical mediators, but also understand how such mediators relate to each other. With sufficient in-depth data, it is possible to explore within analysis whether certain mediators exist as pre-requisites to other mediators and begin to unpack directionality within emergent programme theories. There are significant benefits to rigorous exploration of programme theory and theoretical mediators in terms of intervention optimisation, proliferation, planning and design in new contexts, evaluation design and practitioner training. Alongside these benefits such research contributes to the development of a paradigm's evidence base. While exploration of programme theory and theoretical mediators does not in itself demonstrate association or effectiveness, the identification of plausible and testable mediators adds strength to such claims (Bradford Hill, 1965).

2.5 Physical activity for health

As highlighted earlier in this chapter the positive relationship between physical activity and positive mental health and/or well-being has been well established by empirical research. A range of plausible theoretical mediators, both physiological and psychological have been

suggested for this relationship and may offer insight into plausible mediators for surf therapy. There are varied amounts of evidence and consensus in support of each of these possible mediators.

In terms of physiological theoretical mediators underpinning physical activity's relationship with positive mental health, one of the earliest suggestions was the thermogenic model. In this model, physical activity's warming effect on both the whole body and the core may have a positive effect on mental health (Koltyn, 1997). The evidence behind this potential mediator is not strong (Petruzzello et al., 1995; Fox, 1999) especially considering the body's ability to maintain core temperatures in hostile environments (Biddle & Mutrie, 2008). Thermogenic mediators also seem somewhat confounded within surf therapy settings given the range of water temperatures that interventions have been conducted in (from tropical waters in Liberia to the frigid North Sea in Scotland). Other possible physiological mediators include serotonin (Chaauloff, 1997; Fox, 1999) and endorphin (Schwarz & Kindermann, 1992; Petruzzello et al., 1995; Fox, 1999) production associated with physical activity. Both mediators remain possible, but research is largely limited to animal studies and in many instances remains unclear (Biddle & Mutrie, 2008). In terms of neurobiological mediators, improvements to cognition associated with physical activity offers another possible and promising pathway to improved mental health but further research is required especially around the transferability of experimental findings to real-world settings (Lubans et al., 2016).

Alongside physiological/neurological mediators, physical activity also highlights psychological/psychosocial mediators in explaining its link with positive mental health and well-being. The distraction hypotheses states that physical activity offers an attractive diversion from negative mental health symptoms and is as such able to improve mental health and well-being (Bahrke & Morgan, 1978). The distraction hypothesis has featured in multiple works exploring physical activity and mental health, but the process remains uncertain and parameters for effective distraction are not well established (Petruzzello et al., 1995; Biddle & Mutrie, 2008). Alongside distraction, a large body of research has highlighted developing a sense of mastery or self-efficacy within physical activity as a possible psychological mediator (Petruzzello et al., 1995; Fox, 1999; Biddle & Mutrie, 2008; Doré et al., 2020). Given this body of evidence and the established

mediation of self-efficacy on how people feel, think, and act (Bandura, 1997) this psychological mediator holds an important place withing physical activity literature.

Social elements of physical activity have also been presented as a mediator for positive association with mental health and well-being. Multiple studies have identified how improving social connectedness through physical activity correlates with mental health improvements (Fox, 1999; Lubans et al., 2016; Doré et al., 2020) and these elements feature heavily in general discussions of well-being (Ryan & Deci, 2001). While connectedness maybe a robust possible mediator, it should also be noted that feelings of unattractiveness or incompetence can also be associated with in physical activity, especially in sporting settings (Lubans et al., 2016). Such negative elements could translate to a negative effect on mental health and well-being, highlighting the importance of intervention structure or culture when exploring social components.

Overall, physical activity provides a range of theoretical mediators that may contribute to surf therapy programme theory, most notably self-efficacy/mastery and social connectedness.

2.4 Blue Space Theory

While a newer paradigm than physical activity for health, blue space theory has been strongly associated with positive impact on mental health and well-being (Gascon et al., 2017; Britton, Kindermann, Domegan, et al., 2020), as previously highlighted. Britton, Kindermann, Domegan, et al., (2020) highlighted a range of mediators underlying the association between blue space and positive mental health and well-being, broadly fitting into four categories: physical activity, social interactions, environmental factors, and restoration.

Physical activity has already been discussed in terms of the mediators it offers that could lead to associations with positive mental health. Blue space is seen as a facilitator to encourage physical activity which in turn can link with physical activity mediators already discussed. It should be noted that the relationship between blue space and increased physical activity is mixed within the literature. Some studies suggested positive correlations (White et al., 2016; De Bell et al., 2017; Georgiou et al., 2021) though several studies also found no or limited mediation (Triguero-Mas et al., 2015; White et al., 2020). The relationship between blue spaces and physical activity remains unclear and further research is needed, especially utilising objective measurement of physical activity (White et al., 2020).

Previous discussions around physical activity also highlighted the potential for social interactions and connectedness to be theoretical mediators for positive mental health. Connectedness or social support is also highlighted as a potential mediator within blue space research both as motivation for accessing blue space (De Bell et al., 2017, White et al., 2020) and as mediator of positive health outcomes (De Bell et al., 2017, White et al., 2016; White et al., 2020). Blue spaces are described as encouraging 'quality' social interactions that look different from other settings, such as being intercommunity and intergenerational in nature (White et al., 2020). One study highlighted how social support is associated with blue spaces even more so than green spaces (Triguero-Mas et al., 2015), though mental health indicators within the same study were inconclusive. As previously highlighted in relation to physical activity, social connectedness features in wider explorations of well-being (Ryan & Deci, 2001). The weight of evidence and its alignment with wider literature suggests the social aspects of blue space experiences are an important mediator in promoting positive mental health or well-being.

Environmental factors associated with blue spaces have additionally been explored as theoretical mediators to improving mental health or well-being. The high concentration of negative air ions within blue spaces (especially moving water such as crashing surf) has been linked to mental health improvements (Kuo, 2015; White et al., 2020) though these effects have been disputed (Perez et al., 2013) and further rigorous research is required to explain the processes involved. Blue spaces have also been identified as offering individuals escape or respite from urban high temperatures (Kuo, 2015; White et al., 2020; Georgiou et al., 2021), noise pollution (Kuo, 2015; White et al., 2020) and air pollution (Kuo, 2015; White et al., 2016; White et al., 2020; Georgiou et al., 2021) all of which are associated with negative mental health, especially stress, among urban populations. These environmental factors may be potential mediators within blue space-based surf therapy although it should be noted they have mainly been explored from a health geography perspective rather than within an intervention framework.

A final consideration for potential mediators between blue space and positive mental health or well-being are claims of blue spaces having intrinsically restorative or stress-reducing capacity. Multiple studies have highlighted how aquatic environments reduce stress and promote happiness (White et al., 2020). A study by Roger Ulrich in 1981 highlighted the attention-holding properties

of water by measuring neural alpha waves using an electroencephalograph while participants viewed as range of scenes within experimental conditions. This attention-holding property may align with more recent research that highlights how natural settings (if not explicitly blue space), significantly activate the parasympathetic nervous system leading to a relaxed state (Lee et al., 2014). This parasympathetic activation has been suggested as a plausible neurological pathway to how blue space exposure reduces stress (Kuo, 2015) especially when combined with water's attention holding properties (Ulrich, 1981). The connection between blue space and parasympathetic nervous activation should be further explored along with physiological stress indicators post-exposure to further consolidate the evidence regarding the intrinsic stress reducing and restorative capacity of blue space. Research into these restorative elements highlight the important part such mediators appear to play in supporting positive mental health and well-being by accessing blue spaces.

Overall, blue space theory suggests several plausible theoretical mediators that could be present within surf therapy programme theory. Social connectedness is highlighted, as it was within the physical activity paradigm, and appears to play an important role in supporting positive mental health and well-being within blue space contexts. Blue spaces' own connection with physical activity promotion and environmental factors such as respite from negative pollution and exposure to negative air ions may offer possible mediators, but further research is required. The potential for parasympathetic nervous system activation and associated relaxation provides a direct pathway to improved mental health or well-being that could be transferable within any intervention located in blue environments.

2.5 Sport for Development & Positive Youth Development through Sport

As previously discussed, the sport for development and positive youth development through sport (PYD) paradigms are associated with limited positive effects on mental health and well-being outcomes. A targeted review of SfD and PYD literature was conducted to explore the theoretical mediators that relate to these outcomes which may provide an insight into surf therapy programme theory. Four key areas were identified during this process: positive social connections, skill building and transfer, safe spaces, and feelings of escape.

As with all previous paradigms discussed, social connections are an important mediator within SfD and PYD, which are also associated with positive mental health or well-being effects (Armour et al., 2013; Holt et al., 2017). An important element within SfD and PYD was the positive aspect of these relationships as they pertained to both peers and intervention leadership. Being able to interact and build relationships with adult mentors outside of normal hierarchical structures such as school or family structures was seen as integral to outcomes (Armour et al., 2013). While this element may initially seem primarily linked with youth focused programmes, avoiding hierarchal barriers within interventions could be beneficial across a range of populations that surf therapy serves such as military or clinical populations avoiding stigma and supporting previously discussed safe spaces. Once again, as with other paradigms, social connections appear to play an important role in achieving improved mental health or well-being through SfD and PYD. This literature also offers insight into what these social connections should look like in avoiding hierarchical structures that could undermine trust or reinforce stigma and support other intervention aims such as skill transfer.

A novel mediator presented within SfD and PYD literature compared with other paradigms is the place of skill building or transfer within intervention delivery. Skill building activities can focus on a range of personal/social development skills including those related to mental health or well-being such as coping, self-concept and mastery (Holt et al., 2017; Jones et al., 2017). Skill building activities within interventions only have lasting impact if they are combined with effective 'skill transfer,' that is sufficient consolidation and reinforcement that said skill transfers into participants wider lives. There exist multiple established models for effective life-skill transfer in sport which highlight the importance of elements such as the context of interventions, the role of assets such as coaches, and intervention/activity structure that account for successful transfer of skills to wider life (Camiré, 2014; Gould & Carson, 2008; Petitpas et al., 2005; Pierce et al., 2017). It is also of note that action sports, such as surfing, have previously been highlighted as lending themselves to SfD components such as skill transfer due to less focus on competitive elements of sport, being outside of traditional hierarchical structure, focusing on individual improvement and achievement, and enabling participants of different capabilities to participate together (Thorpe, 2014). These elements and established models of skill transfer within SfD and PYD literature may

offer significant contributions to surf therapy programme theory and investigators should be aware of identifying aspects of skill transfer within future research.

Research around SfD and PYD has also highlighted the importance of safety and belonging within programme theory, mediators worthy of consideration when exploring surf therapy. Many SfD or PYD programmes create a safe space around their interventions characterised as supportive, accepting, and celebratory (Coalter, 2013; Draper & Coalter, 2016; Verkooijen et al., 2020). It should be noted that these spaces were both defined in terms of physical and emotional safety. Interventions provided physical safety with locations as much as possible, separated from contextual violence and as an alternative space to risk-taking activities (Draper & Coalter, 2016). Acceptance, fostering a sense of belonging and building supportive networks comparable to familial relationships were stressed as foundational to promoting emotional safety (Coalter, 2013; Draper & Coalter, 2016; Massey & Williams, 2020). These elements of safety, both physical and emotional, provided within interventions offer possible mediators for mental health and well-being outcomes, especially for populations or within contexts where such physical and emotional safety is not easily accessible, such as post-conflict settings. The provision of safe spaces offers novel insight into the importance of therapeutic structures within interventions targeting the mental health of vulnerable populations. These understandings of safety within interventions may offer transferable learning for other interventions targeting similar populations.

Comparable with the distraction hypothesis within the physical activity paradigm, a recent meta-study exploring sport delivered to support youth who had experienced trauma found that a sense of escape fostered within activities was an important mediator (Massey & Williams, 2020). This psychological escape from struggles and negative symptoms was identified within multiple studies however, a positive escape was contingent on positive social structures within the sport delivery and wider intervention setting. Without consideration of these aspects sport can lead to trauma triggers, exclusion, and violence perpetuation (Massey & Williams, 2020). While the positive sense of escape offers a plausible mechanism to positive mental health and well-being outcomes, the possible negatives associated with sport delivered in isolation highlights the importance of structure and planning around any sport targeting mental health (Richards et al., 2014). This plausible mediator, its direct symptom reducing effect, and the considerations around

possible negative outcomes offer important insight for intervention design, though further research into the prerequisites for this sense of escape is needed.

Overall SfD and PYD paradigms offer several plausible mediators for any investigation into surf therapy programme theory. Mediators related to social connections and psychological escape comparable to similar mediators within other paradigms have been explored. Unique to SfD and PYD were discussions around skill building/transfer and safe space provision offering insight around structural elements foundational to successful interventions. Further research into the generalisability or conditions for successful implementation of these theoretical mediators would be worthwhile.

2.6 Surf Therapy

Theoretical mediators within wider paradigms were explored due to the paucity of empirical research targeting surf therapy programme theory, as highlighted within a recent scoping review (Benninger et al., 2020). These wider paradigms have already identified some common themes in terms of mediators for improving mental health and well-being and introduce key domains warranting further empirical investigation. Before proceeding to the original research of this thesis it was important to conduct an in-depth review of the limited extant research on surf therapy and programme theory. Across studies that explicitly targeted theoretical mediators within surf therapy targeting mental health and well-being, four key themes emerge: social connectedness, safe space provision, respite, and mastery. These themes help to direct and target the remainder of this programme of study.

Fostering positive social connections has been identified as an important theoretical mediator for a positive effect on mental health and well-being across multiple previous paradigms and has also been identified within existing surf therapy research. An exploration of surf therapy for military veterans with PTSD in the United Kingdom highlighted how surfing together encouraged participants to build supportive relationships where they could discuss coping strategies and overcome feelings of isolation associated with PTSD (Caddick, Phoenix et al., 2015; Caddick, Smith et al., 2015). Another study in the UK explored surf therapy for youth facing mental health challenges and highlighted the importance of positive peer support within the programme, alongside disrupting isolation associated with negative mental health (Marshall et al.,

2019). The study also discussed this fulfilling relatedness in terms of basic human needs as defined by Self Determination Theory. Together this research within surf therapy adds further nuance to previously discussed positive elements of connectedness in highlighting how vulnerable populations served by targeted interventions often experience isolation. Shared experiences of surfing seem able to disrupt and challenge these negative feelings or behaviours. Given connectedness has been identified within surf therapy programme theory and as a mediator in all associated paradigms it seems an important element of programme theory within surf therapy. Further research exploring what these social connections look like within different contexts and for different populations would be valuable.

A further mediator identified within surf therapy research that may support new positive social connections is the importance placed on holding a safe space within interventions. In a similar vein to SfD and PYD research, this safe space has been identified as both physical and emotional within surf therapy research (Marshall et al., 2019). Surf therapy in this sense can offer a break from the threat of violence (physical and/or emotional) that may exist in participants daily lives. The emotional safety provided by surf therapy interventions was characterised by a lack of judgement, acceptance, respect, belonging, and removing focus from performance (Marshall et al., 2019; Britton, Kindermann & Carlin, 2020). This safe space appeared important for participation and played a critical role in achieving mental health or well-being outcomes. Safe spaces were also of note given surfing outside of a therapeutic context has been identified as competitive, combative, hypermasculine, often excluding beginners, women, and surfers of colour (Evers, 2006; Wheaton et al., 2017; Britton et al., 2019). The provision of safe spaces seems an important theoretical mediator for surf therapy, but further research is required to better understand the prerequisites and how to facilitate a safe space alongside potential variance of safe spaces for different populations.

A direct pathway to improved mental health and well-being identified within surf therapy research is feelings of respite or escape from negative mental health symptoms and stress (Caddick, Smith et al., 2015; Marshall et al., 2019). These studies identified that the focus on the present, demanded by the challenging task of surfing, provided respite from negative emotions or symptoms across a range of populations (Caddick, Smith et al., 2015; Marshall et al., 2019). This

may align with or provide better understanding to the distraction hypothesis highlighted within the physical activity paradigm. Alongside focus-induced respite, research has identified embodied and sensory experiences around surfing that also provide respite of senses of freedom and relaxation for participants (Wheaton et al., 2017; Britton, Kindermann & Carlin, 2020). These sensory experiences may relate to innate relaxation and possible parasympathetic nervous system activation discussed within the blue space paradigm. It should be noted that this sense of respite is temporary and awareness of this and other intervention structures are important to build upon respite and sustain mental health and well-being gains (Caddick, Smith et al., 2015; Marshall et al., 2019). Both focus and sensory-based pathways to respite are highly plausible and possibly complementary. Future research into surf therapy supporting mental health and well-being should be aware of indicators for both mediators.

The final theoretical mediator identified across research exploring surf therapy and mental health and well-being is the process of mastery and the effect it has on self-efficacy and self-belief (Marshall et al., 2019; Britton, Kindermann & Carlin, 2020). Mastery was explicitly identified within a grounded exploration of surf therapy for youth facing mental health challenges (Marshall et al., 2019). The study found that a sense of mastery was developed within surfing activities and that participants reported this led to improved confidence in their wider lives. Importantly this was not defined by their surfing performance, but by participants' progress towards their own goals. One participant described how it took a long time before they even tried anything on the board, but this progress over time was celebrated and converted into improved confidence. The study also connected this sense of mastery, and the autonomy participants had over their goals, with basic human need fulfilment as described within Self Determination Theory (Marshall et al., 2019). Another piece of research with youth facing mental health challenges also highlighted the role mastery played in building confidence in the intervention including helping participants to feel more open to failure as a natural part of the learning process (Britton, Kindermann & Carlin, 2020). These mediators within surf therapy correlate with extensive discussions within the physical activity for health paradigm and future investigations of surf therapy programme theory should be open to the role of mastery-based mediators in achieving positive mental health or well-being outcomes.

While there remains a paucity of empirical evidence around programme theory within surf therapy in supporting mental health and well-being (Benninger et al., 2020), the research that has been conducted to date offers a variety of plausible mediators to associated positive outcomes. Table 2.2 surmises these mediators including a judgement on the plausibility of their appearance within future investigation into surf therapy based on possible confounds and triangulation with existing published research. Social Connectedness and Respite/Distraction/Stress Reduction are the most plausible mediators given their appearance within all paradigms considered and their presence in existing surf therapy research. Mastery/Self-Efficacy and Safe Spaces also appear highly plausible because of triangulation within multiple paradigms and existence within prior surf therapy literature. Skill Building/Transfer seems highly plausible given the prevalence of curriculum-based surf therapy interventions and this mediators role in SfD and PYD research. Other identified mediators may appear within future research but have been deemed less plausible due to limited empirical support, a lack of triangulation, and/or possible confounds.

Table 2.2 Overview of Plausible Theoretical Mediators for Surf Therapy

Theoretical Mediator	**Paradgims Identified In**	**Plausibility**	**Comments**
Social Connectedness	Physical Activity, Blue Space Theory, SfD, PYD, Surf Therapy	Highly Plausible	Triangulation within all paradigms and links with wider mental health literature
Respite/Distraction/Stress Reduction	Physical Activity, Blue Space Theory, SfD, PYD, Surf Therapy	Highly Plausible	Triangulation within all paradigms but possible different pathways i.e. demanded focus of activity vs parasympathetic nervous system activation of sensory experience
Mastery/Self-Efficacy	Physical Activity, SfD/PYD, Surf Therapy	Highly Plausible	Triangulation across multiple paradigms, connects with wider literature on mental health
Skill Building/Transfer	SfD, PYD	Highly Plausible	Established theory and frameworks highly applicable to surf therapy, especially where curriculum based
Safe Spaces	SfD, PYD, Surf Therapy	Highly Plausible	Already identified within surf therapy and triangulates with established theory in SfD and PYD
Physical Activity Promotion	Blue Space Theory	Plausible	Links to mediators associated with PA paradigm but improvements to PA not recorded within surf therapy to date
Cognitive Improvements	Physical Activity	Plausible	Theory plausible but limited in terms of human based empirical research
Serotonin/Endorphins	Physical Activity	Plausible	Theory plausible but limited in terms of human based empirical research
Environmental Factors	Blue Space Theory	Dependently Plausible	Theory plausible but dependent on participant pollution exposures. Negative air ions theory requires further empirical research
Thermogenic Theory	Physical Activity	Lacking Plausibility	Weak evidence and range of water temperatures surf therapy is conducted in confound this pathway.

2.7 Theoretical and empirical overview conclusions

This overview has explored both the evidence around the effectiveness of, and theoretical mediators linked to, positive mental health and well-being outcomes specifically in research exploring surf therapy and related paradigms. In terms of related paradigms, physical activity has a robust evidence base for its effectiveness in supporting positive mental health. Blue space and SfD/PYD paradigms have a promising positive association with improved mental health and well-being, but further research is required to bolster these findings. Surf therapy also has been demonstrated to have a positive effect on mental health and well-being for multiple populations, but further research is required, especially incorporating controlled study designs, to support effectiveness claims. A common theme across both surf therapy research and related paradigms was the need to better understand programme theory and *how* interventions work to better understand the mediators for positive changes and how to optimise intervention design.

Responding to this need marries with the core aims of this thesis and the next step was to review the current state of literature regarding programme theory for surf therapy and related paradigms. Following this review a range of plausible mediators were identified and listed within Table 2.2. Also included within the table is a judgement on the plausibility of mediators' appearance within future surf therapy research based upon; triangulation within multiple studies and/or paradigms, the strength of evidence for the mediator, and its applicability to surf therapy. The highly likely mediators included social connectedness, respite/distraction/stress reduction, mastery/self-efficacy, skill building/transfer, and safe spaces. Even within these plausible mediators' further research would be beneficial, for example the psychological processes contributing to the distraction hypothesis are still not well understood (Biddle & Mutrie, 2008) or how safe spaces may need to be adapted for different populations and/or contexts. Safe space components may be different based on gender, age, or even reasons for referral which require consideration within intervention delivery. For example, a military veteran experiencing PTSD may have specific threats to their emotional safety based on specific triggers that may not be present for other populations. This range of plausible mediators outline the current theoretical landscape and inform ongoing investigation into surf therapy programme theory in line with the goal of this dissertation.

Finally, through the exploration of potential mediators and programme theory in surf therapy this overview corroborated the conclusions of a recent scoping review as to the current paucity of, and subsequent need for, rigorous empirical investigation into surf therapy programme theory (Benninger et al., 2020). While some potential mediators for the positive changes that surf therapy is associated with have been identified, further research is required as highlighted in this review, especially regarding how mediators are pragmatically delivered and what adaptations are required for different populations. The aims of this thesis align directly with this need, building upon existing and exploring potentially new mediators in line with aim 1, comparing these mediators to understand population and contextual adaptations in aim 2, and demonstrating how to put this deeper theoretical understanding into practice through aim 3. Therefore, the next three studies will look at three surf therapy sites within deliberately varied contexts and working with deliberately varied populations to address both these aims and the identified knowledge gap within surf therapy research.

Chapter 3 : Study 1 – An investigation into surf therapy for military veterans with the Jimmy Miller Memorial Foundation in California.

Welcome circle at Jimmy Miller Memorial Foundation surf therapy session. Credit Kevin Cody

3.1 Introduction

As identified within Chapter 2, one of the populations that have been most associated with positive impact through surf therapy is active-duty military and military veterans. Surf therapy alongside this population seems to address a clear need in terms of evidence-based mental health support. In the USA, mental health conditions are a significant burden for veterans and a major focus of the Department of Veterans Affairs (VA) service delivery (Maynard et al., 2017). This burden is fueled by higher prevalence of mental ill health amongst veterans. For example, a previous meta-analysis conducted by Fulton et al. (2015) indicated PTSD prevalence rates of 23% among US veterans who took part in Operation Enduring Freedom and Operation Iraqi Freedom, which represent a greater prevalence than found within the general population (7.8%). Correlated with this prevalence of negative mental health, veteran populations face increased risk for suicide compared with non-veterans (Kaplan et al., 2007; McCarthy et al., 2009). This correlation is further emphasized in that veterans account for 20% of all suicide deaths annually in the US while only accounting for 1% of the population (Department of Veterans Affairs, 2010). As highlighted within Chapter 2, surf therapy can play a direct role in addressing a variety of mental health challenges. Previous studies on the efficacy of surf therapy with this population have found it to be associated with reductions in depression (Rogers et al., 2014; Crawford, 2016; Walter, Otis, Ray et al., 2019; Otis et al., 2020; Glassman et al., 2021), anxiety (Walter, Otis, Ray et al., 2019; Otis et al., 2020; Glassman et al., 2021), PTSD symptoms (Rogers et al., 2014; Crawford, 2016; Walter, Otis, Ray et al., 2019; Otis et al., 2020), increased positive affect (Walter, Otis, Ray et al., 2019; Otis et al., 2020; Glassman et al., 2021), and self-efficacy (Crawford, 2016). Surf therapy is also well placed as community led and sport focused, to avoid the high levels of stigma that veterans and active-duty military associate with mental health support or treatment (Williamson et al., 2019; Nichter et al., 2020). As discussed in Chapter 2, limited previous research into surf therapy theoretical mediators with this population have highlighted respite and positive social connections (Caddick, Phoenix et al. 2015; Caddick, Smith et al. 2015) as important mediators to positive impact on the mental health of participants. Given this associated impact, surf therapy's advantageous location in terms of stigma and the paucity of research exploring surf therapy programme theory, empirical investigation into *how* this impact is achieved would be worthwhile.

3.1.1 The context – Surf therapy for military veterans with the Jimmy Miller Memorial Foundation, California

The Jimmy Miller Memorial Foundation (JMMF - https://jimmymillerfoundation.org/) is a Californian based charity that utilises surf therapy to support military veterans facing a wide range of challenges including PTSD, Traumatic Brain Injuries (TBIs), anxiety, depression, addiction, and homelessness. The programme also works with active-duty military through the Wounded Warrior Battalion at Camp Pendleton (www.woundedwarrior.marines.mil/WWBn-W/) and with at-risk youth groups. JMMF was founded in 2005 in memory of Jimmy Miller, a Los Angeles County lifeguard and surf instructor who took his own life in 2004. Jimmy's family set up a legacy fund which enabled occupational therapists to develop a 5-week surf therapy intervention delivered to at-risk young people and veterans. A pilot study of the JMMF surf therapy intervention in veterans found clinically significant reductions in both PTSD and depressive symptoms (Rogers, Mallinson & Peppers, 2014), as previously reviewed. The intervention currently runs as an opt in bimonthly club-based programme, with veterans deciding to attend through the Greater Los Angeles Veterans Association Hospital or self-refer. Interestingly, many of the participants choose to self-refer on the recommendation of other previous participants who have shared their own experience of the programme. Prior military service is the only official inclusion criteria for those wanting to enrol on the programme, but referral pathways are designed to prioritize participants in need of support. Sessions consist of a half day of surf therapy including themed discussion on the beach, time in the water surfing or swimming with one-to-one support, a team debrief and a shared meal. These different elements of the programme are supported by veteran and non-veteran volunteers from the local community. Other support roles on the beach such as greeters, food provision, first aid and equipment management also contribute to the participant experience and help them to overcome any challenges they may have to participation. JMMF was selected for this study due to their longstanding successful provision of surf therapy for military veterans, their commitment to maintaining an evidence-based programme, and the availability of a large pool of participants with varied and in-depth surf therapy experiences.

3.1.2 Study aim

The study aims to identify the programme theory that links the inputs of a successful surf therapy programme to associated positive outcomes related to mental health and personal well-being. Such programme theory allows for theoretical discussion, optimisation of delivery and a pathway to future development of surf therapy for veterans. It will shed light on the contextual similarities between interventions of this kind in the USA compared with previous studies in the UK (Caddick, Phoenix et al., 2015; Caddick, Smith et al., 2015). It will also allow for comparison of the key processes identified during initial development and testing of this intervention (Rogers, Mallinson & Peppers, 2014).

3.2 Method

3.2.1 Theoretical Framework

The ontological framework for this study centred on pragmatic grounded theory (Timonen, Foley & Conlon, 2018). This study focused on identification of a theoretical understanding of the social and behavioural components that lead to the intervention outcomes. Grounded theory provided an appropriate methodological approach to expand on this surf therapy intervention's theoretical basis (Hutchinson & Wilson, 2001). Concurrent data collection and analysis along with a constant comparative approach, memo writing, and a theoretical sample of appropriate participant experience identify this study as grounded theory (Charmaz, 2014; Schwandt, 2007). The work undertaken was pragmatic with data collected in the practical, real world intervention setting (Harris, 2015).

3.2.2 Ethics

Ethical approval was granted by the Edinburgh Napier University School of Applied Sciences Ethics Committee (22/08/2018). This process involved in-depth discussion of research protocols with a committee independent of the study, alongside staff from JMMF and experts who had previously conducted research with veteran populations.

3.2.3 Sample

For study 1 a purposive theoretical sample (Charmaz, 2014) was utilised in line with grounded theory practice. Veterans who had participated in surf therapy with JMMF were invited to participate by JMMF gatekeepers, primarily by its lead practitioner. All but one of the participants had experienced a minimum of 4 surf therapy sessions with JMMF. One participant expressed an interest in taking part in the study after their first surf therapy session and it was deemed that this would provide valuable additional insight within the study. Most participants

Table 3.1 Breakdown of Study 1 Sample Demographics

n	Male	Female	Mean Age	Age SD	Age Range	Marines (USMC)	Army	Air Force (USAF)
18	67% (*n* =12)	33% (*n* =6)	42.20	11.00	28-71	78% (*n* =14)	11% (*n* =2)	11% (*n* =2)

lived in the greater Los Angeles area; however, a small number of participants had attended JMMF surf therapy sessions previously but moved away from the area. The sample demographics are listed in Table 3.1. The broad age range (28-71years) meant that veterans from a wide range of conflicts such as Vietnam, 1st and 2nd Gulf Wars and subsequent counter insurgency operations were included. The sample also included non-combat and peacekeeping deployments undertaken by three arms of the US military. Due to the location that JMMF operates, the high number of US Marine Corps participants reflects the personnel previously based at local military bases within the Los Angeles and neighbouring counties. Written informed consent was obtained for all participants.

3.2.4 Data Collection and Analysis

Semi-structured interviews were utilised as the primary source of data collection in line with established grounded practice (Charmaz, 2014), but also to best fulfil the aims of this research. Given the exploratory nature of the research the ability to adapt and explore in further depth key issues as they came up was deemed an important advantage over other less interactive methods such as surveys. This was further supported by analysis conducted concurrently with data collection, again in line with established grounded theory (Charmaz, 2014). It was deemed important to focus interviews on participants to understand programme theory of JMMF surf therapy as experienced by beneficiaries themselves. Focusing on other stakeholders such as the practitioners' risks exploring surf therapy as intended rather than as delivered. Other stakeholder input was still utilised as a part of the overall research's participatory approach and in context setting processes. These priorities were mirrored in subsequent studies. Interviews were conducted between September 2018 and October 2018 with a mean interview time of 50 minutes (range 19 to 82 minutes). Shorter interview lengths to existed for a range of reasons, primarily participant's scheduling. All interviews were included within analysis and valuated elements were identified within shorter interviews. Online video conferencing was used for 5 interviews for logistical reasons, primarily for participants who had moved away from the Los Angeles area. The remaining 13 interviews were conducted in person at locations suggested by participants including local cafes, participant's homes or on the beach. This maximized participants' sense of control, comfort and facilitated more equal power-sharing between interviewer and participant (Gillham, 2000).

Quiet spots at said locations were prioritized to support confidentiality with protocols in place to move if space was too encroached upon. Said protocols were used on one occasion. In addition, informal discussion with practitioners and observation of surf therapy sessions enabled better understanding of the intervention context. These pragmatic approaches facilitated research while allowing appropriately grounded focus on participant experience (Timonen, Foley & Conlon, 2018).

Interviews were semi-structured and opened with an open-ended question about participant experiences at JMMF surf therapy sessions. Further open-ended and non-leading questions allowed for exploration of participants' experiences with opportunities to explore processes highlighted in previous literature (see Table 3.2). Prompts were used to further unpack relevant experiences while clarification prompting enabled better understanding of meaning (Charmaz, 2014). The initial schedule was designed to ensure thorough exploration of participant experience. As interviews took place, additional ad hoc questions were included to explore identified categories in keeping with grounded theories' iterative approach (Charmaz, 2014).

Table 3.2 Initial Interview Schedule Study 1

Initial Open-Ended Interview Schedule
Tell me about your experience of surfing alongside the Jimmy Miller Foundation.
Can you talk me through your process of getting involved with Jimmy Miller?
When you look back at your initial experiences surfing, are there any events that stand out in your mind?
Can you describe to me how you felt when you caught your first wave?
Can you expand on the emotions you feel at the beach and in the water?
Can you describe to me what it was like meeting with new people at the beach?
Can you describe to me your experiences of the atmosphere at the beach?
How would you describe yourself as a person at the beach?
Have you noticed any changes in yourself since you started surfing?
Can you tell me what surfing now means to you?
Can you tell me about working alongside the Jimmy Miller surf mentors?
Can you describe to me your expectations of surfing prior to starting? (Follow up: How, if at all have these changed?)
Is there anything else you think I should know to understand the Jimmy Miller Foundation?
Is there anything you would like to ask me in relation to anything we have discussed?

All 18 interviews were recorded, and rough transcriptions were created by the candidate which allowed for in depth data familiarisation. Key interview segments were transcribed verbatim while filler was left in rough form. Given the candidates dyslexia and the amount of time transcription took, external transcription was considered however given challenges associated with personal data protection, anonymisation and budgeting this option was not used. At this stage, all participants were ascribed a pseudonym to protect confidentiality throughout analysis and reporting of results. This process of cleaning transcripts was repeated several times throughout data collection and analysis. Transcripts were analysed in an iterative, emergent, and non-linear manner comparing data obtained from different participants (Glaser, 1978). Three stages of coding were utilised: initial, intermediate, and advanced. All three stages were used throughout the concurrent data collection and analytical processes in line with established grounded theory practice (Charmaz, 2014; Saldana, 2009). To allow for the analysis of the data collected a three-stage coding process was utilised. The first stage focused on in-depth exploration and comparison of individual processes as reported by participants using gerund-based codes such as 'being present'. These initial codes were in vivo where possible. The second stage involved extrapolation of initial codes into broader categories and synthesis of preliminary programme theory. The final stage of analysis involved mapping of participant pathways within the synthesized programme theory to understand directionality and relationships between categories. At all stages, analysis remained grounded in participant experience. Audio interpretations were recorded as an alternative to written memos to facilitate reflection and mapping of the analytical process. Upon completion of 15 interviews, similar categories continued to be identified alongside a strong programme theory suggesting theoretical saturation (Charmaz, 2008). Three further interviews were conducted offering further in-depth and diverse data but did not add to or change the nascent programme theory. This further suggested that theoretical saturation had been achieved.

3.2.5 Reflexivity

Priority at all stages was to ensure conclusions remained truly grounded in participant data (Timonen et al., 2018). To support this the supervisory team was constructed to include a variety of different expertise including surf therapy practice, mental health, psychology, and surf science. The range expertise allowed for regular open discussion about prior assumptions, potential biases,

and recognise the impact they could have within the research process. Such discussions occurred right through the research process. Prior to visiting each site informed discussions occurred around the context, concepts and prevalence around mental local health and the surf therapy intervention including reflection on the candidates' prior interactions with intervention sites. This enabled honest group reflection on prior held assumptions and assured PhD candidate acted as a critical researcher rather than as an advocate for JMMF or any other surf therapy intervention. (Sparkes & Smith, 2014). Limitations of this reflection should be noted, notably the all-male group and white British and Australian backgrounds of all involved. For this reason, it was important to continue these discussions while the PhD candidate was in the field to better incorporate the voices of local actors within this reflective process. An example of such, prior to the PhD candidate travelling to the field a discussion of the wide ranging experiences of surfing within the research team stressed the highly subjective nature of surfing thoughts and feelings and the range of language used around the topic. To address this where participants described their feelings around a surfing experience a range of prompts were prepared to garner as much depth around the description as possible and better represent their experiences. This ensured open questioning and thorough understanding of participant experiences as opposed to imposition of the preconceptions of surfing experiences that the interviewer may already have. Reflective audio was also recorded throughout the study to highlight awareness of personal preconceptions, bolster credibility and supplement analysis (Charmaz, 2014). Reflection also allowed for recognition of potential power structures involved within the interview process, most notably within this study focused on civilian/military dynamics, perceptions of the candidate as a medical practitioner and where relevant gender based power structures. The primary steps to mitigate these, as much as possible, was ensuring an honest, sincere, and transparent approach through both the recruitment and interviewing process (Hill & Dao, 2020). Ensuring participants felt able to withdraw without feeling judged at any point was also stressed throughout. Audio was used in lieu of traditional note taking to better support reflective practice for a dyslexic researcher. The audio enabled the candidate to listen back and reflect on thoughts recorded close to data collection or analysis process, especially in terms of external influences that may have had an impact on conclusions. This audio also supported reflective discussions within the supervisory team to garner different perspectives as already discussed. This considered approach to reflexivity and taking the grounded

element of the study seriously, pervaded throughout all stages of the research process (Timonen et al., 2018).

Alongside the use of reflexivity for bolstering rigor within the study, reflective practice also played an important role in terms of researcher self-care. Given the PhD candidates exposure to a range of emotive and challenging topics in the field, time was set apart for reflection specifically into these aspects. This included regular reflective audio recordings made in a safe space with the aim of reflecting on how elements of the research had made the candidate feel. This process enabled better identification of challenging experiences that could be discussed with supervisory team or acted upon where necessary. Plans for accessing mental health support were built into the overall programme of study, though most important was building processing time away from research into the schedule.

3.3 Results

3.3.1 Programme Theory

Figure 3.1 is a logic model representing the programme theory that was constructed from participant interview data. Seven emergent categories were identified as pathways from intervention inputs to associated outcomes and reflect three different domains: *Intervention, Individual* and *Contextual*.

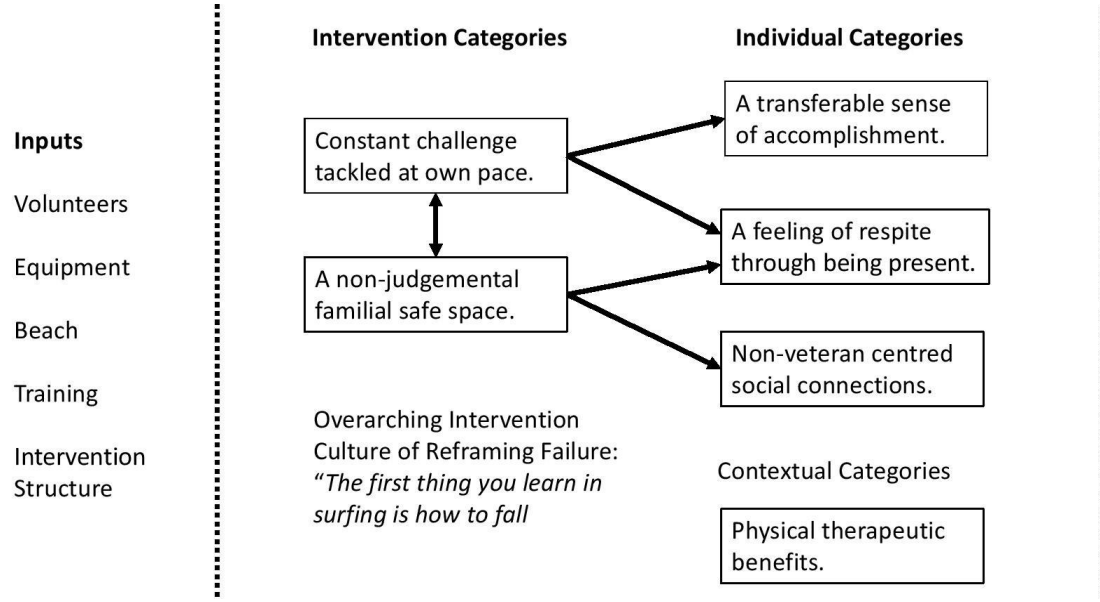

Figure 3.1 Logic Model of JMMF Programme Theory

The first two categories were labelled intervention categories as they primarily related to processes facilitated by the intervention itself. The final three categories were labelled individual categories as they relate to individuals' surf therapy experiences. Constant comparison of data throughout analysis highlighted salience between participant experiences and all categories apart from one example. One contextualised category was identified contingent on one specific participant experience. This category was reported due to the insight it offered to a specific subsection of the sampled population. Final stage analysis allowed for mapping of directionality and relationships between categories. The programme theory was framed within the culture of the intervention.

3.3.2 Intervention Culture

The intervention reframed what it was to fail through surf therapy. The quote, “the first thing you learn in surfing is how to fall,” was frequently spoken by the lead practitioner and was utilised at every single session attended. This ethos pervaded every element of the intervention, including all listed categories, and was identified as ‘culture’ rather than a discrete category. Participants highlighted how this culture positively impacted their experience providing encouragement and positive reinforcement.

“They were saying specific technical things about what we could do to improve but they were saying things in a positive way, they never said anything in a negative manner. So that was a, I believe that was structurally built into the programme where if we did something wrong, they would just say, if you try it this way, it'll give you better results. Instead of saying, don't do it that way.” JMMF Participant 1

“The way they explain it to you, you don't feel like a failure, you feel, like, OK I can do this. This is part of the surfing experience.” JMMF Participant 2

This reframing of failure was highlighted as an important lesson that could translate into other life situations and contrasted with the intense performance-based mentality that many veterans experienced in active service.

“If you fall off, just get back up man, it was a cool metaphor for life, just get back up man it’s life.” JMMF Participant 3

“And all these things, instead of being performance based, I just realized I just need to be me.” JMMF Participant 4

JMMF’s reframing of failure pervaded the programme theory, supporting other categories, enabling pathways and was associated with positive mental health outcomes. This culture was reflected in the actions of staff and volunteers and was reinforced throughout intervention delivery.

3.3.3 Intervention Categories

Constant Challenge Tackled at Own Pace

Participants identified that surfing was challenging although their expectations varied regarding the degree of difficulty. Some participants thought it might be easy to learn prior to their first attempt. The challenge continued to be identified even as participants progressed.

"I thought it was going to be super easy, that was my first expectation, and I was quickly humbled by the ocean." JMMF Participant 5

"I'm pretty good at being able to do what I want to do physically, and here I am not being able to keep my balance." JMMF Participant 3

Participants highlighted how the challenge was balanced by the focus on learning at one's own pace. This focus was supported by the patience and encouragement offered by intervention staff and volunteers.

"If you don't get it on the first couple tries, don't even worry about it, don't sweat it. The waves never end so you can keep going." JMMF Participant 6

"It's not a competitive space, it's an inclusive challenging space." JMMF Participant 1

"They (the intervention staff/volunteers) practiced patience and encouragement really just verbally said, it's okay just try again. It's a very powerful thing." JMMF Participant 3

Furthermore, the focus on surfing skill development at one's own pace was highlighted as being critical to participation by individuals facing major physical challenges.

"With Jimmy Miller foundation I was like hey I can't walk yet, I can't stand up yet so they would actually like have me just lay on the board and lay down and surf and body surf and slowly I started getting up and it wasn't like 'get up, stand up, go faster' it was kind like take your time, don't get hurt but have fun, of all things have fun." JMMF Participant 7

A challenging task conducted at a self-selected pace was consistently highlighted as a key element of participant experience and for some was fundamental to being able to take part. This approach, which was facilitated by those delivering the intervention, also seems to have underpinned individual categories that form part of this programme theory.

A Non-Judgmental Familial Safe Space

Participants cited how the intervention fostered a non-judgmental safe space often drawing comparisons to a supportive family network.

"So, when you talk about the Jimmy Miller environment, it's a matter of emotional safety." JMMF Participant 1

"The way that they create the environment, it's like, you can tell that they're family off the bat, but it's an open family, and then you're welcome to walk in and experience, you know, the love and the joy and the surfing." JMMF Participant 8

This safe space was facilitated by elements of the intervention including how staff and volunteers conducted themselves, as well as the structure of service delivery. Participants often highlighted that there was a complete lack of judgement of individuals, of either how they were in the past or in the present. For participants this was a novel, rewarding and very important experience helping in breaking through long term isolation.

"I have been isolating myself for seven years, I began to realize that there's, there's actual people out there that care about me, and I'm gonna be safe to be around." JMMF Participant 1

The structure of the sessions further promoted this idea of a safe space through participation in a non-clinical sharing setting. This consisted of joining in a circle to discuss a positive theme as part of the surf therapy session. Participants emphasized how this gave an opportunity to share their feelings and how participation by everyone, staff and volunteers included, made it easier to share themselves.

"They're teaching me but they're sharing too. Um, so I guess it kind of broke down that barrier for me of like, Oh, this is somebody who's in authority, which I, you know, usually have issues with, whereas, you know, they're human. And they're opening up so I could be open." JMMF Participant 8

"So, you have other non-military people sharing their feelings because that will automatically put a military member more at ease, because if they are doing it why not?" JMMF Participant 9

This safe space created through the structure and the delivery of the intervention seemed integral to overall participant experience in the programme and enabled and allowed for later individual categories related to social connections. The importance of this safe space at the intervention is highlighted by one veteran who compared it to their feelings in wider life.

"Whenever you start getting back into society from wounded warriors or veterans in general, even if you are going out to Walmart, or to the gym, or the mall, you kinda sit in your car and you just like I'm really anxious to go into the public right now. It's all these different emotions but when you roll up to the beach for Jimmy Miller, it had to be the first place that I didn't get anxiety at." JMMF Participant 7

3.3.4 Individual Categories

A Transferable Sense of Accomplishment

Mastering aspects of surfing, the aforementioned challenging task, resulted in a real sense of accomplishment. A feeling of achieving something that many thought they would never be able to do. This was further facilitated by the intervention reinforcing this accomplishment wherever possible.

"I realized I was the only one that was standing and surfing, it was just one random wave that I got on my own and I think every blue shirt (volunteers) on the beach was cheering like, like I was about to like, score the game winning goal for the World Cup." JMMF Participant 1

"It's success and achievement every single step of the day." JMMF Participant 2

Participants reported that this sense of accomplishment was transferable to wider life. This feeling of accomplishment reinforced individuals' sense of capability challenged self-doubt or reminded participants of achievements when things were not going well.

"Certainly (surfing) means to me that I mean, in a very, very big picture, like I really can accomplish anything that I put my mind to. So yeah, something I thought was impossible, that I would never enjoy, never could be good at." JMMF Participant 10

"The accomplishment helps you long-term, because honestly then you are not just fixated on this week has been crap." JMMF Participant 7

This transferable sense of accomplishment was linked to specific instances where it helped to tackle other challenges in life. One veteran reported how their own sense of accomplishment in surfing gave them the confidence to tackle some tax issues that had been too intimidating for them to address. Such examples highlight the place of a transferable sense of accomplishment in this programme theory and possible pathways to associated mental health outcomes.

A Feeling of Respite Through Being Present

Veterans interviewed reported a feeling of respite from negative emotions, symptoms and memories that may otherwise be persistent throughout daily life through surfing with JMMF.

"And I remember the first time I went surfing, I was more in a depressive state. And so, when I caught that wave, but I almost felt like I was kind of rising above like, a lot of the situation or the gunk." JMMF Participant 8

"You go surf with those guys, because no matter how bad things had got, whenever I got into the ocean is just like everything got washed away." JMMF Participant 4

This feeling of escape provided respite in the moment, however participants also reported that it was transferable to other situations such as avoiding or coping with a PTSD flashback. One veteran explained how going back to this feeling of respite helped them to cope with flashbacks related to the noise of fireworks.

"I had a PTSD moment where there's like these firework shows up and my doctor told me just think back where a place where you're more calm and I thought about the ocean surfing […] I thought about surfing and I just literally felt so relaxed you know. Those (fireworks) to me sound like mortar rounds, that whistling noise that got me in Iraq, like constantly were attacked by mortars yeah, three times a day average." JMMF Participant 11

In another example one participant described how the respite provided by surfing provided hope for future respite even when personal circumstances may be in a very negative place.

"You can't wait for the next one because you know if you're having a rough time, or if you know, you're suicidal or if you're injured or whatever, you know that you are going to have a good day when you go (JMMF)." JMMF Participant 4

Participants noted that the feeling of respite was facilitated by the complete focus that surfing demanded. A combination of the challenge of the activity itself and the need to be present and aware of the ocean environment left little space for negative thoughts or emotions.

"Whatever stress I had, from school or whatever, I didn't think about it at all because I was so focused on the task in hand." JMMF Participant 3

"You really have no choice but to be present. Like, even if you start having conversations about something. Sometimes waves will come and knock you over like hey pay attention. So yeah, it's, it's like, it's a good practice in being present without like, having to try hard at it. Just really kind of natural." JMMF Participant 12

The need to be focused and accompanying positive feelings were highlighted by one participant who reported elements of temporal distortion while riding on a wave.

"Pure, happiness, unless you have done it it's a feeling that's very hard to describe, it's like everything slows down. Your entire life just, not so much pauses but is very slow motion as you go through the section (of the wave), and it's just incredible." JMMF Participant 12

The feeling of respite from negative emotions, thoughts and symptoms that may be present in veterans' wider lives seems to be a very important element of participants' experiences with JMMF. Not only was respite experienced in the sessions, but it was also linked with transferability to other situations, leading to better mental health outcomes.

Non-Veteran Centred Social Connections

Participation in the intervention enabled creation of new social connections both in session and more broadly. This was highlighted as particularly important for veterans facing forms of social isolation.

"I mean like I said I was fucking alone bro I was I was like really fucking alone and I'm not anymore. Yeah you know just being able to you know go out with other people who actually like want me there, this is just night and day from how life used to be." JMMF Participant 13

"To be able jump into like a kind of pre-made community right there was pretty cool. I already felt comfortable. I felt compassion towards myself and towards everybody there and felt accepted into something a little bit bigger than just us." JMMF Participant 12

One aspect of these new connections that participants highlighted as especially important was breaking out of self-imposed veteran centred comfort zones and engaging with other non-military communities. This was cited as a big step for many of the veterans spoken to.

"Connecting with a community where there is both veterans and people that have never been in the military is one of the most healing things for me as far as social skills helping me transition back, that I can find." JMMF Participant 12

"It eliminated that whole us vs them thing, you know us vs civilians, it was more like just us." JMMF Participant 3

The fostering of new social connections, in particular non-veteran centred social connections, was a critical element of participant experience surfing with JMMF. The ways in which this broke down reported isolation among participants offers a possible pathway within this programme theory leading to better mental health outcomes.

3.3.5 Contextualised Category

Physical Therapeutic Elements

One of the participants reported how taking part in surf therapy greatly supported their rehabilitation following an accident. Physical elements related to the water and the sand were cited alongside the element of taking part in stealth physical therapy masked by a fun activity.

"Through Jimmy Miller, I definitely learned how to walk again, wasn't scared to fall in the water. […] It's fun, fun and more fun." JMMF Participant 7

"It put my muscles and nerves through therapy that no hospital setting could imitate." JMMF Participant 7

Furthermore, improvements to physical challenges faced by participants could contribute to mental health improvements associated with the JMMF intervention for this participant. While

an isolated example within this study, and not the primary focus of this work, it is important to note the physical therapeutic elements surf therapy may offer.

3.4 Discussion and Implications

The study aimed to identify the programme theory that linked JMMF surf therapy inputs to associated positive outcomes related to mental health and personal well-being. A visualisation of the identified programme theory was presented as a logic model in line with established intervention evaluation techniques (Nutbeam & Bauman, 2006) while remaining grounded in participant experiences (Timonen, Foley & Conlon, 2018).

Self Determination Theory (SDT) has been previously highlighted as a possible theoretical framework for exploring surf therapy programme theory (Marshall, Niven & Kelly, 2019). The current study supported this suggestion by highlighting the importance SDT concepts including autonomy (e.g., *constant challenge tacked at own pace),* competence (e.g., *a transferable sense of accomplishment),* and relatedness (e.g., *non-veteran centred connections).* These three concepts are identified within SDT as basic human needs (Ryan & Deci, 2017) and as such it is not surprising to see them as integral to a programme aimed at boosting mental health and personal well-being. The use of SDT as a framework for physical activity is well established (Perlman & Webster, 2011; Saebu, Sørensen & Halvarial, 2013; Fenton, Duda & Barrett, 2016) although the focus is often on behaviour change in relation to promotion of and adherence to physical activity. The use of SDT models specifically for mental health and well-being was previously identified (Ng et al., 2012) and the current study tied these established theoretical pathways to intervention processes and structures that can be translated to or replicated in other contexts. Thorough investigation of intervention categories provided key insights into successful implementation of SDT frameworks that are focused on human need fulfilment within a mental health intervention context.

Along with SDT, the concept of respite has previously been investigated within surf therapy delivered to military veterans (Caddick, Phoenix et al., 2015; Caddick, Smith et al., 2015). The ‘distraction’ hypothesis was linked with physical activity and improved mental health (Bahrke & Morgan, 1978) maintaining that physical activity provides a general sense of distraction from negative mental health symptoms. However, the findings in this study offer an alternative theory

for this pathway in the form of Flow Theory (Csikszentmihalyi, 2002). Flow theory describes a mental state in which an individual is completely immersed in the task at hand and is commonly described as being 'in flow' or 'in the zone'. Participant experiences from this study described respite from negative thoughts, emotions or symptoms while surfing. As the task demanded their full attention, to the point where they could not think about anything else. This matches the description of flow state, alluding to complete involvement and a sense of serenity (Csikszentmihalyi, 2002). Other participant experiences that were potential markers of a flow state include: timelessness or temporal distortion, intrinsic motivation to surf, inner clarity and a sense of ecstasy (Csikszentmihalyi, 2002). The requirements for flow state also appear to be present, clear goals identified by participants and immediate feedback available. These goals could include simply getting in the water, riding board prone or riding standing. Immediate feedback was provided either through falling or by volunteer surf instructors (Csikszentmihalyi, 2002). The autonomy provided to participants via self-selection of goals and progressing at their own pace, combined with the ongoing challenge of surfing, also links to the skill challenge balance model identified as necessary for flow (Csikszentmihalyi, 2008). Flow theory has been previously linked to surfing (McKenzie, Hodge & Boyes, 2012) and to positive mental health (Nakamura & Csikszentmihalyi, 2009) but there has been limited study of how flow can be employed in intervention frameworks. The appearance of flow within the JMMF surf therapy intervention and the way in which it offers a potential pathway to mental health improvements through respite is therefore a novel finding. The pre-requisites of flow are well established and could be built into a wide range of interventions beyond surf therapy or other physical activity paradigms. Future research should incorporate empirical testing of the presence of flow states within surf therapy using validated tools (Jackson & Eklund, 2002). Identification of probable flow states within surf therapy in the current study, paves the way for such empirical testing, and could have wider implications for other mental health interventions.

The JMMF programme theory can be divided horizontally between surfing elements and social elements of the intervention. Surfing-based pathways related to accomplishment can be linked with SDT and can also be linked with existing theories on mastery and self-efficacy that are well-established in mental health research (Bandura, 1997; Lubans et al., 2016). The utilization of the SDT framework, married to clearly expounded intervention processes and structures, offers a

key bridge between the theoretical and the practical in terms of mental health outcomes. While further examination in other contexts is needed, the programme theory iterated here offers a clear framework for future intervention design. Furthermore, the intervention categories that underpin the JMMF programme, while evident in surfing, are not unique to this sport and may be relevant for many other self-paced sports. This offers the potential for the current findings to support mental health intervention discussion, design, implementation and evaluation across a wide range of paradigms tailored to local needs and context. These findings provide a foundation for community psychology practitioners to better integrate surf therapy into usual PTSD treatment for veterans or to adapt non-surf specific findings to contextual treatment and intervention opportunities.

Alongside surfing-related elements social pathways related to the creation of a safe space and making new social connections were identified that also link to prior research. Creation of safe spaces within a mental health setting has been discussed previously (Bryant, Tibbs & Clark, 2011) with safe spaces characterized as "a lack of judgement with a focus or respect for others and with a psychological sense of community" (Walker et al., 2017, p.54). Combining a safe space with a sporting/physical activity intervention has been identified in previous surf therapy research (Marshall, Niven & Kelly, 2019) and also prioritized within SfD and PYD research (Coalter, 2013; Draper & Coalter, 2016; Verkooijen et al. 2020). The safe space provided by the intervention and facilitation of other social connections was critical. The debilitating effect of social isolation was frequently noted by participants, which echoed other literature examining this population (Wilson, Hill & Kiernan, 2018). Furthermore, the way in which the intervention builds upon this safe space, to promote positive interactions with civilians, appeared integral in breaking down social barriers for veterans. It may be that not including civilians within the surf therapy programme might maintain social barriers and be less conducive to successful acculturation to civilian life. Practical implications include service optimisation and development. To facilitate this, the programme theory has been presented to intervention staff. An elucidated programme theory allows for the JMMF intervention to optimize its service delivery by focusing on key aspects of the programme identified in this study. This could involve specific volunteer training related to the provision of a safe space or emphasizing that participants should work at their own pace while at the beach. This could also inform similar interventions for veterans in the US. The inclusion of civilians within

this intervention suggests that other interventions could employ a similar approach to break down social isolation and promote veteran acculturation.

The possible physical therapeutic effects of surf therapy were reported by one participant in this study. Given what was reported, even by a singular participant, it is worth noting possible physical therapeutic effects linked to surf therapy that have been previously described (Fleischmann et al., 2011). Further research into the physical benefits of surf therapy and their links to mental health outcomes is warranted.

This study provided a grounded iteration of programme theory for the JMMF surf therapy intervention. These findings include novel theoretical observations, while also connecting with established theory, to provide clear pathways from known inputs to associated outcomes. This work adds to the emerging evidence base surrounding surf therapy, both in terms of understanding programme theory, and providing plausible theories to account for effectiveness.

3.6 Strengths and Limitations

Study participants were heterogeneous in relation to age and were drawn from three arms of the US military who had undertaken a wide range of deployments. The gender split of 66% male to 33% female (Table 3.1) differed from total US military forces where males make up 83% of service members (US Department of Defence, 2016). There were no noticeable gender differences in participant experiences identified in this analysis. It is possible that this reflects wider trends of males having more negative attitudes to mental health support (Gonzalez, Alegria, & Prihoda, 2005). An attempt to match the military gender make-up by purposive sampling was not undertaken as the primary goal was to identify participants with rich experiences of the JMMF programme. It is possible that different experiences could have been reported by other programme participants who did not contribute to this study.

While extensive background research was carried out prior to data collection, the lead researcher's status as a UK citizen limited interaction with US military services that support the transition from active duty to civilian life. Further exploration, experience and understanding of this process may have been useful given it was frequently discussed in interviews. Interviewing key workers within these services may have facilitated further triangulation (the convergence of

conclusions based on experiences of different stakeholders) and provided better understanding of where the JMMF interventions fits within the wider veterans' service landscape.

3.7 Practical Challenges in the Field

Within the study there were a couple on notable challenges in the field that are described for the benefit of future research in other contexts. The extensive time spent in the field was designed to promote rigor in terms of adding prolonged engagement with the intervention and context into the research. This was fortunate as this increased amount of time spent was also required in practical terms due to the widely dispersed geography of JMMF participants. Interview locations were self-selected for the comfort of participants, but the greater Los Angeles area incorporates a vast area, and despite being based near the interventions base much time was taken up by travel around to interview sites. This time could be useful in terms of transcription and analysis but could have put pressure on the schedule had the trip not been the length it was. Such practical considerations are an important part of research planning that sometimes can be overlooked in favour of planning components related to rigor.

A further practical challenge within the field was the status of the candidate as foreign national conducting research related to the US Military. The study participants were all veterans no longer serving so this issue was not common but on occasion interviews occurred within Veterans Association premises and questions were raised. In a similar vein, visits to surf therapy delivery on an active base required creative approaches given the foreign national status of the PhD candidate. While only a peripheral challenge within this study, any future research working with active US military should be aware of and explore the extra steps required if the researcher is a non US citizen.

3.8 Conclusion

This chapter provided a pragmatic grounded exploration of programme theory within the JMMF surf therapy intervention. This was visualized in a logic model highlighting pathways from known inputs to associated outcomes and the findings offer practical suggestions for the intervention in terms of service optimisation and future expansion aligning with Objective 1 of this thesis. The chapter also highlights future research priorities including the importance of Self Determination Theory and Flow Theory within both surf therapy and veterans' interventions more

broadly. Moreover, this work contributes to the emergent surf therapy evidence-base offering plausible theoretical understanding and contributing to Objective 2 of this thesis. In line with the broader aims of the thesis to garner an understanding of the potential mechanisms of surf therapy that may be applicable across a range of populations and contexts, the next chapter aims to diversify significantly from this study both in terms of population and context. As such, the next chapter explores surf therapy experiences in younger people living in a developing country, embedded within post conflict societal challenges.

Chapter 4 : Study 2 – An investigation into surf therapy for youth with Waves for Change in post-conflict Liberia.

Waves for Change Liberia Surf Club. Credit Jamie Marshall

4.1 Introduction

The previous chapter investigated military veterans' context within a first world country, highlighting the importance of safe spaces, respite, social connections and SDT within surf therapy programme theory. It is vital to appreciate that context may be integral in relation to how transferable, or generalisable theoretical mediators of effective surf therapy practice are. As such, this chapter explored another of many possible contexts, one which offers significant diversity to the previous 'Jimmy Miller' case study. Specifically, this chapter explored surf therapy mechanisms within a youth mental health in Liberia, a developing context facing many post-conflict challenges. This next study, when viewed alongside the previous chapter, helps to move towards exploring a better understanding of potential variance or similarities of theoretical mediators within surf therapy, in line with the broader aims of the thesis.

Exploring different contexts is important because, in this case as an example, it is clear that post conflict settings such as Liberia are associated with their own unique challenges; the direct and indirect consequences of armed conflict have been linked to negative mental health experiences among conflict-exposed youth (Attanayake et al., 2009). These mental challenges are intergenerational by nature, leading to long-term negative mental health that is propagated within family dynamics (Betancourt et al., 2015). Between 1989 and 2004, the West African country of Liberia experienced devastating civil war defined by widespread human rights abuses and collapsing infrastructure. The country continues to experience a range of post-conflict challenges and human rights abuse such as gender-based violence, ritualistic killing, economic inequality, and civil unrest (United Nations, 2016). As a result of these challenges, negative mental health and poor well-being is prevalent in children (under the age of 14) and youth (15-24) in Liberia within the context of complete collapse of protective communal, family, and social structures (Borba et al., 2016). To start addressing these challenges, priority areas for at-risk Liberian youth have been identified including skills training, community reintegration, and recreation (Levey et al., 2013). The previous chapter identified how surf therapy is one approach that aligns with most of these priority areas, albeit with a very different population. As identified within Chapter 2 only one study has explored surf therapy's impact on youth mental health within post-conflict settings, finding a large significant positive effect associated with youth well-being post 10-12 weeks of surf therapy

across three intervention sites in and around Freetown, Sierra Leone (Marshall et al., 2021). This study also identified one site within its scope of research that had a non-significant small negative effect. The most notable difference between sites that had significant positive impact over the one that had non-significant effect was participant attendance and associated implementation challenges. These findings are encouraging for the potential of surf therapy in supporting youth mental health in post-conflict contexts, though conclusions must be viewed with the study's lack of control groups in mind. The apparent importance of attendance and implementation challenges for the single site that did not record a positive impact highlights the importance of understanding *how* surf therapy works. Empirical exploration of surf therapy within a post-conflict setting, as described within this chapter alongside the Waves for Change surf therapy intervention, would be both worthwhile and novel research.

4.1.1 The context – Surf therapy for youth with Waves for Change in post-conflict Liberia

Waves for Change (W4C - https://www.waves-for-change.org/) was founded in 2009 as a small surfing club run for youth in the Masiphumelele Township, Cape Town, South Africa. The founders initially offered surfing to local children and youth simply as a fun activity. But from verbal participant feedback, the founders of W4C realized there seemed to be additional benefits beyond the fun for those who participated. In an effort to provide more social support, the founders reached out to local social services but found such services were under resourced. As the organisation grew, it teamed up with mental health professionals from the University of Western Cape and University of Cape Town to develop a surf therapy curriculum that combined surfing with evidence-based mind/body therapy. The curriculum refers to evidence-based activities that are then integrated into W4C programme theory and delivery. Curriculum components were defined as evidence based if they were theoretically sound, had been empirically tested, and aligned with up to date literature, avoiding adoption of potentially harmful 'wellness' practices that are increasingly being presented as valid within the public sphere (Ottwell et al., 2021). The curriculum was developed through engagement with local children and youth (Benninger & Savahl, 2016) and a review of different therapeutic techniques that had been found to be effective in children and youth. These therapeutic techniques specifically included elements of cognitive behavioural therapy, goal setting and emotional monitoring/regulation (Centre on the Developing

Child, 2015), along with breathing and meditation techniques (Brendtro et al., 2002). W4C currently works with 1800 children (aged 11-14 years) annually in at-risk communities in South Africa (Waves for Change, 2019). With the participating children gaining access to surf therapy once a week for 10 months (March to November). The children who W4C work with face a variety of challenges associated with food insecurity, abuse, exposure to trauma, violence, and living in a turbulent social setting. The intervention is associated with improvements to participants' well-being, self-esteem, and effective use of learned skills in conflict resolution and maintaining a calm attitude, outcomes measured using a range of validated tools (The World Health Organisation-Five Well-Being Index and the Difficulties in Emotion Regulation Scale) alongside qualitative inquiry (Waves for Change, 2019; Waves for Change, 2020; Waves for Change, 2021). As discussed within chapter 2, a randomized controlled trial (RCT) testing W4C intervention outcomes was carried out in South Africa (Snelling, 2016). The RCT concluded that surf therapy is a feasible intervention which warrants further study despite finding no statistically significant change to well-being or behavioural outcomes within the intervention. These conclusions were drawn based upon limitations within the study including low statistical power, challenges around intervention fidelity, participant attendance, and consistency of delivery. Interestingly the challenges associated with the RCT, especially around attendance and consistency corroborate with observations from Marshall et al.'s (2021) aforementioned study carried out in post-conflict Sierra Leone. Such challenges may be prevalent within comparable difficult and under resourced contexts and highlights the importance of better understanding programme theory, a recommendation made within the RCT (Snelling, 2016). The intervention also incorporates a "Surf Club" that supports continued engagement with surf therapy and is comprised of previous participants who are able to access the support and equipment required to participate in surfing, until the age of 17 years. W4C incorporates a range of employment support for older members of the club prior to aging out, including a structured pathway to become future W4C mentors who can offer unique insight to the role as previous participants.

Following on from the inception of the W4C programme within South Africa, W4C Liberia was piloted in 2016 as the first site in which the curriculum was delivered outside of South Africa. The intervention has expanded within Liberia, reaching up to 150 children and youth (aged 9-20 years) per year in Harper, in southern Liberia. The W4C Liberia programme mirrors the South

African programme in terms of structure (surf therapy once a week for 10 months) and coaches are recruited from the local community with an intentional balanced gender split. W4C Liberia has a growing Surf Club and has recently completed a pilot programme based in the capital Monrovia. As the Monrovia site was only at initial pilot stage at the time of data collection, this study was exclusively focused on W4C in Harper, a coastal town close to the border of Côte d'Ivoire in West Africa. Harper is the capital of Maryland County and has a population of c. 32,600. Healthcare, especially in terms of mental health, remains limited and is dependent on the support of international non-governmental organisations. The county shares many of the post conflict challenges to mental health found across Liberia, including harmful traditional practices. Maryland has previously been identified as the hub of ritual murder within Liberia (Schmall & Williams, 2011) and researcher experiences in situ during this study highlighted such issues are not a thing of Liberia's past and continue to have a devastating impact on local communities. Surfing in Harper did not exist as an accessible activity to local people prior to the W4C intervention, having only been undertaken by singular international aid workers posted to the town.

4.1.2 Study aim

This study sought to explore and contribute to key knowledge gaps within the W4C evidence base by developing an initial exploratory programme theory based on participant experiences of surf therapy in Liberia. These findings will support the optimisation the intervention's future delivery while also bridging knowledge gaps for the intervention, around surf therapy in post-conflict zones and within the wider SfD paradigm. Specifically, this study sought to map W4C's iteration of surf therapy from its known inputs through to associated positive mental health and personal well-being outcomes related.

4.2 Method

4.2.1 Theoretical Framework

The ontological framework for this study centred on constructivist "basic qualitative study" (Merriam & Tisdell, 2016). In order to best explore its aim, the study focussed on trying to understand both how participants made sense of their experiences at W4C, and what these experiences meant for participants. Through in-depth interrogation and comparison of these participant experiences a better understanding of the personal and social process within W4C can be elucidated within an initial programme theory.

4.2.2 Ethics

Ethical approval was granted by the Edinburgh Napier School of Applied Sciences Ethics Committee on 25/01/2019 (Reference Code: SAS0052). This process involved in-depth discussion of research protocols with a committee independent of the study and was the most rigorous ethical review process available to the team. W4C staff were involved in this process to best inform ethical practices in line with the local context.

4.2.3 Sample

For study 2 a purposive sample was utilised to ensure participants had in-depth experience of the W4C intervention. Participants were recruited from a range of local communities within Harper. Twenty-three participants were interviewed with an average age of 15.8 (±3.65) years and an age range of 11-25years (Table 4.1). The age range in the sample represents all W4C service users in Liberia. The gender makeup of the sample was representative of intervention participation with 74% male participants and 26% female participants (Table 4.1). A range of ages, genders, and community locations were included within the sample to ensure different perspectives of core experiences within the intervention were represented (Patton, 2015). Sampling occurred concurrent with data collection and analysis. Children and youth who had taken part in W4C surf

Table 4.1 Breakdown of Study 2 Sample Demographics

n	Male	Female	Mean Age	Age SD	Age Range
23	74% (*n* =17)	26% (*n* =6)	15.78	3.65	11-25

therapy for a minimum of six months were invited to take part in the study via the distribution of information sheets by W4C surf mentors. Reasons for participation at W4C were not discussed with the researcher but likely related to the adverse conditions associated with a post conflict context including but not limited to domestic abuse, sexual abuse, bullying, substance abuse, school exclusions, gang or criminal involvement, bereavement or exposure to traumatic/violent events. Consent forms were distributed to children and youth who expressed interest in participation. Parental consent was mandatory for all participants under the age of 18. Additional steps were taken to ensure participants were partaking voluntarily after some consent forms arrived back with only parent signatures. These steps included follow up conversations with participants, resigning of forms, providing verbal confirmation in interviews, and multiple opportunities to withdraw. All participants and parents of participants were given information about the study through a range of methods including paper information sheets, in person discussions and on local radio, to ensure all consent was suitably informed. The lower percentage of female participants reflected a high dropout rate of female participants in the previous cohort of surf therapy that the sample was being recruited from. Internal W4C interrogation of this dropout rate identified local contextual challenges around expectations of females to work and beliefs around the unsuitability of leisure time sports for females being the primary drivers. Community engagement to address these challenges was ongoing to try and reduce future dropout of female participants. Female W4C coaches were involved in all recruitment and data collection involving female participants.

4.2.4 Data Collection and Analysis

Twenty-three semi structured interviews were conducted during February 2019, with a mean interview time of 21 minutes (range 17-36 minutes). Younger participants typically had shorter interviews, which poses challenges, but it was deemed important to represent a full range of participant experiences. Interviews were conducted at locations and times that minimized disruption for participants. Locations consisted of private areas at the beach and a local health compound when the beach was judged too busy. To provide appropriate, contextual, and trusted safeguarding support and to avoid researchers being alone with vulnerable child participants, peer support was provided by gender appropriate W4C surf mentors, which occurred in 70% of the interviews. While W4C mentors' presence could have impacted interview content and affected

power dynamics within the interviews, it was considered an important step for participants under 18. Peer support was offered to participants over the age of 18, but all preferred to be interviewed individually accounting for the 30% of non-peer supported interviews. When present, the W4C mentors also helped with language challenges. Whilst English is the first language in Liberia, the local dialect at times necessitated translator support. Before interviews, the W4C mentors were briefed on simple steps to minimise any feelings of coercion. This included how to deliver non-leading questions should translation be required and ensuring participants knew that everything shared was anonymous. W4C mentors agreed to confidentiality of all interview contents unless it impacted participant safety. Should a disclosure have occurred during interviews that impacted on participant safety W4C locally informed safeguarding procedures would have been followed. No such disclosure occurred throughout data collection.

Interview procedures consisted of a brief introduction to ensure all participants understood the process: (a) that they were taking part voluntarily, (b) everything said would be treated confidentially unless it could impact participant safety, (c) all data included in write-up would be anonymous, and (d) they could stop or pause the interview at any time. It was also highlighted that there were no right or wrong answers. At the start and at the end of interviews, participants were given the chance to ask any questions about the process.

The interview schedule was developed to ensure thorough exploration of participant experiences through open-ended questions with a particular focus on theoretical mediators of surf therapy (Caddick, Phoenix et al., 2015; Caddick, Smith et al., 2015; Marshall et al., 2019) including those identified within study 1. Probes, prompts or "exploration" (Seidman, 2013) were used to further interrogate experiences and encourage resonance and depth for subsequent analysis. This process also ensured participant meaning was clearly understood given local dialect and slang. After piloting the interview guide, two questions caused confusion and so were removed from later interviews. The first question omitted was too conceptual and the self-descriptions it generated were very literal. The second question omitted used a colloquial expression ("day-to-day") that did not retain its meaning in the local dialect. In line with the pragmatic and explorative approach of the study, new questions were added as initial analysis occurred to further explore participant perceptions and specific elements of the intervention. The interview schedule can be

viewed in Table 4.2 below. Questions that were removed in process are struck through, while questions that were added during the study are in italics.

Table 4.2 Initial Interview Schedule Study 2

Initial Open-Ended Interview Schedule
Can you tell me about your time with W4C?
Can you tell me what surfing now means to you?
Can you talk me through how you got involved with W4C?
Can you tell me about working alongside the W4C surf mentors?
When you look to back your first-time surfing, are there any events that stand out in your mind?
Can you describe to me what you thought about surfing before you started? (Follow up: How, if a all have these changed?)
Can you tell me how you felt when you caught your first wave?
Can you tell me how you feel at the beach and in the water?
Can you tell me what it was like meeting with new people at the beach?
Can you tell me about the atmosphere at the beach?
Is there anything else you think I should know to understand the W4C?
Is there anything you would like to ask me in relation to anything we have discussed?
Can you tell me what you would tell your friends about W4C if they did not know about it?
Can you tell me about [insert item from W4C Curriculum]?
Can you tell me about bananas' culture?
Can you tell me what it means for you to be a surfer?
~~How, if at all, has surfing impacted on your day-to-day life?~~
~~How would you describe yourself as a person at the beach?~~

Key segments were transcribed with filler left on the audio in a process that was repeated throughout data collection and concurrent analysis. Analysis was conducted in an iterative, emergent, and nonlinear manner with constant comparison between participant data (Charmaz, 2014). Three stages of coding were utilised (initial, intermediate, and advanced) concurrently with data collection. The different stages of coding allowed for in-depth exploration and comparison of perceived intervention processes, which in turn highlighted individual impacts and outcomes. The third stage of analysis identified the storyline of participant experiences in order to map an initial W4C programme theory and understand directionality between impacts and outcomes. Audio recordings were used as an alternative to memo writing throughout to support analysis. Having completed 20 in depth interviews it was noted that similar categories continued to emerge,

indicating possible theoretical saturation (Charmaz, 2008). Three further interviews were conducted that neither added to nor altered any categories despite adding further diversity and depth which is consistent with theoretical saturation.

To enhance the rigor of data collection, several strategies were employed, including prolonged participatory engagement with the intervention, triangulation, and member checking (Korstjens & Moser, 2018; Tracy, 2010). These strategies were identified as best suited to pragmatically promote rigor while avoiding a simplistic criteriological approach (Barbour, 2001; Smith & McGannon, 2018). For the month prior to and during data collection on the ground in Liberia, an observer-participant role within W4C surf therapy was established. This involved taking part in surf therapy alongside a different cohort to participants involved in the study, joining W4C staff in preparation and debriefs from sessions, and joining weekly W4C team meetings. Frequent discussions were also held with W4C practitioners and local stakeholders which built relationships within and around the intervention. This collaboration did not generate data in an ethnographic sense but supported multivocality and the interpretation of participants' experiences, especially with regards to the cultural differences between participants and researcher (Tracy, 2010). Member checking is a term that has been utilised with a variety of meanings within qualitative research (Sparkes & Smith, 2014) and has been criticised especially when utilised as a technical exercise (Smith & McGannon, 2018). In this study, member checking involved sharing interpretations with participants at initial analytical stages to enhance understanding and potentially generate new data. This method was especially important given cultural and linguistic differences between participants and researchers. The aim of this process was to enhance interpretation, rather than as a technical verification exercise and may be better described as "member reflection" (Tracy, 2010). These additional steps supported a rigorous, contextualised, and in-depth interpretation of participant experiences of the intervention.

4.2.5 Reflexivity

The PhD candidate and supervisory team included individuals with a variety of prior experiences around surf therapy practice, mental health, clinical psychology, and surf science. The breadth of expertise allowed for honest discussion about prior assumptions and steps to ensure conclusions were truly substantiated within participant data, bolstering trustworthiness. The PhD

candidate recognized his cultural outsider status as a white Scottish male within the Liberian context throughout the research process, including at the design phase. This was contrasted to a potential insider status based on extensive engagement with the surf therapy paradigm, including as a practitioner prior to becoming a full-time researcher. There are both strengths and weaknesses to an insider or outsider approach to conducting research (Manohar et al., 2019), but recognition and reflective engagement with outsider status is of paramount importance, especially given inherent and potentially uncomfortable power structures that may exist (Hill & Dao, 2020). potential power structures present within especially data collection. Power considerations within this study between the candidate and participants were considerable including adult/child dynamics, gender based structures, economic, and cultural. The PhD candidate's prolonged engagement with W4C in Liberia prior to any data collection was based on a recognition of this and aimed to build up trust, familiarity, and open communication both within the intervention and among the local community. Reflection within this process allowed for consideration of This process was centred on sincerity, honesty, and transparency around the research project, its motives, and the PhD candidate's background (Hill & Dao, 2020). It was not an attempt to gain cultural insider status.

Reflective practice was utilised throughout the study to highlight awareness of personal preconceptions, acknowledge outsider status, bolster credibility, supplement analysis, and add to the integrity of the research findings (Tracy, 2010). This process also enabled recognition of any potential confirmation bias based on existing SFD and surf therapy literature including prior research and/or experience. Reflective audio was recorded by the PhD candidate on site, and regular discussions within the supervisors were built into the data collection and analytical process. Communication was not always feasible while in Harper due to technical difficulties, but it was maintained where possible. One output of reflective practice was an extensive use of prompts and repeating statements back to participants to thoroughly understand their experiences of surfing. This ensured data remained focused on participant experiences as opposed to inferences based on established surfing culture or the preconceptions. This was of special importance given the growth of surfing within Harper since the sport's introduction in 2017 and the candidate's position as a cultural outsider. The supervisory team also included individuals with a broad range of surfing experience, which supported reflective discussion on potential predispositions. The PhD candidate

had initially encountered W4C while in South Africa and subsequently collaborated with them in the foundation of the International Surf Therapy Organisation (ISTO) in 2017. Another important outcome of communication with supervisors was ensuring the PhD candidate maintained a role as critical researcher rather than as an advocate for W4C (Sparkes & Smith, 2014).

As noted in study 1 reflective practice was also routinely utilised in terms of self-care, especially given the candidates regular exposure to the traumatic consequences of civil war in Liberia. Such reflective practice is contingent on being able to access a safe and secure space to be open with oneself. In this study the candidate found it challenging to access such a space and in future research being able to access such a space should be prioritised, even if this were to mean withdrawing from the research site for a period to allow for reflection and processing.

4.3 Results

4.3.1 Initial Programme Theory

A logic model visualizing perceived impacts and outcomes identified within W4C participant experiences in Liberia is shown in Figure 4.1. These impacts and outcomes have been labelled an initial programme theory within the definition of programme theory as a process (Vogel, 2012). It must be noted that this study was not designed to test long-term outcomes within the W4C intervention, and the four long-term outcomes listed are based on prior W4C evaluation conducted both in Liberia and South Africa (Waves for Change, 2019; Waves for Change, 2020; Waves for Change, 2021). Six perceived impacts and outcomes were identified as integral to the W4C intervention and were grouped within three domains: Social, Skills Curriculum/Bananas

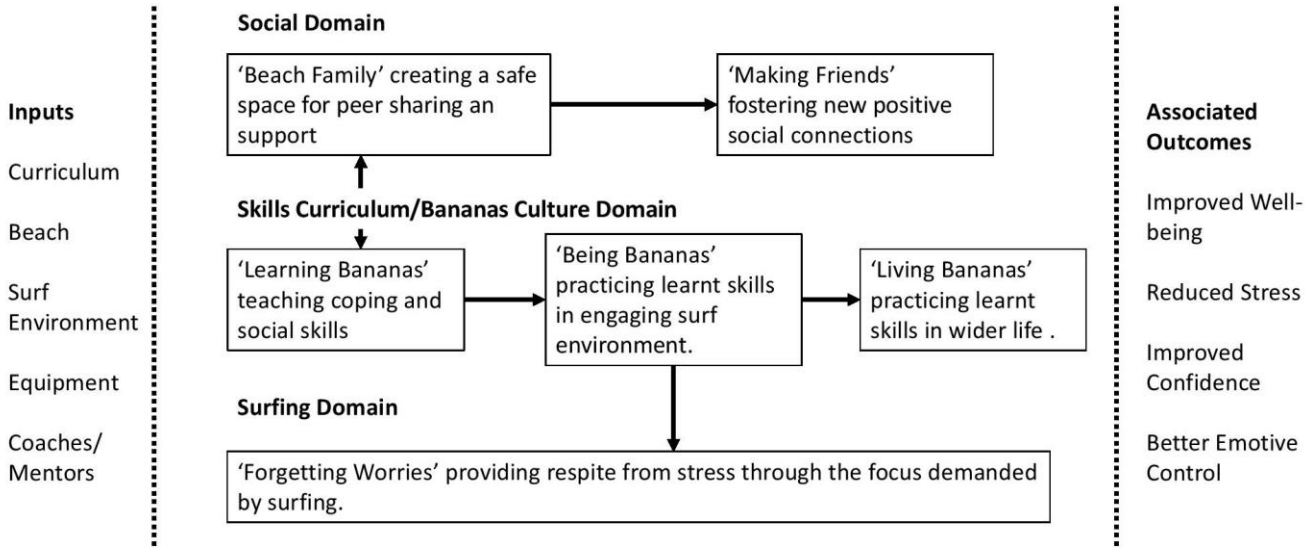

Figure 4.1 Logic Model of initial W4C Programme Theory

Culture, and Surfing.

4.3.2 Social Domain

"Beach Family": Creating a safe space for peer sharing and support

One of the key elements of the intervention identified by participants was the safe space that the coaches created and encouraged participants to support. This space was often likened to a

family, with elements of both physical and emotional safety. Examples of participants speaking highly of their relationships with their coaches include:

"I feel good because my coaches can be around me, my surfing family make me feel good." W4C Participant 1

"They (the coaches) are taking care of us like their own children, they never beat on us and they speak to us like sister and brother." W4C Participant 2

The safe space is attributed to caring coaches who manage the "family" dynamic within the group. It is interesting to note that participants saw coaches as brothers and sisters as opposed to parental figures. The reference to violence is of note as it highlights that the safe space held by coaches was physically safe which appeared with this participant's wider lived experience. This demonstrates the participatory style of teaching utilised to promote equity within the group and further reinforce the safe space.

Coaches also encouraged and continually reinforced a non-judgmental attitude in the group that facilitated honesty and openness among participants. This allowed for emotional safety within the group and was something coaches had to manage throughout sessions and amongst the group. This lack of judgment further reinforced the safe space while challenging local stigma around the discussion of feelings and negative mental health.

"If you want to ask for help you must not be ashamed, because when somebody is in trouble, they may be ashamed to ask for help." W4C Participant 3

The ability to share openly also led to a communal approach to solving personal problems through coach and peer support. This is notable given it hints at participants beginning to replicate coach behaviours in terms of providing physical and emotional safety for other participants.

"The easy way of me being able to share my feelings at Waves for Change, I see that Waves for Change is almost, I would like to say a family. We are a group of people and then Waves for Change is all about caring for people and to not see people go on the wrong side. I feel happy when I get a problem and am able to share it with them and together find a solution." W4C Participant 4

This safe space within the intervention is fundamental to the service delivery and associated outcomes while also supporting an effective learning environment for curriculum items.

"Making friends": Fostering new positive social connections

New positive social connections were frequently referenced within the W4C intervention. Many participants reported their struggles to make such connections prior to taking part in the surf therapy intervention due to a reported lack of interaction among different communities and backgrounds within Harper.

"Waves for Change is an organisation that brings many people together such as you see people coming together from different communities, that you don't know their background you just see them coming in. When you are here at Waves for Change you are able to organize new friends, to make new friends who are able to help you tomorrow." W4C Participant 5

These new relationships were developed through learned social skills contingent on the safe space, openness, and non-judgmental attitude modelled within the intervention. These social skills were further reinforced within curriculum activities.

"The reason why Waves for Change make me feel fine is because I was not having friends and I not know how to find friends, but Waves for Change taught me how to find friends, how to talk to other people and how to respect people." W4C Participant 6

Another element that seems to have facilitated new relationships was being able to share in the fun activity of surfing:

"Sharing fun in the water, while surfing I made new friends." W4C Participant 1

"Surfing means sharing fun" W4C Participant 7

Social skills learned within the intervention and the shared fun of surfing seem to have facilitated new and positive relationships. This differed from the negative social connections that participants reported prior to the intervention. Such negative relationships led to antisocial behaviours, crime, and violence in contrast to the positive relationships described within W4C.

"Whenever I go out with my friends [since W4C] and we are interacting on anything, like discussing our school matters, when we communicate, I listen and when communicating, we respect each other's views." W4C Participant 5

New social connections were important for participants due to (a) their positive nature, (b) their basis in shared learning and surfing experience, and (c) their disregard for differences in community or background. These positive social connections, enabled by the effective safe space within the intervention, offer a clear pathway to associated intervention outcomes.

4.3.4 Skills Curriculum/Bananas Culture Domain

"Learning Bananas": Teaching coping and social skills

The W4C curriculum, as discussed previously, is centred on evidence-based exercises designed to build skills that support and maintain positive well-being. Each curriculum item was not individually interrogated given their evidence-based development but looked at as a whole, with respect to participant perceptions of impacts and outcomes. A range of individual skill based curriculum items taught to camera are available to explore at W4C YouTube channel (https://www.youtube.com/channel/UCNfHv9oX_5dIpiiBPoSTWvw) and for context viewing these items is encouraged alongside these results. Young participants highlighted how these skills within the curriculum are the priority for the intervention, over and above the sporting element.

"The main thing (you learn) is how to manage your anger, because whenever somebody trigger you and you want to take action. If you go to Waves for Change and then you have that trigger, anger, Waves for Change will teach you the techniques to say, to be cool down. It will be better to know how to manage your anger and avoid trouble." W4C Participant 4

For the above participant, the most important element of their surf therapy experience was learning to better regulate emotions like anger. The initial teaching of these skills was done through activities that explained and demonstrated skills before giving participants a chance to try.

"Immersion is the act of communication. Immersion means when we hold each other and go into the water. As we go into the water, we ask each other about their feelings. If someone is not happy, we all turn around to respect the person's feelings. It is part of the banana culture." W4C Participant 2

While the immersion activity is focused on introducing participants to a new aquatic environment, the key teaching points are related to respecting each other's feelings and communication. This participant demonstrates their understanding of the teaching points alongside how activities were not framed as curriculum, but as a culture inherent to intervention participation.

"Bananas is our culture, it means respect, protect and communicate. It means love and care." W4C Participant 8

The inherent culture within the intervention was identified as the "Bananas Culture" in reference to a popular surfing hand gesture (the shaka), which was deemed to resemble a banana in shape by W4C participants. The definition of curriculum activities as part of this "Bananas" intervention culture seems to have given meaning and value to learned skills over and above benefits participants may have felt.

"If you are stressed or worried in your mind you can easily tell somebody the way you are feeling, and it is being bananas to tell somebody." W4C Participant 7

This participant describes a learned behaviour from the curriculum activities as normalized and meaningful because it is part of the Bananas Culture they identify with. This example is of note due to the significant amount of local stigma that existed around being open and honest with feelings and mental health. The social and coping skills within curriculum activities were (a) prioritized over sporting activities; (b) taught in an explanative, demonstrative, and participatory manner; and (c) identified as integral to an intervention culture that resonated with participants.

"Being Bananas": Practicing learned skills in an engaging surf environment

The teaching of key W4C social and coping skills was combined with their practice and reinforcement within aquatic and surfing activities. As one participant highlighted it was an important combination of learned theory and practice.

"You have the theory and the practical, so the theory is protect, respect, and communicate and the practical like immersion (an aquatic activity) is where we demonstrate the theoretical aspect. Like communicating with your friends, you hold their hand in the water to protect them and in the water, you respect their view." W4C Participant 9

The combination of learned skills and behaviours with surfing allowed for practice of learned skills within a real-world situation, such as when a participant fell off their board:

"There was a time when I was in the waves and a wave break over me and I fell in the water. I take my take five [coping skill] and I get back on the board and release all the stress on my mind." W4C Participant 6

The naturally induced emotional and physiological responses experienced when falling under the water offer a real situation in which to practice learned skills with the safety net of coach and peer support. This safety net must be delivered effectively by attentive coaches. The reality of these situations could lead to negative emotions and/or experiences, which in turn could lead to disengagement from the intervention or reduced well-being. No participants reported such a situation, but it was not possible to interview any participants who had disengaged, so it cannot be ruled out. While skills are initially taught in a participatory manner, the natural challenges of the surf environment in which participants get to practice them further entrenches skillsets.

The use of learned skills within the surf environment is also reinforced through praise from coaches and other participants as part of the Bananas Culture. Again, the positives of defining the curriculum as a culture are highlighted in maintaining the prioritisation of coping and social skills within the sporting elements of the intervention. Participants described how their identities as surfers were not defined by their success standing on a surfboard but in how effectively they lived out the core elements of Bananas Culture.

"If I am a surfer, I would learn how to shelter each other, I would learn how to communicate with each other and how to protect each other. Once I am on top of the water, I will be able to surf better because everything is fine to me." W4C Participant 10

The continued prioritisation of learned coping and social skills within the sporting elements of W4C further entrenched curriculum learnings. This was achieved through the practice of learned skills to manage real emotional and physiological responses in the surf and further reinforce the Bananas Culture within a fun and engaging sporting context.

"Living Bananas": Putting learned skills into practice in wider life

The teaching and reinforcement of coping and social skills as part of W4C's Bananas Culture and surfing activities seem to have led to behaviour change that affected participants outside of the intervention, at home and in the community.

"When you go home, all the things you learn at Waves for Change you must apply them in the home. When you apply them at home your parents will start praising you saying you are doing good things." W4C Participant 8

Participants reported effective use of positive behaviours and coping skills within wider life that provide a pathway to associated W4C outcomes (e.g., improved well-being, stress reduction, and better emotive control).

"When my friends are fighting, I will show them the bananas sign and they will stop fighting." W4C Participant 11

The use of the Bananas gesture in a conflict resolution situation further highlights the success of reinforcing skills through a cultural definition. These skills seem to have been entrenched and valued enough that participants also discussed their willingness to share what they learned at the intervention with the wider community:

"If you have that culture in you, you not only have it at the beach. But if you go out, if you want to do something bad, you will think about the bananas culture, the bananas rules and it will make you to stop. So, it is not only for the beach but for the home. It is there to educate you and so your neighbours and your household can learn." W4C Participant 4

Within this specific example, the participant explains how they have become a conduit of W4C learnings within their family and local community.

4.3.5 Surfing Domain

"Forgetting Worries": Providing respite from stress through the focus demanded by surfing

One aspect of the W4C intervention that participants consistently highlighted was a sense of respite from stress, negative thoughts, and emotions that surfing and taking part in water activities enabled.

"I feel happy when I surf because it takes stress from my mind." W4C Participant 3

"The surfing is great, the surfing helps to clean down the stress on the mind." W4C Participant 6

The fact that participants focused on surfing as a chance to relieve stress highlights the lack of opportunities to experience such respite within a challenging post-conflict environment. Such respite provides a clear pathway to intervention outcomes such as stress reduction and improved well-being. Participants frequently emphasized a potential mechanism for this sense of respite in the form of the complete focus that surfing demands:

"My focus is on the wave that I ride." W4C Participant 10

"Because when I am surfing, I am always focused on the board, I don't think about anything else. That's how I focus, I focus just on the board. Maybe after I am surfing, I have other things in my mind, but while I am surfing, I do not think about anything else just the board." W4C Participant 12

The focus demanded by surfing, on what the wave is doing, or controlling the board, seems to have overridden prior negative emotions enabling a sense of respite. Participants reported how there was not space in their thoughts for anything else:

"Surfing you are laughing and happy, you are enjoying the wave you gonna be laughing and smiling and it takes stress from your mind. You not be thinking about anything else." W4C Participant 13

The focus reported as inherent to surfing provides a theoretical pathway to feelings of respite reported within the intervention and subsequent W4C outcomes such as stress reduction or improved well-being.

4.4 Discussion and Implications

The initial conceptualisation of W4C programme theory based on participant experiences in Liberia offers insight and implications for the intervention, for surf therapy, and for the wider SFD paradigm. Foundational to this initial W4C programme theory was the effective creation of a safe space within the intervention, which aligns with stakeholder consultation conducted at the

intervention design stage (Benninger & Savahl, 2016). The importance of safe spaces has been previously highlighted within surf therapy in different contexts; in the previous chapter exploring surf therapy in California alongside research exploring surf therapy in the United Kingdom (Marshall et al., 2019) Safe spaces have also been highlighted in wider SFD literature (Spaaij & Schulenkorf, 2014), and within post-conflict settings (Mahr & Campbell, 2016). The consistent appearance of this theoretical mediator within a variety of developed and developing contexts is notable as it suggests space spaces may be an important mediator for surf therapy interventions no matter their context. The creation of safe spaces has also been emphasized in the development of best practices for a holistic approach to safeguarding children and youth in sport (Rhind et al., 2017). The focus on a safe space and how it facilitated open sharing and the delivery of coping skills is comparable to other effective contextualised community-based mental health interventions for youth within the LMICs (Barry et al., 2013). Integral to this safe space were coach behaviours that mirror recommendations around the use of caring adults within PYD through sport (Camiré, 2014). While the use of safe spaces and caring adults have been previously identified as a priority for W4C delivery, these findings confirm them as important mediators within initial programme theory. These elements are especially important in post-conflict settings where negative well-being has been linked to the collapse of protective communal, family, and societal structures (Borba et al., 2016). The safe space provided by the intervention offers an alternative or supplemental protective societal structure within a context where such structures are severely lacking. A recent review of mental health services in Liberia found only one clinical psychiatrist available to support a population of approximately 4.7 million people (World Health Organisation, 2017). While further contributing to the evidence base around the importance of safe spaces within SFD and PYD through sport, this study also highlights key elements that enable safe space provision such as a non-judgmental focus and equity between participants and coaches. Given the fundamental nature of this mediator, further exploration of this process in isolation would be a future research priority working alongside mentors who build safe spaces to better understand in depth the components and processes that underpin them, especially in challenging settings such as Liberia. The importance of a non-judgmental and equitable approach to holding a safe space, as seen in the brother/sister comparisons participants made to their surf mentors, within an intervention is a valuable finding that can inform future intervention design in a contextually sensitive manner

(Spaaij & Schulenkorf, 2014) and builds upon comparable findings suggested within the previous chapter.

Alongside the establishment of a safe space, the importance of bolstering social connections, support, and cohesion is well established in PYD (Holt et al., 2017), post-conflict (Bosqui & Marshoud, 2018), and surf therapy (Benninger et al., 2020) paradigms. The current study also highlights how specific mediators such as safe spaces, taught communication skills and sharing in a fun activity facilitate bolstering of social connections. The establishment of positive relationships married to positive behaviours and values at W4C provides a pathway to longer term social and human capital (Bailey et al., 2013). These relationships may also contribute to protective and positive social support, the breakdown of which has been previously discussed in relation to post-conflict settings (Borba et al., 2016). While this paper is focused on participant perceptions of impacts and outcomes, the links to social capital present a new potential long-term outcome that W4C could explore within its ongoing measurement and evaluation. Furthermore, these steps enabled W4C in Harper to bring participants together from different communities who would not normally socialize together. It is noteworthy that this mirrors the bringing together of disparate military and civilian populations in the previous chapter. In depth investigation of this within W4C in South Africa could be a potential research priority given integration of multiple diverse communities and ethnicities at South African intervention sites.

In addition to the discussion of social domains, the current study builds on evidence that the "plus sport" model (Coalter, 2009) provides the most effective framework for SFD intervention design and implementation. The plus sport model highlights the need for sport to be subservient to other processes and outcomes at intervention design. An often-romanticized notion of the power of sport (Coalter, 2013) has led to SFD often being viewed as intrinsically beneficial without any consideration of how sport is structured or delivered. When this view is taken and programme theory is not given sufficient consideration, impact can be reduced (Snelling, 2019; Marshall et al., 2021) or SFD can have significant negative impacts on the population it is supposed to serve (Richards et al., 2014). In contrast, this study found that W4C utilised the sport of surfing as a vehicle to support non-sporting theoretical mediators in achieving its associated long-term outcomes. Surfing's suitability as a vehicle for SFD in Harper was highlighted, combining well

with social and skill-based domains. Of note was the intervention's ability to create and hold a safe space for participants from a range of different communities, ages, and genders within a sporting context. This aligns with wider discussions of the suitability of action sports within SFD and PYD, especially given their less competitive focus on individual improvement and achievement, while allowing participants of different skill levels or capabilities to take part within the same space (Thorpe, 2014). Further research into the theoretical mediators and suitability of action sports as vehicles for SFD and PYD would be beneficial to inform future intervention design and optimisation , especially given the dominance of traditional team-based sport within the paradigm (Schulenkorf et al., 2016; Svensson & Woods, 2017). The effective use of surfing as a vehicle for mental health outcomes seems to have avoided negative stigma that was evident locally and is well documented in West Africa (Esan et al., 2014; Gureje, et al., 2005). This evasion of negative stigma highlights another benefit to an effective plus sport approach. The impacts and outcomes explored in this study offers a replicable example of how to effectively deliver plus sport SFD while adding to the discussion around action sports as vehicles for SFD and PYD.

In line with the plus sport model, the W4C skill-based curriculum presented an overt focus on skills that provided pathways through to associated intervention outcomes. The intervention utilised mediators that could be identified from a range of existing life-skill transfer through sport models including the use of caring adults and a safe space (Camiré, 2014; Gould & Carson, 2008; Holt et al., 2017; Petitpas et al., 2005; Pierce et al., 2017). The definition of the curriculum by W4C as a "culture" aligned specifically with the Model of Sport-Based Life Skills Transfer created by Pierce et al. (2017). This model includes elements highlighted in this study such as social support, meaningfulness for participants, and personal reconstruction. The same model highlights the importance of opportunities to use skills and similarity of context for transfer, matching with participant data around using learned skills in the face of real emotional and physiological responses in the surf environment. This approach seems to have led to entrenched transfer of W4C coping and social skills that participants reported using personally and in their community. It must be noted this "culture" approach to transfer may have been facilitated by the lack of extant surf culture in Harper. Attempting the same approach for another sport with an established culture such as soccer could be more challenging. The alignment of initial W4C programme theory mediators with specific models and meta findings in life-skill transfer through sport adds credence to the

intervention's claims. The Model of Sport-Based Life Skills Transfer (Pierce et al., 2017) should be integrated within future W4C training and development. It can also provide a framework for both a more comprehensive W4C programme theory and wider future surf therapy intervention development.

In addition to the importance of skill transfer, this study explored how the inherent focus demanded by surfing enabled a sense of respite from negative emotions, feelings, and stress. This focus demanded by surfing has previously been highlighted in other studies with different geographical and cultural contexts (Caddick, Phoenix et al., 2015; Caddick, Smith et al., 2015; Marshall et al., 2019) as well as in the previous chapter exploring a very different population. Given the novelty of the sport in Harper, this pathway also seems specifically tied to the action of surfing rather than any cultural associations that may exist due to external factors such as tourism, sports trends, or local sporting role models. A study by Whitley et al. (2018) exploring systems theory for sport-based PYD in traumatised and disadvantaged youth labeled this focus "forced mindfulness," which correlates with participant experiences in this study. Whitley et al. (2018) also linked this focus to physicality and competition based on the type of sports involved, which contrasts with the individual action sport utilised by W4C. These findings suggest that focus demanded by sport can enable respite or escapism across different modalities of SFD and PYD. This respite or escapism has also been linked with improved mental well-being for individuals who have experienced multiple traumas or adverse conditions (Massey & Williams, 2020), supporting this pathway within an initial W4C programme theory. It must be noted that this respite is a short-term relief and exposure stressors will return as children and youth leave the intervention environment, stressors that W4C and other SFD programmes may not be able to ameliorate. When discussing focus within surfing, participants also reported key indicators of flow states including complete involvement, temporal distortion, sense of serenity, and a sense of ecstasy (Csikszentmihalyi, 2002) when discussing feelings of respite. Flow theory suggests a mental state involving complete immersion, focus, and intrinsic enjoyment within an activity, colloquially known as being "in the zone." The possibility of flow states being present within surf therapy interventions has been previously suggested within the previous chapter alongside other sport-based therapies (Ley et al., 2017). The presence of flow states offers a novel potential mechanism for, albeit temporary, respite from negative thoughts or emotions and toward improved mental

health. Given the prerequisites for flow states are well established, this is a significant finding that can inform appropriate modalities or structures of sport delivery to encourage respite within SFD. This novel pathway should be a future research priority with the presence of flow states being empirically tested within SFD and surf therapy contexts.

This novel finding around focus and respite also had practical implications for W4C service delivery. Participants reported that, from their own point of view, they did not always get enough time to surf in sessions. While joining W4C surf therapy sessions in Harper, it was not apparent that if sessions were shortened or delayed for any reason, the area that would be first cut back was the surfing time. The study findings suggest that the time allocated to surfing both supported curriculum skill transfer and most specifically; "Forgetting Worries" providing opportunities for respite, a key theoretical mediator for well-being outcomes. After discussion of the research findings with practitioners in Liberia, surfing time within the intervention is now better protected to ensure these positive benefits. Highlighting surfing's use as a vehicle for delivering therapeutic elements rather than as a fun add-on represented a significant change in Liberian practitioners' approach. Furthermore, following discussion of this finding with W4C management, surfing time has been similarly protected across intervention sites in South Africa given the plausibility of similar theoretical mediators.

The exploratory programme theory identified in W4C Liberia has supported expansion of surf therapy to another comparable post-conflict setting. Identified theoretical mediators have been included in training delivered to five youth organisations in Sierra Leone that wished to add surf therapy to their service delivery. The ongoing Wave Alliance initiative (www.waves-for-change.org/the-wave-alliance) utilizes the findings of this study alongside open sourcing of curriculum items and mentoring on elements of intervention delivery such as staff recruitment, evaluation, and fundraising to support other grassroots SFD projects, and has seen positive results (Marshall et al., 2021). It is important to note this process is not prescriptive and successful integration of new contextual curriculum items has been observed. The project includes ongoing evaluation contributing to a reflective, critical, and honest theory of change process (Vogel, 2012) alongside continuing investigation into the transferability of surf therapy programme theory (Smith, 2018).

4.5 Strengths and Limitations

Understandings of mental health are fundamentally linked to varied contextual and cultural conceptions of personhood and self-representation including within an African context (Kpanake, 2018). During the inception of this study, it was ensured that prior Western conceptualisations of mental health did not impact this pragmatic qualitative study. This was addressed by the development of a working understanding of local concepts of mental health and personal well-being after arriving in Liberia, drawing on a priori reading and reflective practice. Conversations were held with health organisations in Harper where possible but given the dearth of local mental health service provision these opportunities were limited. Despite these steps, acclimatisation took time, as demonstrated by the exclusion of elements of the original interview guide. Mental health and well-being for Liberian youth focused on positive functioning as opposed to in-depth conceptual constructs around feelings matching with findings from comparable contexts (Glozah, 2015). This focus on mental health as it relates to positive functioning, while not a primary finding of this study, could prove a useful consideration for future research carried out within this context.

The presence of W4C mentors in 70% of interviews means data could have been influenced by third parties and power dynamics within interviews may have been affected. Participants may not have wished to report honestly or openly with W4C mentors present due to the potential for repercussions or future exclusion from the surf club. Mentor presence was desirable for safeguarding reasons, and steps were taken to reduce potential coercion as listed above. While the most in-depth interviews were provided by older participants who did not have W4C mentors present, the correlation between findings with and without W4C mentors present suggests coercion mitigation strategies were successful. Future participatory research not involving adults such as anonymous journaling or art/drawing based exercises could help to further explore W4C programme theory while better controlling for issues around mentor coercion or adult child power dynamics. In this case, in-depth involvement of W4C staff in the study was necessitated for safeguarding and allowed for observation and learning that could benefit future local evaluation.

Throughout study recruitment the candidate explored options to interview participants who had disengaged with the intervention but was unable to recruit anyone from this demographic.

Future research exploring these participant experiences, especially to understand high levels of female participant drop out, would be beneficial.

One aspect that this study highlighted but was not explicitly a focus was issues surrounding gender in this post-conflict context. As noted, female uptake in this study was low (27% of participants) and this was tied to high levels of female drop out within the cohort sampled, an issue W4C are currently trying to address. Future rigorous research explicitly exploring contextual barriers to participation and adherence would be beneficial to the development of solutions to these challenges and provide valuable learnings not only for surf therapy but wider programmes working within similar contexts. It would not have been appropriate to explore this as a male candidate working alongside an all-male supervisory team.

An unavoidable element of this study was the researcher's position as a cultural, ethnic, and linguistic outsider to research participants in Liberia. Previous research has suggested that this can lead to issues around trust and rapport building with participants (Shariff, 2014). There was also a potential for response bias as participants may have worried about their data having negative consequences for intervention staff or structure. Clear steps were taken to mitigate for these issues, namely prolonged engagement with W4C in Harper and the prioritisation of sincerity, honesty, and transparency about the study, its motives, and the researcher's background (Hill & Dao, 2020). Despite these steps the potential limitations due to outsider status and its potential impact on the study must be recognized.

4.6 Practical Challenges in the Field

Prior to research conducted in Liberia a range of risk assessment activities were conducted and strategies put in place to protect the candidate's well-being including extraction plans should the local situation deteriorate. What was not anticipated was the consistent exposure of the candidate to contextual challenges and the lack of access to a safe space to process and de-pressurise throughout the time in country. Future research in such contexts should explore this as imperative for researcher well-being, as access to a couple of days within such a space would have been of significant benefit to research experience.

Another, anticipated, challenge within the field was potential exposure to illness of disease. Planning involved appropriate inoculations and preparation of an extensive first aid and illness

recovery kit given the limited resources available locally. Illness did occur and a combination of this kit and wonderful support in a local clinic supported the researcher through the illness. What was not anticipated were the challenges in longer term recovery in the field. A limited diet was available locally that did not support the candidate in recovering significant weight lost as a part of the illness. Future research preparation could include nutritional planning within medical contingency planning on how to supplement diet should illness be experienced.

Conducting research in this kind of post-conflict context is extremely worthwhile however should not be undertaken without appropriate consideration and preparation. Within any planning it is important to involve as much on the ground experience as possible around the range of challenges that can be faced. Discussions with researchers and/or practitioners who have spent significant amounts of time in such a setting is highly recommended, and the PhD candidate is happy to offer their own insight for any future research that may be reading this thesis as part of preparation for similar projects.

4.7 Conclusion

This study was a pragmatic exploration of participant-perceived impacts and outcomes to develop an initial programme theory within the W4C surf therapy intervention in a post-conflict setting. Interpreted findings were visualized in a logic model highlighting participant perceptions of psychological and social mediators within the intervention. While the scope of this study did not allow for the development of a comprehensive programme theory, programme theory is both a process and a product (Vogel, 2012), and this initial and contextual exploration provides a valuable step in this process contributing to Objective 1 of this thesis. The prioritisation of a plus sport (Coalter, 2009) model combined with an effective safe space and supported socialisation opportunities highlighted best practice for the wider sport for mental health and development paradigms. The emergence of safe spaces and positive socialisation directly align with findings from the previous chapter despite the differences in context of surf therapy implementation.W4C participant experiences of life-skill transfer and development of a “culture” to do so aligned with, supported, and provided a worked example of a specific model of skill transfer in sport literature (Pierce, et al., 2017). The study made contributions to discussions around respite or escapism within SFD and PYD especially in the possible identification of flow theory as a novel theoretical

mediator, again aligning with the previous chapter. The findings also contributed to service optimisation within W4C and have provided an initial and contextual framework to support proliferation of surf therapy services within neighbouring Sierra Leone. The study also contributed to a greater understanding of the surf therapy paradigm, exploring surf therapy in a post-conflict environment for the first time. Finally, emergent mediators around safe spaces, positive socialisation and flow based respite directly correlated with the previous chapter were highlighted. Offering an initial insight into plausible cross contextual theoretical mediators for surf therapy and further contributing to Objective 2 of this thesis. Continued research working with different populations could offer further insight into such mediators such as addressed within the next chapter exploring a different context again; a clinically led surf therapy intervention supporting youth facing mental health challenges in Australia.

Chapter 5 : Study 3 – An investigation into surf therapy for youth at risk of or facing mental ill-health with Waves of Wellness in Australia.

Waves of Wellness guided meditation. Credit Flashpoint Labs

5.1 Introduction

The previous chapters have highlighted key theoretical mediators within surf therapy for military veterans in the United States and young people in post-conflict Liberia, with safe spaces, positive socialisation, flow-based respite appearing across both contexts. Contextual mediators also appeared with physical therapeutic elements of surf therapy identified within chapter 1 and the importance of effective skill transfer recognized in chapter 2. This chapter adds further diversity to the surf therapy contexts empirically explored to fulfil wider thesis aims of better understanding plausible generalisable mediators within the paradigm. While comparable to chapter 2 in terms of being focused on young people's mental health, the context of this chapter in Australia, is very different to Liberia in terms of societal and health infrastructure. This is especially true regarding the wider availability of mental health support, so much so that clinical support is integrated within surf therapy delivery. The Waves of Wellness surf therapy intervention utilises clinicians (occupational therapists and mental health nurses) within service delivery. Neither of the previous chapters explored such a clinically led form of surf therapy with both previous interventions being community delivered. This key distinction alongside contextual differences to previous locations explored offers the diversity required to address wider thesis aims. As such this chapter will explore the clinically led Waves of Wellness surf therapy intervention, specifically how it supports young people referred due to risk of or currently facing mental ill health.

Despite the previously identified comparably easier access to clinical support in Australia, prevalence of mental and substance use disorders remains high having been estimated to be responsible for 12% of total disease burden and 23% of non-fatal disease burden in 2015 (AIHW, 2019). Of this overall burden young people make up a large proportion with one in seven young Australians aged 4 to 17 years experiencing a mental health condition in any given year, while 13.9% of children and young people (aged 4 to 17 years) met the criteria for a diagnosis of a mental disorder (ABS, 2015). The prevalence of mental ill-health for young people can have fatal consequences, one national study identified that one in ten young Australians aged 12-17 years old will self-harm, one in 13 will seriously consider a suicide attempt, and one in 40 will attempt suicide (Lawrence et al., 2015). Unfortunately, suicide continues to be the biggest killer of young

Australians (ABS, 2015). A factor that contributes to both the prevalence and the consequences of poor mental health for young Australians is the fact that they are less likely than any other age group to seek professional mental health help or support (Slade et al., 2009). This reluctance to seek professional help could plausibly be addressed through the use of innovative interventions that better appeal to young people such as surf therapy. As highlighted within chapter 2, surf therapy has been associated with a positive impact on well-being (Godfrey et al., 2015), outlook (Devine-Wright & Godfrey, 2020), hope (Sarkisian et al., 2020), and pro-social behaviour (Gomes et al., 2020), alongside reductions in behavioural challenges (Matos et al., 2017) and general difficulties (Gomes et al., 2020) for youth populations. Surfing already holds an important economic, cultural, and social place within Australia (Lazarow et al., 2008) and as such may be well placed to offer alternative approaches to supporting youth mental health. One UK study has previously explored mechanisms of surf therapy in supporting youth mental health and highlighted the importance of mastery, safe spaces and positive social connections (Marshall et al., 2019) aligning with similar findings in previous chapters. Considering the associated impact of surf therapy on youth mental health, the integrated and established nature of surfing within Australia and, once again, the paucity of empirical investigation into surf therapy programme theory, research into *how* surf therapy works for this population and in this context is warranted.

5.1.1 The context – Surf therapy for youth at risk of or facing mental ill-health with Waves of Wellness, Australia

Study 3 looks to explore theoretical mediators within targeted youth programmes run by the Waves of Wellness Foundation, a charity using surf therapy to promote mental health and well-being (WOW - https://www.foundationWOW.org/). The organisation aims to implement innovative surfing mental health programmes in a mainstream capacity. While working as an Occupational Therapist in early psychosis co-founder Joel Pilgrim, by chance, discovered the transformational ability of surf therapy. He had the opportunity to take one of his clients surfing, where it became evident the outdoors and nature was a far more appropriate setting to connect and explore concepts of recovery, rather than the traditional clinical setting. During his time on the water, this client was able to relax in an environment he felt comfortable, which aided the

therapeutic process dramatically. It is from this experience, that the fundamentals of WOW's Surfing Experience were born.

Each Waves of Wellness Surfing Experience programme features Cognitive Behavioural Therapy (CBT) based mental health discussion topics for around 30-40 minutes of each session over the 8-week programme which gives participants the skills to improve their mental fitness and empower them to take control of their mental health before they need to access acute support services. Sessions are facilitated by WOW mental health clinicians (also trained in surf-instruction) who create a relaxed, non-invasive environment on the sand, in which participants feel comfortable sharing their experiences. A 1.5-hour surfing lesson follows each discussion, delivered by WOW and/or local surf schools with the support of up to 5 WOW volunteers per programme.

Since its establishment in 2017, WOW has consistently developed and delivered high-quality programmes across a range of demographics; men's health, veterans, first responders, post-traumatic stress disorder, disaster relief, youth, trauma, disability, grief and loss, indigenous, and soon refugees and women's programmes. A recent mixed method investigation of WOW delivered surf therapy outcomes indicated positive changes in resilience, self-esteem, social connectedness, and depressive symptoms post-intervention (McKenzie et al. 2021). Regular supervision meetings between WOW clinicians and clinical psychotherapists ensure up-to-date best practice in mental health programme delivery. WOW currently run programmes in 3 states around Australia, with operations in Newcastle, Sydney, Yamba, Sunshine Coast and Melbourne. To date, WOW have run 120 programmes, with over 1,320 participants successfully completing surf therapy programmes.

5.1.2 Study aim

The aim of this third study was an in-depth exploration of participant experiences within the WOW surf therapy intervention. Rigorous exploration of participant experiences allowed for the generation of novel programme theory around *how* the intervention achieved its associated impact, especially in terms of the roles of clinicians on the beach. These findings will help to optimize its future delivery while also contributing knowledge to wider surf therapy and youth mental health paradigms. Given the study's aim of the generating new theory around the

intervention, a grounded theory method was deemed appropriate to understand the key theoretical mediators within the WOW surf therapy intervention.

5.2 Method

5.2.1 Theoretical Framework

Given the aims of this study a pragmatic grounded theory framework was deemed most appropriate (Timonen, Foley & Conlon, 2018). To generate novel programme theory within the study, participant experiences needed to be interrogated and understood in depth with flexibility to explore emergent themes through concurrent data collection/analysis and a constant comparative approach. Other elements of the study that also identified it as grounded theory included memo writing/recording, and a theoretical sample of participants with appropriate experience of the WOW intervention (Charmaz, 2014; Schwandt, 2007). The study remained pragmatic with data collected in a real-world intervention setting (Harris, 2015).

5.2.2 Ethics

Ethical approval was granted by the Edinburgh Napier School of Applied Sciences Ethics Committee on 13/09/2019 (Reference Code: SAS0052). This process involved comprehensive review of research protocols with an independent committee. All participants and parents/guardians/care givers of participants were provided with comprehensive information about the study across a range of mediums and on multiple occasions to ensure suitably informed consent.

5.2.3 Sample

Study 3 utilised a theoretical sample in line with established grounded theory practice (Charmaz, 2014). Past WOW participants were recruited concurrent with data collection and analysis. Information sheets about the study were shared with WOW facilitators who acted as gatekeepers to study participants. They in turn shared information with potential study participants, using their own knowledge to screen for participants who might be negatively affected by the process. Consent forms were shared with potential participants who expressed interest in the study.

Table 5.1 Breakdown of Study 3 Sample Demographics

n	**Male**	**Female**	**Non-Binary**	**Mean Age**	**Age SD**	**Age Range**
16	25% (*n* =4)	69% (*n=11)*	6% (*n* =1)	18.44	2.83	14

Parental/guardian/primary care-giver consent was mandatory for any participants under the age of 18. Participants were recruited at WOW intervention sites across New South Wales and Queensland. Participants involved in this study consisted of youth with existing or at risk of negative mental health diagnosis, predominantly anxiety and depression. Referrals were made by local healthcare providers, social care, and mental health focused non-governmental organisations such as Headspace (https://headspace.org.au/). Sixteen participants were interviewed between December 2019 and July 2020 with a mean interview time of 54 minutes (range 30 mins – 1 hour 28 mins). The variation in timings was largely down to either participant availability and/or time pressure, or natural variation as to what kind of depth participants wished to share regarding their experiences at WOW. The average age of participants was 18.4(±2.8) years and a range of 14-24 years (Table 5.1).

5.2.4 Data Collection and Analysis

Sixteen interviews were conducted in a range of locations including at the beach, at cafes, within homes and online. The locations and timings were determined with input from participants with their comfort, privacy and confidentiality being key considerations. Some interviews were conducted online due to challenges associated with distance when the PhD candidate was in Australia and due to a limited timeframe for in person research in Australia. The later interviews of the study were also conducted online due to safety considerations around COVID-19.

The interviews consisted of an introduction, the interview itself and a concluding discussion. The introduction was designed to help participants feel comfortable and ensure they understood key elements of the process: (a) that they had read and understood the information sheet, (b) that they were taking part voluntarily, (c) that everything they said would be treated confidentially unless it could impact on participant safety, (d) that they could stop or pause the interview at any time, (e) that all reporting would be done anonymously and (f) that any questions about the process would be answered at any point. The interviews were conducted based on open ended questions with further depth sought through prompts. The interviews also included photo elicitation to generate further discussion (Thomas, 2009) with the aim of adding further depth to participant descriptions that may not have been possible purely through conventional interviewing (Harper, 2002). This form of data collection was introduced based on feedback received in the

publishing process of one of the previous case studies. The peer review process highlighted that individuals may respond differently to imagery when compared with conventional interviewing techniques. And as such, add further depth/nuance to data for analysis, making it a useful supplementary method within this study (Harper, 2002). The concluding discussion reaffirmed the element of voluntary participation while allowing participants the opportunity to ask any further questions about the process and to sign up for future publication updates about the study. All interviews were recorded on an Evistr L53 portable MP3 recorder.

The initial interview schedule was designed to thoroughly explore participants experiences within the WOW intervention and is presented in Table 5.2. In line with grounded theory's iterative approach, additional questions were included as concurrent analysis occurred, to explore unforeseen or emergent elements within participant experiences (Charmaz, 2014; Timonen et al., 2018). These additional questions are listed in italics in Table 5.2. The interview schedule was developed based on theoretical mediators that have been highlighted in prior research exploring surf therapy and mental health (Caddick, Phoenix et al., 2015; Caddick, Smith et al., 2015; Marshall et al., 2019) alongside studies 1 and 2. While these previous studies helped interview schedule development, there were significant differences in populations studied and a lack of clinical facilitators within these interventions. Notable questions that were added as a part of the iterative analysis was the question around sensory components of the programme given, as this was repeatedly brought up within discussions of WOW experiences in initial interviews. In a similar vein the comparisons between WOW and traditional therapeutic settings were often raised in initial interviews leading to a targeted question on this subject within subsequent data collection. Finally, the question around falling off was added based in emergent topics around mastery in initial interviews that tied in with how the programme framed and used analogies around 'wiping out' within delivery and a wish to explore this topic in more depth. Alongside open-ended questions, prompts were used to interrogate experiences and encourage resonance and depth for subsequent analysis (Charmaz, 2014). Three pictures were included (Figure 5.1) for the photo elicitation element of interviews. Pictures were used that explored different elements of the programme: the beach location, the discussion on the sand and the surfing component.

Table 5.2 Initial Interview Schedule Study 3

Initial Open-Ended Interview Schedule
Please tell me about your experience of surfing alongside the Waves of Wellness.
Can you describe to me your expectations of surfing prior to starting? (Follow up: How, if at all have these changed?)
Can you talk me through your process of getting involved with Waves of Wellness?
Is there anything else you think I should know to understand the Waves of Wellness Foundation?
When you look back your initial experiences surfing, are there any events that stand out in your mind?
Is there anything you would like to ask me in relation to anything we have discussed?
Can you describe to me how you felt when you caught your first wave?
Can you expand on the emotions you feel at the beach and in the water?
Can you describe to me what it was like meeting with new people at the beach?
Can you describe to me your experiences of the atmosphere at the beach?
How would you describe yourself as a person at the beach?
Can you tell me what surfing now means to you?
Can you tell me about working alongside the Waves of Wellness surf mentors?
Can you tell me about any expectations you had prior to taking part in Waves of Wellness?
Can you tell me about any sensory experiences you felt on the beach and in the water?
Can you tell me about having access to clinical expertise in a non-clinical setting?
Can you tell me about your experience of mindfulness with Waves of Wellness?
How would you describe the beach setting for mental health discussion in comparison to more traditional therapeutic setting?
Can you tell me about any elements from Waves of Wellness that you still use, if any?
How would you describe your experience of wiping out (falling off) during surfing?

Interviews were transcribed excluding any interruptions or filler discussion. Transcription occurred concurrent with further data collection and analysis. Analysis and theorizing were conducted in an iterative and non-linear manner with constant comparison between participant data (Charmaz, 2014). There were three stages of coding: initial, intermediate, and advanced at all stages of analysis and theorizing, ensuring that the study remained truly grounded in data was prioritized (Timonen et al., 2018). The different stages of coding allowed for in-depth exploration and comparison of reported processes, which in turn highlighted both sub and core categories. Memo writing procedures were followed with audio recordings and voice notes being used as an alternative to written memos. Having completed 13 in depth interviews it was noted that similar

Figure 5.1 Images used for photo elicitation within data collection in Study 3.

sub and core categories continued to emerge, indicating possible theoretical saturation (Charmaz, 2008). Three further interviews were conducted that neither added to nor altered any core categories despite adding further diversity and depth. This is consistent with theoretical saturation.

To augment the rigor of data collection, prolonged participatory engagement with the intervention, triangulation, and member reflection (Korstjens & Moser, 2018; Tracy, 2010) were all carried out. As with previous studies, these strategies were not utilised in a simplistic criteriological or check list approach but were used to pragmatically promote rigor within the study (Barbour, 2001; Smith & McGannon, 2018). Three weeks prior to and throughout data collection conducted in Australia, the candidate established a role of observer-participant within WOW surf therapy programmes to maximise engagement with the intervention and provide context for participant experiences. Informal discussions with WOW practitioners and local stakeholders such

as local key workers, mental health charity staff, teachers, volunteers, and parents were also held. This participatory collaboration did not generate data in an ethnographic sense and were not recorded or transcribed. These conversations supported multivocality and the interpretation of participants' contextual experiences (Tracy, 2010), within the mental health landscape. Member reflection involved sharing initial analysis with participants to enhance understanding and potentially generate new data. This is contrasted with what can sometimes be the purely technical or checklist exercise of member checking (Smith & McGannon, 2018). Member reflection and multivocality were also important given the cultural differences between the researcher and participants in the study. These processes bolstered rigor within the study, providing a contextualised, in-depth and truly grounded interpretation of participant experiences of the WOW surf therapy (Charmaz, 2014; Timonen et al., 2018).

4.2.5 Reflexivity

The supervisory team included expertise in surf therapy practice, mental health, clinical psychology, and surf science. The breadth of both knowledge and practical experience allowed for frank conversations about prior held assumptions, beliefs, or expectations around the study to promote trustworthiness throughout the study. This process occurred both prior to and throughout the study to ensure that the grounded framework for the study was taken seriously (Timonen et al., 2018). Another priority for these ongoing discussions was sounding ideas out to make sure that the candidate fulfilled their role as a critical researcher rather than simply an advocate for WOW (Sparkes & Smith, 2014). These discussions around not only data, but recorded memos also allowed for reflective practice which bolstered credibility, supplemented analysis, and supported the integrity of findings (Charmaz, 2008; Tracy, 2010). Honest reflection also helped to highlight any potential confirmation bias based on existing surf therapy literature or personal experience. All data was anonymised, cleaned, and scrubbed at transcription stage with no identifiable elements left in the data within analysis stages. The researcher recognised his status as a cultural outsider as a white Scottish male within the Australian context. While there are some cultural similarities between a Scottish and Australian context, identifying as a cultural insider would have been inappropriate. Power considerations identified within this study included adult/child dynamics, gender based structures, perceptions of candidate as a clinician (and possible associated

negative stigma), and cultural. The prolonged engagement built into the research process was aimed at building trust, familiarity, and open communication within the intervention, partner organisation and other key stakeholders mitigating negative power structures as much as possible while still acknowledging their presence. The whole research process was based on sincerity, honesty and transparency around the project and its motives (Hill & Dao, 2020). In a similar vein to previous studies self-care targeted reflective practice was also utilised in this study with lessons learnt from study 2 implemented in terms of ensuring access to a safe space for reflection and processing.

5.3 Results

5.3.1 Programme Theory

At the conclusion of analysis, 5 categories had emerged as foundational to WOW programme theory: (a) Safe Space, (b) Social Support, (c) Sensory Grounding, (d) Mastery and (e) Respite. The categories were split into two domains 'Mental Health by Stealth' and 'Surfing benefits.' These domains were based on the location of categories within intervention structure, most notably elements tied to the CBT based beach discussions and those that emerged from specifically the surf aspect. The 5 categories alongside domains, sub-categories and initial themes are presented in Table 5.3. The themes and subcategories are presented in conjunction with participant quotes to best represent the context in which categories emerged from the data. These categories offer a conceptual framework for programme theory within WOW surf therapy. The findings in this study have not been presented as a logic model as with previous chapters due to who the study outputs were targeted at. Based on WOW's approach of utilising clinicians as leads within their programmes, the aim for this study is to publish within a clinical psychiatric or psychology journal. Within such journals a table like Table 5.3 is one of the most common methods of presenting the outputs of a grounded theory study. Based on this it was deemed appropriate to present findings in this manner given this audience and to present the candidate with the opportunity to learn about presenting results in a different manner.

5.3.2 Mental Health by Stealth

Safe Spaces

It was clear from the data that the atmosphere created by the programme is foundational to achieving its goals with participants reporting how they felt a complete lack of any judgement within the intervention. It was noteworthy that this lack of judgement was apparent across all elements, whether to do with sharing within the group discussion, confidence in the water or ability on the surfboards.

"They (WOW) made it so clear that this is a safe space, it's anonymous, whatever we say here doesn't get repeated anywhere else. So from the very get go and every week, they reiterated

Table 5.3 Programme theory in Waves of Wellness

Themes	Sub-Categories	Categories	Domains
Removing judgement around topics brought up or contribution to discussion	Non-Judgmental Environment	SAFE SPACE	Mental Health by Stealth
Removing judgement around ability or pace of learning surfing			
Contributing at own pace			
Seeing facilitators taking part in discussions sharing from their own life experience	Participatory Facilitation		
Feeling like facilitators were invested			
Breaking down power relationships within intervention structure			
Avoiding stigma associated with mental health in conventional setting			
Realising not alone in struggles	Challenging Isolation	SOCIAL SUPPORT	
Recognizing variety of mental health and its prevalence			
Forming lasting relationships and support through programme			
Thanking/affirming peers sharing of lived experiences	Peer Celebration		
Celebrating progress both in discussions and in the water in a similar manner			
Learning about and trying tools to support own mental health	Peer Learning		
Sharing in other participants lived experiences			
Fidgeting with the sand/feeling sun/hearing beach noises as grounding during mental health discussions	Sand Fidgeting/ Aquatic Immersion	SENSORY GROUNDING	
Favouring natural sensory grounding to artificial/sterile options			
Feeling better from sensory experiences			
Recognizing mindfulness is more than meditation	Clarifying Mindfulness		
Trying to surf or swim mindfully at the session			
Maintaining mindful activities post intervention			
Feeling sense of accomplishment while surfing	Realising competency	MASTERY	Surfing Benefits
Reinforcing accomplishment through peer celebration/support			
Translating sense of accomplishment into wider life			
Surfing demanding focus leaving no space for negative emotions in moment	Demanded Focus/Flow	RESPITE	
Experiencing feelings comparable to flow state indicators (temporal distortion, ecstasy, clarity and intrinsic reward)			
Letting go in water after potentially heavy discussion topics	Immediate Respite		
Feeling release at the end of session, compared with other mental health support without option for release			
Continuing to surf for respite in life outside intervention	Ongoing Respite		

that this is a spot where you can open up if you feel safe to do so. There was no judgement." WOW Participant 1

"It like redefined surfing for me, I guess because it was such a welcoming zone and like such a non-competitive zone. I was like, I can take a board to the beach now and I'd still call it surfing like, even if I can't stand up." WOW Participant 2

Part of this non-judgmental approach supporting participants to engage and contribute at their own pace, something participants reported as very refreshing and in contrast to other mental health experiences.

"You don't have to do anything if you don't want to, like if you're not comfortable catching a wave or uncomfortable talking about a topic, you don't have to." WOW Participant 3

Alongside the explicitly non-judgemental atmosphere and self-determined pacing, participants frequently reported that the way WOW staff delivered the programme contributed a safe space around the intervention. The primary mechanism for this, reported by participants was the participatory nature of facilitation carried out by WOW staff.

"Often as a troubled youth, you get lots of adults going: 'Right open up. Now it's your turn. Talking about depression, your turn, what have you got to say?' But you don't often see adults willing or doing it putting themselves in that vulnerable position and opening up themselves. So it was really good role modelling (by WOW staff)." WOW Participant 1

"*They would talk about like, semi personal experience or like things that they've been through which, which was like comforting in the sense that like when you go to a psychologist, you don't get that personal, whereas the WOW guys were like, you know, I, you know, went through this, like they wouldn't go into like a lot of depth or anything but it made it feel more like a conversation and like a friendship group rather than like a psychologists office."* WOW Participant 4

This participatory approach broke down traditional power structures such as between youth and adults or psychologist and patient which in turn allowed for participants to engage with the programme in a more comfortable and in-depth manner. This combination of removing judgement, participant-determined pacing and participatory approach to facilitation seem to have allowed for

‘mental health by stealth,’ avoiding perceived negative power structures and stigma associated with some traditional support settings.

“By the end of it, it honestly felt like I'm meeting up with a group of friends rather than going to a therapy session.” WOW Participant 5

These three factors: (a) removal of judgement, (b) participant selected pacing and (c) participatory facilitation seem to have led to the creation of an effective safe space around the intervention and within this ‘mental health by stealth’ setting participants were able to maximise engagement with the clinically based activities and expertise of WOW staff.

Social Support

A further mechanism reported by participants, and supported by an effective safe space, were various elements of social support within the programme. Participants reported how meeting and discussing mental health with peers gave a unique and ‘real world’ insight to the variety and prevalence of mental health situations, which in turn helped challenge feelings of isolation.

“I think that sort of a community or more just not being alone (helped). Like you're always told; ‘Oh, you're not alone,’ or ‘there's people that feel like this’, but it's such a foreign feeling sometimes that you feel you're the only one with problems. And I think seeing other people both thrive and struggle with that have helped.” WOW Participant 6

“I'm not the only one with things going on like other people around me have things going on to. It just makes you feel like you're definitely not alone.” WOW Participant 7

This relatability between participants, and with WOW facilitators given their participatory approach, challenged isolating perceptions around mental health which allowed for the development of new positive social connections. These relationships were further strengthened by a culture of shared celebration around progress made by participants both in and out of the water within the intervention.

“We all share each other's success, like, whether it be like, you even just paddled out to get out of the back, which was an enormous task for me and like some other people, that was like a sense of, like, success for the whole entire group. So it wasn't like individual success. It was success together.” WOW Participant 2

"It makes you really happy because you're part of a group and you've got people watching and cheering you on. It's like a little like when they say you've got cheerleaders cheering you on." WOW Participant 8

Alongside these relatable and positive relationships participants also reported social support in the form of peer learning around coping skills and strategies. As part of the discussion process WOW facilitators actively encouraged the sharing of coping skills that participants might have used

"They (WOW staff) definitely encouraged us to actively encouraged us to share support systems and methods with each other as much as offer their own. Which is, I think one of the great things […] to have a safe space to talk about stuff and learning techniques from older adults, but it's also affording those teenagers, you know, the social skills and the confidence to ask other teens or offer their own methods of coping to other teenagers, other peers." WOW Participant 1

Participants reported being especially open to trying coping strategies shared by their peers and ongoing use of such peer shared strategies after completing the WOW intervention. The combination of different aspects of peer support within the WOW intervention: (a) in challenging isolation, (b) reinforcing positive relationships with a celebrative culture and (c) providing the opportunity for peer learning, further contributed to associated mental health benefits.

Sensory Grounding

One element of the programme that emerged as very important for participants within the intervention were the unique sensory experiences available at the beach setting. Participants reported that being able to fidget with the sand or hear the waves crashing in the background really helped with their comfort and engagement with challenging discussions.

"I feel like it takes away awkward silence because there's more going on. You're not just in like that kind of sterile room and just like, waiting for someone to talk. I feel like silence in nature isn't awkward […] it just isn't awkward because there's more going on. And I feel like it's probably also like it just kind of helps you think and reflect because there's like a bit of silence, but it's just like engaging your senses. t's not a distraction. Just kind of helps the focus." WOW Participant 9

These ‘natural’ experiences of grounding were also highlighted in terms of how normal they felt in contrast to manufactured or forced grounding.

“When you sit in a psychologist’s office and you're nervous, like you're reluctant to play with a stress ball, because that just looks a bit weird. It's a bit unnatural. But sitting at the beach and playing with the sand on the beach. It feels like a very natural, normal personal person thing to do. So it's a way to like take out your emotions in a very normal way. Like lots of people play with the sand when they sit on the beach.” WOW Participant 4

These grounding experiences were especially prevalent during the CBT based discussions within WOW sessions but were also highlighted within discussions held around mindfulness. Participants often reported stereotypical and often negative views around mindfulness being limited to quiet meditation. The intervention encouraged a broader view of mindfulness that focused on being grounded in the present with the sensory experiences at the beach and in the water providing opportunities to be mindful in a broader sense.

“Before WOW I sort of thought it (mindfulness) was just like meditation and stuff. And so I was like, oh, cool, we'll do like meditation on the beach. And I've got ADHD. So I'm like, meditation really isn't my forte. So I was like, Oh, I probably struggle with that. But then it was completely different to what I thought. It was more about, you know, being mindful of how you're feeling and being mindful of your environment. And it can be like, you can be doing crazy stuff and still be mindful, still be practising mindfulness.” WOW Participant 10

“As soon as I got in the water just felt better like I felt, like, I could take my mind off things and just focus on that, so it was good. And that was just getting the water that wasn't necessarily on the board.” WOW Participant 11

This clarification of mindfulness as not being limited to mediative practices was very important for participants with many reporting implementing it into their lives regularly after the course. Furthermore, the sensory experiences available at the beach, especially around immersion in the water, offered possible direct pathways to improved well-being. The sensory experiences at WOW helped participants to: (a) ground themselves within difficult discussions, (b) explore different approaches to mindful practice to find what strategies best worked for them and (c) offered direct pathways to improved well-being.

5.3.4 Surfing Benefits

Mastery

One frequent experience reported by participants was the beneficial nature of feeling like they had achieved something within the surfing element of the intervention. Standing up or even riding the board prone was something that many participants believed they would not be able to do and when they achieved this, with the support and reinforcement of WOW staff and other participants, the feeling of accomplishment was significant. Participants highlighted the importance of this process of achievement within a mental health intervention that dealt with often difficult themes.

"When you're surfing, and like I stood up quite a few times, like feeling like you accomplished something, like, that was really an important feeling in that process. Because I don't think when you go through traditional forms of therapy like you're feeling like tangible benefits or tangible things you feel like you've accomplished. A lot of it is like, deficit talk, like you know, I struggle with this. But with your surfing you're actually achieving things." WOW Participant 4

This sense of accomplishment in the face of perceived challenge or even impossibility caused participants to revaluate their own capabilities in a wider manner that translated outside of sessions at the beach.

"And I proved myself wrong thinking I couldn't do anything. And there I was doing absolutely something that I said I couldn't do." WOW Participant 3

"I'm sort of thinking after the session, so not necessarily right after you've got off a wave, but, you know, when you're leaving the beach. And yeah, well when I learnt it's like, anything's achievable." WOW Participant 12

This feeling of accomplishment, reinforced by the previously referenced peer celebration, was realised as a transferable sense of mastery with participants reporting direct impact on self-confidence and self-belief in wider life. It should be noted that participants reported this sense of accomplishment not only through standing up on a surfboard but also through swimming in waves, body surfing and prone surfing depending on their capability or previous experience in the ocean.

Respite

Participants described the surfing component of the intervention enjoyable, but also a space where they felt they could escape from negative thoughts or mental health symptoms. This seems to be largely down to the complete focus that the activity and the ocean environment demanded.

"That's (surfing) kind of the only thing I'm concentrating on. I'm not concentrating on, you know, all the other stuff going on around me. So that was the main thing. Just freedom. Because you are just thinking about that, like when you're on a wave, you're like, I have to stay on this wave. I'm enjoying it. You know? Yeah, it's kind of hard when you're surfing to think about a lot of things to be honest." WOW Participant 4

"You just get a big smile on your face; all your worries go away. You're focusing on the wave and you focus on getting to the shore without falling off. You feel present. You feel good." WOW Participant 11

This focus was intense enough to lead to perceived temporal distortion and described as an intrinsically positive experience. Participants reported these feelings allowed respite from negative thoughts immediately at the sessions, something that was appreciated after heavy discussions.

"I'm elated, relief and freedom like it's just I don't get much, much of a break in my mind. So, to have a little holiday is the best break and catch up with everything." WOW Participant 8

"A lot of the time, you talked about something very dark or very heavy or something that had weighed on your mind. And as I said, I think surfing is something that people can get a lot of clarity, and like mindfulness out of because really, when you're trying to get a wave and when you're on a wave, that's what you have to focus on. So I think it's a good way like kind of getting refreshed and processing everything you've just discussed." WOW Participant 4

This immediate respite was highly valued by participants who also reported their challenges in finding such respite within their wider lives. Due to their experience of this respite within the WOW intervention participants reported independently maintaining activities after completion of the programme. For some participants this involved building surfing into their lives on a more regular basis while other explored other opportunities to find similar feelings of respite.

"So I haven't been surfing as much, but what I've been doing is I'll get home and like, I'm not in a great headspace maybe necessarily and so, I'm gonna prioritise my health for, I guess I call it maintenance. I say, Mom, can you drive me down to the beach. She'll pick me up an hour later and I'll go for a run on the beach." WOW Participant 6

Surfing within the WOW intervention, and the focus it demanded, gave participants access to enjoyable activities that had subjectively reported anxiolytic or anti-depressant effects. These opportunities were valued both for the immediate release available at sessions after difficult conversations, but also in demonstrating how participants could use surfing or similar activities to help manage mental health within their wider lives.

5.4 Discussion and Implications

This study carried out an exploration of programme theory within WOW for young people with or at risk of negative mental health diagnosis, with five themes emerging from the results of the interviews. Specifically, Safe space, Social Support, Sensory Grounding, Mastery and Respite materialised as particularly important themes associated to the participant experience. Participants described the safe space as lacking in judgment, patient, inclusive and relaxed, aligning with literature exploring youth and wider mental health (Bell et al., 2018; Wasserman et al., 2018), including previous literature exploring surf therapy for youth in the UK (Marshall et al., 2019). It is notable that these descriptions are also comparable with previous chapters, despite the very different populations explored. Given this chapter also explored youth mental health in terms of surf therapy, comparisons with chapter 4 are very interesting. It could be presumed the lack of access to safe spaces identified within chapter 4 may have been linked to a lack of mental health or social infrastructure in post-conflict Liberia. That such similar themes are also prevalent within this chapter, focused on Australia where health and specifically mental health infrastructure is much more accessible, highlights the complexity of safe space provision and suggests other factors such as stigma or aversion may contribute. Access to a safe space is important, as not all young people have access to such a space within their home lives (Conn et al., 2015), and is something that has been especially affected by the COVID-19 pandemic (Fegert et al., 2020). The participatory nature of WOW staff facilitation, utilising their own experiences within discussion topics and teaching, further contributed to the creation of a safe space. The participatory use of

personal experience within therapeutic practice is not new (Oates et al., 2017), but it seems to have been integrated in a very effective manner within the WOW intervention. Further exploration of this specific element of the intervention could help to generate guidelines and best practice, which are currently lacking, around participatory facilitation alongside exploring the limits of such overt disclosure in best protecting the well-being of the practitioners themselves (Oates et al., 2017). Together, these different elements of the WOW intervention offer a 'mental health by stealth' approach that avoids negative connotations and stigma associated with mental health settings by young people, the population least likely to seek mental health support in Australia (Slade et al., 2009). It is important that surf therapy recognises this stealth element going forward and doesn't in turn overly medicalise or commodify blue spaces potentially reintroducing the kinds of negative stigmas that such an approach currently avoids, along with the numerous environmental negatives of seeing the ocean as a disposable resource. To prevent this environmental education components could be a worthy element to integrate into future surf therapy delivery.

The sense of identity and the development of new positive social connections with the WOW intervention aligns not only with wider physical activity for mental health literature (Lubans et al., 2016), but also with previous research exploring surf therapy (Caddick, Smith, et al., 2015; Marshall et al., 2019) together with both studies 1 and 2. These positive relationships for different populations seem to have overcome unique forms of isolation within each population. In chapter 3 surf therapy contributed to breaking down veteran centric isolation by including civilians within delivery. Whilst in chapter 4 the intervention brought together communities who would otherwise be segregated. In this chapter WOW facilitated new positive and relatable relationships to young people who faced isolation due to both internalised and externalised stigma around mental ill health, aligning with wider literature (Pernice et al., 2017). This observation of the different social priorities of different populations (veteran centric isolation in study 1 vs youth mental health stigma induced isolation within this study) within this thesis highlights the importance of informed and targeted development of socialisation within interventions to best support contextual populations. It should also be noted that development of these positive social connections seems inherently tied to the delivery of a safe space within the intervention at the beach, a finding that was also outlined in studies 1 and 2. The beach is not inherently a safe space that promotes positive relationships and has in previous research been identified as a contested space with negative power

structures around race, gender, economics and ability (Britton et al., 2019). Alongside these relatable and positive relationships, participants also reported social support in the form of peer learning around coping skills and strategies. This intentional dedication of time for participants to share their own experiences around coping strategies, or a 'crowd sourcing' approach is of note as it could be easily replicated in a range of mental health settings contingent on effective facilitation to verify the approaches being shared.

Participants reported that the sensory experiences around the beach and especially aquatic immersion contributed to positive well-being, which aligns with emerging literature around the haptic and other sensory benefits of 'blue space' interventions (Franco et al., 2017; Britton & Foley, 2020), including within surfing (Lisahunter & Stoodley, 2021) and specifically surf therapy with different populations (Caddick et al., 2015). A plausible physiological and neurological explanation for these experiences could be parasympathetic nervous system activation associated with exposure to blue spaces and subsequent reductions in stress or anxiety (Kuo, 2015). Explicit investigation of parasympathetic nervous activation in blue space settings has not been carried out, but promising confirmatory results can be seen within research on exposure to green spaces (Lee et al., 2014). Such research suggests surf therapy should be more intentional in discussing or teaching 'techniques of the body' as they relate to blue space interactions (Humberstone, 2015), as modelled within the WOW intervention. Further research on this aspect of surf therapy, using appropriate research methods, exploring both the psychology and the physiology of this effect would be beneficial. One theoretical framework that could offer further significant insight to this element of surf therapy would be trauma informed care where sensory inputs and intentional embodiment have been identified as important components to recovery in reconnecting to self-awareness of one's own body (Van der Kolk, 2015). Further research into this specific component of surf therapy, situated within this theoretical landscape, should be a future priority. This prioritisation of sensory inputs aligns with participant reports within this study of sensory grounding when handling difficult discussions and were described positively over stigma associated with traditional therapeutic settings (Ferrie et al., 2020). These findings have implications for wider clinical practice such as prioritizing the search for natural opportunities for sensory grounding within therapy in contrast to unnatural or manufactured 'stress ball' style grounding or coping.

Alongside intrinsic benefits, the sensory experiences at the beach facilitated discussions around mindfulness within the WOW intervention. Mindfulness has become a multibillion-dollar industry and it is possible marketing, rather than clinical research or its social origins, define people's understanding (Purser, 2019). This could account for participants within this study solely identifying mindfulness with meditation prior to the intervention and their corresponding surprise to be exposed to differing mindful practices. Such a singular and narrow understanding of mindfulness is challenging as it does not account for individual differences (Farias & Wikholm, 2016) and personal preferences (Tang & Braver, 2020). The WOW intervention provided space for discussion and trial of different mindfulness practices, including 'crowd sourcing' what kind of mindfulness or coping strategies had worked in participants previous experiences. The stimulating sensory environment at the beach further offered opportunities to try different mindfulness activities and helped participants find what worked best for them. This opportunity is enabled by the clinical expertise of the WOW coordinators who could support participants who experienced any possible adverse effects (Farias & Wikholm, 2016), an ethical imperative when delivering mindfulness. The WOW approach to mindfulness challenged the narrow preconceptions participants held and helped them to find, attempt and potentially adopt practices that worked with them in a safe and supported environment. This process offers insight into how best to implement and educate around mindful practices for young Australians.

Regarding the surfing element of the programme, it seems to have supported the 'mental health by stealth' approach of WOW, immediately pulling focus from mental health elements, but also seems to have had its own unique benefits for participants. Participant responses around the transferable sense of achievement they felt within the surfing component offered a pathway to improved mental health and well-being through improved confidence and self-efficacy beliefs. This theoretical mediator is well established (Bandura, 1999) including within physical activity interventions for young people (Lubans et al., 2016) and has been identified within surf therapy alongside a comparable population (Marshall et al., 2019). This transferable sense of mastery, even if largely associated with the surfing component, further reinforced progress or learnings participants received within the more explicitly mental health focused elements of the intervention.

Surfing was also described by participants as having immediate antidepressant or anxiolytic properties, primarily through the complete focus that participation demanded. Descriptions included ecstatic feelings, complete involvement, serenity, and notions of temporal distortion that point towards participants experiencing 'Flow' states (Csikszentmihalyi, 2002). The respite from negative mental health symptoms that participants experienced and its potential link with flow states builds upon conclusions from chapters 3 and 4 and has also been identified within other sporting-based interventions (Ley et al., 2017). Given participants from each previous study within this thesis have identified potential flow states as having an anxiolytic or antidepressant effect in terms of providing respite, this theoretical mediator is a highly plausible generic mechanism across all surf therapy. Confirmation of the presence of flow within surf therapy using validated flow measurement tools across multiple surf therapy sites should be a priority for future research. If this theoretical mediator can be confirmed, it would have significant implications for community and clinical intervention design given the requirements for achieving flow states are well established, ideally through providing activities that offer an appropriate balance between challenge and skill (Csikszentmihalyi, 2002) as visualised within Figure 5.2. Enabling this balance has previously been discussed in terms of surf therapy through actively encouraging participants to self-select the level of challenge they wish to attempt within the different levels offered within

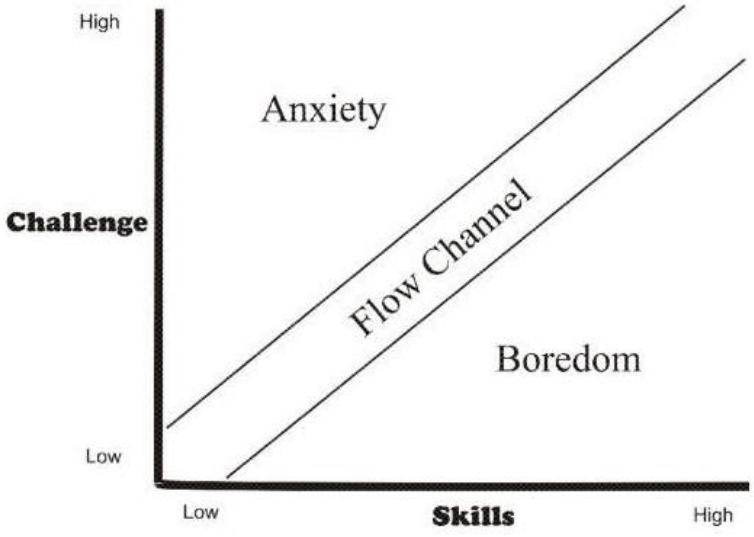

Figure 5.2 Flow States; Skill/Challenge balance. Adapted from Csikszentmihalyi, 2002

the ‘surf environment’ (Marshall et al., 2019). It should be noted that this respite is temporary but being available through accessible activities such as sports/art/music, the achievement of a ‘flow’ state could prove a useful supplement to mental health treatment or support planning.

The core components of WOW programme theory provide implications for wider clinical and community intervention design, but these findings are also of use to the intervention itself. The findings from this study have been shared with WOW management and as part of WOW facilitator training to highlight best practice and understand the most important elements of the programme from participant perspectives. The research has provided a jumping off point for further investigation of specific elements of programme theory such as exploring the development of guidelines around facilitator use of personal experience. Such work once completed could have further implications for wider clinical practice. The findings also highlight key theoretical mediators that provide opportunities for impact measurement within the intervention such as self-efficacy. The findings of this study and the ongoing work that it provides, allows for the basis for the facilitation and further optimisation and proliferation of the WOW model of surf therapy within Australia.

5.5 Strengths and Limitations

The aim of this study was to use grounded theory to understand key theoretical mediators within the WOW surf therapy intervention based on participant experiences. As part of the study no formal research was conducted with WOW practitioners. Given the findings of the study, particularly the aspects related to the creation of a safe space, practitioner data may have offered further depth or insight. While it was appropriate that data collection initially focused on participant experiences, further research working with WOW practitioners could build upon the findings of this study.

The generation of new theory is integral to a grounded theory method. Given the complexity and variety of categories involved in the WOW intervention, a fully expounded programme theory did not emerge; for example, intricacies of how certain categories relate to each other, and directionality were not explored in depth. Despite this limitation, the findings provide a valuable conceptual framework for the WOW intervention, in line with pragmatic grounded theory (Timonen et al., 2018). This conceptual framework remains of value for service optimisation,

learning for wider surf therapy and clinical practice and to direct further research into specific elements of programme theory understood as both an interpretive product and ongoing process in mapping pathways to impact (Vogel, 2012).

One key theoretical mediator identified within this study, sensory grounding, perhaps surprisingly was not identified within previous studies. This is despite the literature stressing its importance for populations such as military veterans with PTSD (Van der Kolk, 2015) as explored in study 1. It is plausible that sensory components were present within precious studies but did not naturally occur in discussion as participants did not recognise them themselves. WOW's programme incorporates intentional learning and discussion around sensory inputs and mindfulness which may have better equipped participants to discuss such findings with the candidate. As already noted, targeted research into sensory components of surf therapy would be beneficial, draining on wider literature around embodiment and mental health.

5.6 Practical Challenges in the Field

One of the practical challenges within this study aligns with previously discussed issues around time spent in the country. The itinerary on this trip was notably shorter than previous trips due to funding considerations. While prolonged engagement was achieved within intervention delivery, it was impossible within the timeframe to collect enough data to suggest theoretical saturation and final interviews had to be conducted remotely online. Had more funding available and a longer itinerary been possible a similar outcome may have occurred due to the complications associated with the COVID-19 pandemic. The online interviews offered a different manner of comfort for participants and for some may have even been preferable to in person interviewing with rich and in-depth data being collected online. Online video conferencing has become even further normalised during the COVID-19 pandemic and mixed in-person/online approaches could be considered for future research especially in terms of ensuring participant comfort and attempting to mitigate inherent power structures within interview based research.

5.7 Conclusion

This chapter has generated a conceptual framework to understand programme theory within the WOW intervention and addressing Objective 1 of this thesis. Emergent categories underpinning the intervention included: (a) Safe Space, (b) Social Support, (c) Sensory Grounding, (d) Mastery and (e) Respite. Of note were mediators that directly correlated with previous chapters, especially the importance of safe spaces and respite through access to potential flow states, indicating these may be universal mediators within surf therapy no matter the population. Social support was also highlighted within all chapters though there were nuances for each population in terms of the types of isolation that intervention based social support was overcoming. Chapter 6 will build upon these initial observations around common theoretical mediators offering an overview of surf therapy programme theory as developed within the previous chapters consolidating on Objective 2 of the thesis. Furthermore, chapter 6 will combine this theoretical overview with a Delphi style consultation alongside a different surf therapy target population to those previously explored; emergency first responders and healthcare workers. This process will lead to a theoretically and contextually informed novel framework for the delivery of surf therapy to support the mental health of emergency first responders and healthcare workers in central Scotland. This process provides a worked example of consolidating and understanding generalisable theoretical mediators within surf therapy and contextualising them to develop a targeted, population specific but theory driven intervention in a novel context. This process should be undertaken within the development of any new iteration of surf therapy, and this worked example can provide a template to support the continued proliferation of evidence-based surf therapy into new context. Alongside this step by step template that supports objective 3 of the thesis, this framework will have local impact through enabling the pilot an intervention alongside the Wavegarden Scotland artificial wave (https://www.wavegarden.scot/) in the immediate future. As will be expanded on in the following chapter, such interventions are in high demand given the prevalence of negative mental health of emergency first responders and healthcare workers in the UK.

Chapter 6 : Study 4 - Consolidating surf therapy programme theory and putting it into practice at the Wavegarden Scotland

Computer generated rendering of proposed Wavegarden Scotland wave pool. Credit Tartan Leisure

6.1 Introduction

The previous three chapters have been focused on exploring programme theory within surf therapy across a range of populations and contexts. Seven theoretical mediators were identified within the three studies: Physical and Emotional Safe Spaces, Positive Social Connections, Respite from Negative Emotions / Symptoms, Transferable Mastery, Physical Therapy, Coping Skill Transfer, Sensory Grounding. Reviewing these identified mediators, it was apparent that some appeared foundational for surf therapy across all the contexts explored in chapters 3, 4, and 5. Other mediators appear to align only within specific contexts, though were no less important for effective intervention delivery. Table 6.1 visualises the seven mediators as they appear within this review process, including which studies they were apparent in and whether they correlate with wider literature on surf therapy or associated paradigms discussed in chapter 2.

Table 6.1 Review of surf therapy theoretical mediators.

Theoretical Mediator	Thesis Studies Present Within	Foundational vs Contextual / Population Specific	Identified in Literature Review
Physical and Emotional Safe Spaces	1 + 2 + 3	Foundational	Coalter, 2013; Draper & Coalter, 2016; Verkooijen et al. 2020; Marshall et al. 2019; Britton et al. 2020
Positive Social Connections	1 + 2 + 3	Foundational	Fox, 1999; Lubans et al. 2016; Doré et al. 2020; De Bell et al. 2017, White et al. 2016; White et al. 2020; Armour et al. 2013; Holt et al. 2017; Caddick, Phoenix et al. 2015; Caddick, Smith et al. 2015; Marshall et al. 2019
Respite from Negative Emotions/Symptoms	1 + 2 + 3	Foundational	Bahrke & Morgan, 1978; Massey & Williams, 2020; Caddick, Smith et al. 2015; Marshall et al. 2019
Transferable Mastery	1 + 3	Foundational	Petruzzello et al.1995; Fox, 1999; Biddle & Mutrie, 2008; Doré et al. 2020; Holt et al., 2017; Jones et al., 2017
Physical Therapy	1	Contextual/Population Specific	No
Coping Skill Transfer	2	Contextual/Population Specific	Holt et al., 2017; Jones et al., 2017
Sensory Grounding	3	Contextual/Population Specific	Wheaton et al. 2017; Britton et al. 2020

Of the seven theoretical mediators identified four were identified as foundational mediators within surf therapy for mental health (Physical and Emotional Safe Spaces, Positive Social Connections, Respite from Negative Emotions / Symptoms, Transferable Mastery) due to both their appearance in multiple contexts and their triangulation with pre-existing literature (referenced in table 6.1) in multiple paradigms. Alongside this triangulation, foundational mediators were

integral to the programme theory identified within each independent study suggesting they should be important considerations for future surf therapy service design and optimisation. The term foundational must be qualified as while previous chapters explored three very different populations and contexts, there still exists many surf therapy contexts that have yet to be explored. While these foundational mechanisms may be highly plausible in different contexts, they should not be assumed. Three mediators (Physical Therapy, Coping Skill Transfer, Sensory Grounding) were identified as contextual or population specific due to their appearance in singular studies or due to their targeted response to population specific needs. For example, physical therapeutic elements discussed within Study 1 related to the prevalence of serious physical injuries/disabilities among veterans attending surf therapy. This discussion of plausible physical therapeutic elements did not occur in studies 2 or 3 which is unsurprising given neither of the populations sampled had as high a prevalence of physical injuries/disabilities. In a similar vein, the surf therapy within Study 2 was based on a coping skill curriculum and therefore highlighted the importance of skill transfer while in Study 3 the intervention's focus on redefining mindfulness led to prolonged and explicit engagement with sensory experiences. These contextual or population-based mediators underline the importance of tailoring surf therapy to the specific needs of those it is trying to support rather than adopting universal, prescriptive, or inflexible intervention design. Even identified foundational mediators demonstrated contextual nuances, as previously discussed. New positive social connections were apparent in all settings, however, there were contextual nuances such as breaking down veteran-centric socialisation in chapter 3, contrasted with the mixing of different communities in chapter 4 or challenging stigma-induced isolation in chapter 5. These findings highlight the importance of understanding and collaborating with the populations surf therapy targets to design optimal interventions. A collaborative process can ensure mediators are delivered as appropriately as possible for target populations while also identifying practical barriers and facilitators to participation.

Such a collaborative process is of particular importance when designing interventions specific populations. As seen in chapters 3, 4, and 5, and in other research around the world, there are many populations that could benefit from surf therapy, one of which is emergency service and healthcare workers. Emergency service personnel in the United Kingdom experience considerably more mental health problems then the general workforce and are twice as likely to identify

challenges at work as the main cause for these problems (MIND, 2015). Police officers in the UK experience Post-Traumatic Stress Disorder (PTSD) at a rate four times higher than that of the general population (Bell & Eki, 2015) while half of police have taken mental health-related leave over a five-year period (Edwards & Kotera, 2020). This poor mental health correlates with negative coping strategies; one in four police officers screened for hazardous drinking in a recent global review (Syed et al., 2020). Similarly, ambulance staff experience PTSD at a much higher prevalence than the general population (Petrie et al., 2018) with one third of ambulance workers reporting some form of psychiatric morbidity (Alexander & Klein, 2001). High PTSD prevalence is not the only challenge for emergency services staff, severity of symptoms can also be greater, as demonstrated in studies of fire service personnel (Wagner et al., 2010). The high prevalence of mental health challenges was also found in emergency healthcare workers, with nurses from multiple specialisations reporting high levels of stress impacting on their well-being (Kirkcaldy & Martin, 2000). This stress has been associated with tragic consequences; in the UK nurse suicide rates are 23% higher than the general population (Windsor-Shellard, 2017). The prevalence of poor mental health amongst emergency services and emergency healthcare workers has been further exacerbated by their frontline roles in responding to the COVID-19 pandemic. Amongst emergency service workers, 69% have reported their mental health deteriorating since the start of the pandemic (MIND, 2021). COVID-19 has placed particularly high stress on nurses related to disease mortality, the nature of infectious care, and fear especially where PPE is lacking (Maben & Bridges, 2020). The number of UK healthcare workers reporting very high levels of anxiety or depression has more than quadrupled from pre-COVID-19 levels (Gilleen et al. 2021). The prevalence and severity of negative mental health amongst emergency service and emergency healthcare workers, alongside its exacerbation by the COVID-19 pandemic, highlight the need for evidence-based interventions to support this population.

Given there is a clear need for additional mental health support for emergency service and healthcare workers they seem a novel population worthy of consideration for future surf therapy interventions. There is currently no peer-reviewed research exploring the effectiveness of surf therapy exclusively focussing on emergency service or emergency healthcare workers. Promising results can be seen within programme evaluations such as that reported by Tourky et al. (2021), which identified significant positive changes to well-being alongside positive impacts on

confidence, self-efficacy, and development/retention of coping skills. As highlighted in chapters 2 and 3, research into surf therapy working alongside military veterans has shown surf therapy is associated with significantly reduced PTSD, depression, and anxiety symptoms (Rogers et al., 2014; Crawford, 2016; Walter et al., 2019, Otis et al., 2020; Glassman et al., 2021). While military veterans and emergency service/healthcare workers remain separate populations, it is plausible surf therapy would have a similar effect given comparable prevalence of PTSD and anxiety. In previous chapters, foundational mediators such as provision of safe spaces, respite from negative symptoms, and positive social support were identified that could prove beneficial for emergency services/healthcare workers. The plausibility of these mediators is further strengthened by their presence within research on surf therapy with a mixed sample of emergency service workers and military veterans (Caddick, Phoenix et al., 2015; Caddick, Smith et al., 2015). Such mediators would appear to directly target priority areas that have been shown to be associated with poor mental health amongst emergency service/healthcare workers, including poor social support, maladaptive coping, lack of opportunities for processing and burnout (Syed et al., 2020; Mildenhall, 2019; Sharp et al., 2020).

While surf therapy could prove a plausible intervention to support the mental health of emergency service/healthcare workers there remain significant practical barriers to accessing such support; the majority of UK emergency service personal are not aware of how to access mental health support, and those who are aware believe the quality of support to be poor (MIND, 2016). Stigma is one of the primary barriers to accessing mental health support for emergency service/healthcare workers (Haugen et al., 2017). This stigma was largely tied to worries around confidentiality of mental health disclosure and the potential for this to have negative career impact. Stigma around mental health in the police has been highlighted as prevalent both as personal 'self-stigma' and as team or institutional stigma (Edwards & Kotera, 2020). Research highlights other barriers to accessing mental health support for this population including, a culture of self-reliance, lack of time to participate, lack of knowledge of referral pathways and transportation challenges (Edwards & Kotera, 2020; Haugen et al., 2017; Hernandez et al., 2014; Johnson et al., 2019). As highlighted throughout previous chapters, the importance of understanding the context and needs of participants is foundational for impactful surf therapy. Collaborative research with potential participants allows for better understanding of contextual nuances for implementation of

previously discussed theoretical mediators, while also providing insight into potential barriers to access. The intervention design stage is an appropriate time for such collaborative research to ensure that future surf therapy practices can be optimised as much as possible, even at the pilot phase.

6.2 Study aim.

The aim of this fourth study was to consult with potential future participants of a proposed surf therapy intervention supporting the mental health of emergency service/healthcare workers and build consensus regarding the implementation of previously identified mediators as well as potential barriers to taking part. Where possible, the study also sought to build consensus on pragmatic solutions to overcoming these barriers. The results of the study will be presented as recommendations for the proposed intervention's pilot at the artificial surf lake, Wavegarden Scotland in 2022 (https://www.wavegarden.scot/).

6.3 Method

Given building consensus between stakeholders and develop guidelines for practice were the primary aims of the study, a classical Delphi framework was deemed the most appropriate. The Delphi method has previously been used successfully to achieve the same aims in different health contexts (Eubank et al. 2016). The Delphi technique was developed at the outset of the Cold War to predict the impact of technology on warfare (Custer, Scarcella, & Stewart, 1999). The development of the Delphi technique was guided by the premise that combined individual anonymous predictions were stronger than unstructured group predictions (Kaplan, Skogstad, & Girshick, 1950). The Delphi process is used to build consensus around a topic through the systematic surveying of a panel of experts. A Delphi panel consists of a group of subject experts who can offer insight and in this study work towards consensus of recommendations for intervention design. The number of participants required for a Delphi panel is not set, though a minimum between 10-18 has been suggested (Paliwoda, 1983). The panel receive and respond to multiple rounds of questionnaires, the responses of which are analysed , consolidated, and presented back to the panel for further feedback. This is often done through presenting back statements for participants to rate their agreement on. This process continues until a, usually predefined, consensus is reached. The first stage of any Delphi process is recruitment of an expert panel on the topic in question.

6.3.1 Panel Selection

To best address the aims of this study initial purposive sampling was carried out with direct contact being made with gatekeepers to potential participants (emergency service/healthcare workers) alongside open advertising via social media and in strategic locations. Snowball sampling was also encouraged and accounted for around half of study participants. The shared subject area was barriers to accessing mental health support, but the study sought opinions across multiple

Table 6.2 Breakdown of Job Roles Sampled.

Emergency Service/Healthcare Role										
Fire Service	Police Officers	Paramedics	Ambulance Technician	Advanced Critical Care Practitioner	Neonatal Staff Nurse	Mental Health Staff Nurse	Adult Nurse	RNLI Crew	HM Coastguard	RNLI Lifeguards
4	2	1	2	1	1	1	1	2	1	2

emergency service/healthcare domains. A breakdown of the job roles sampled can be viewed in Table 6.2. A total of 18 participants registered to take part in the study, the average age was 38.2 (*SD* = 11) while 39% of the sample was male and 61% were female.

6.3.3 Procedures

During recruitment and prior to every round, participants were given an information sheet outlining a potential surf therapy intervention to support the mental health of emergency service/healthcare workers. The sheet briefly outlined key intervention components, its location and a provisional timeline while also linking to a recent news report featuring a comparable intervention. This information sheet aimed to offer context for the questionnaires throughout the remainder of the process. Prior to any rounds of questionnaires, it was important to define Delphi consensus a priori (Diamond et al., 2014) for this study, consensus will be defined as 80% of participants scoring 4 or 5 (agree/strongly agree) on a 5-point Likert Scale. This Likert Scale offered multiple levels to differentiate strength of view for agreement and disagreement while also offering a neutral opinion. The length of time each round was open was set a priori at two weeks, though one period was extended to account for public holiday disruption. A further priority was the anonymisation of participants at all stages. This was deemed especially important not only as part of established Delphi processes, but also so participants felt they could respond freely. As already highlighted, fear of breach of confidentiality contributes to stigma around mental health for emergency service/healthcare workers (Haugen et al. 2017). An online process (the Qualtrics platform) was deemed most appropriate to maintain anonymity, to minimise disruption for participants and to accommodate COVID-19 protocols limiting meeting in person. In total four rounds of questionnaires were carried out before consensus was reached on all items. Response rates were high throughout the study (Round 1:83%, Round 2: 94%, Round 3: 89%, Round 4: 94%). Ethical approval was granted by the Edinburgh Napier School of Applied Sciences Ethics Committee on 15/02/2021 (Reference Code: 2706662). This process involved in-depth discussion of research protocols with a committee independent of the study and piloting of questions and processes. The chief ethical priority, as already highlighted, was always maintaining participant anonymity.

6.3.4 Round 1 Question Development

An initial round of open-ended questions was developed in line with classical Delphi procedures. These initial questions were based upon a review of both theoretical mediators for surf therapy identified within previous chapters of this thesis, as well as wider literature exploring barriers to accessing mental health for emergency service/healthcare workers. Theoretical mediators were not explicitly expressed to participants (participants were not recruited as an expert panel on surf therapy), but questions were generated based on analysis of important elements within population centred literature that could confound foundational mediators. An example of this would be the open-ended questions around how to overcome the specific stigma prevalent within this population that will inform adaptations to surf therapy mediators such as safe spaces and positive socialisation. Table 6.3 lists initial Round 1 open ended questions.

Table 6.3 Round 1 Open Ended Questions

Round 1 Open Ended Questions
Please describe your perceptions of stigma for first responders and emergency healthcare workers in accessing mental health support.
Please describe your current knowledge/awareness around pathways to mental health support.
Please describe any steps you have experienced, or you believe would help to overcome stigma in relation to accessing mental health support by first responders and emergency healthcare workers.
Please describe any concerns you may have to participating in the group setting of the proposed intervention.
Please describe how open you would be to learning about evidence-based coping skills within the proposed intervention.
Please describe any concerns (if at all) you may have about the implications participation in the proposed intervention might have on your career.
Please describe your ideal referral pathway for accessing mental health support such as the proposed intervention. Some examples of referral pathways would include place of work referral, self-referral, GP referral or online referral. Please explain the reasons behind your preferred choice.
Please describe any challenges you anticipate having around participation in the proposed intervention due to a lack of time or coordinating with work shifts. Please also describe any potential ideas/solutions you may have around timing challenges to participation.
Please describe any challenges you anticipate having around participation in the proposed intervention due access to transport to the site. Please also describe any potential ideas/solutions you may have around transportation challenges to participation.
Please add any further comments you may have about the proposed intervention in the space provided below.

6.3.5 Initial analysis and statement development

Responses to open ended questions in Round 1 were initially explored through process coding, before codes were mapped, categorised and tabulated to explore key themes from within the data (Saldaña, 2016). These themes provided the basis for initial statements presented back to participants from Round 2 to explore consensus. In subsequent rounds (2, 3, 4), participants received feedback around responses from the previous round and were given the opportunity to offer further comment or make modifications to statements. Qualitative feedback was coded and analysed within the same framework as Round 1 (process coding, mapping, categorisation, and tabulation). This process led to new or modified statements in the subsequent round. At the culmination of Round 4, consensus had been reached around all items resulting in a list of recommendations for future intervention design and implementation. The full research process has been summarised in Figure 6.1.

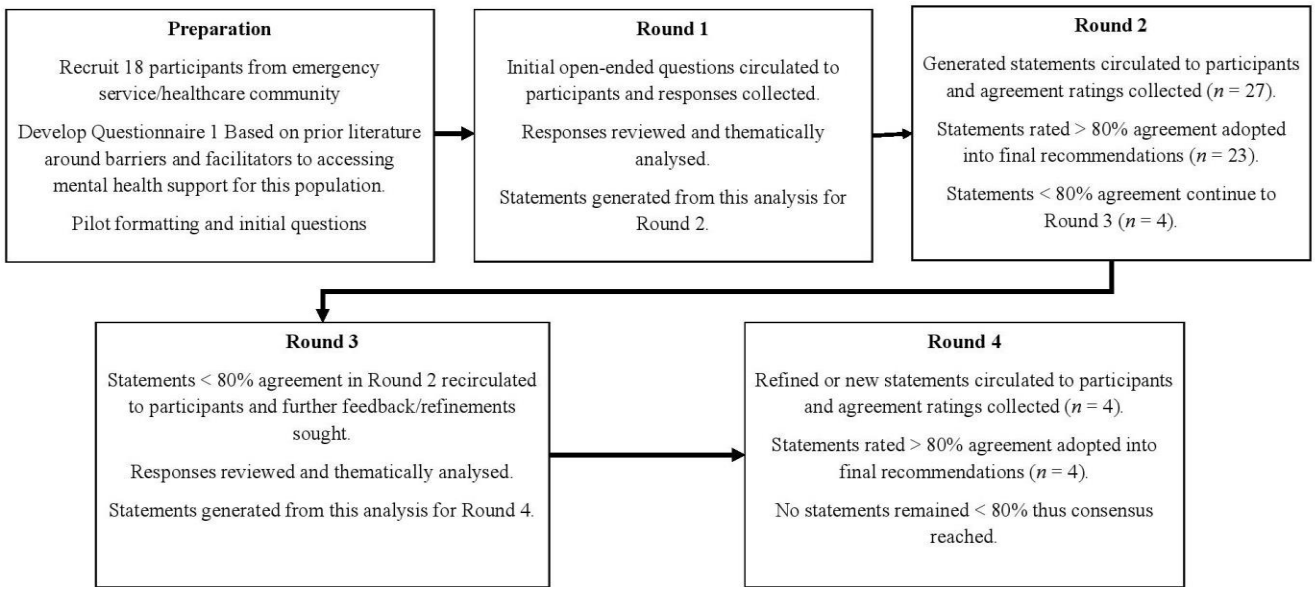

Figure 6.1 Delphi Research Process

6.4 Results

6.4.1 Round 1

The initial round of open-ended questions generated textual data from 15 respondents that were coded and analysed to generate statements to explore consensus in later rounds. There was variation in themes that emerged with some applying more generally to intervention implementation (e.g. “Building an open non-judgemental culture around the intervention.”) while others tended towards very specific guidance for intervention delivery (e.g. “Maintaining confidentiality at all times.”). This variation and the depth of responses provided good insight to potential adaptations required for the proposed surf therapy as well as potential barriers to access. From the analysis, 27 statements were generated and taken into Round 2 of the Delphi study, and these can be viewed within table 6.4. An example of this analytical process would be Statement

Table 6.4 Generated Statements for Round 2

No.	Statement
1	The intervention should maintain a safe space for all participants, free from judgment
2	Perceptions around maintaining a 'stiff upper lip' or 'toughening up' should be challenged at the intervention.
3	The intervention should be structured completely independently of any workplace.
4	The intervention should promote evidence-based/scientifically proven coping mechanisms.
5	The intervention should support participants in not isolating themselves.
6	The intervention should provide information and support about accessing other services, if required.
7	Anonymity should be maintained at all times around intervention.
8	Positive examples and case studies would be helpful in promoting coping strategies.
9	The intervention should not promise things it cannot deliver on.
10	The intervention should recognise and provide recognition around the work carried out by emergency service and healthcare workers.
11	Promoting a healthy lifestyle would be a positive element to the intervention.
12	The intervention's setting outside of an office/classroom setting is a positive element to the intervention.
13	Self-referral is a preferable form of referral to the intervention.
14	Referral process would be easiest on an online platform
15	Referral process should be as simple and transparent as possible.
16	The intervention should consider how to promote appropriate use of the service, in contrast to just accessing free surf lessons, within referral process design.
17	The intervention should be advertised as broadly as possible both within work place and primary healthcare settings.
18	A team referral option would be beneficial within the intervention.
19	It would be beneficial if the intervention avoided putting co-workers on the same course, outside of team referrals.
20	The intervention should stress at recruitment it is accessible to all levels of fitness.
21	The intervention should be aware and as flexible as possible with regards to attending around shift based work.
22	It would be beneficial for the intervention to occur regularly over a long period to make up for missed sessions due to scheduling.
23	The intervention should be explicit about there being no judgment over missed sessions.
24	Attending the intervention in my spare time would not be a problem.
25	The intervention should provide plenty of advance notice as to the intervention dates and times.
26	Good public transport links would be beneficial for the intervention.
27	Given the intervention is Edinburgh based, avoiding rush hour times would be preferable.

1: ‘The intervention should maintain a safe space for all participants, free from judgment,’ which was generated from multiple codes from question 1: appearing weak or not strong enough for the job, fearing being signed off from work, challenging stiff upper lip mentality, and question 2: prioritising an open non-judgemental culture, holding a safe space throughout all activities.

6.4.2 Round 2

The second round of the study consisted of participants rating their agreement with the generated statements. Table 6.5 shows percentage agreement for all statements. Statements that reached predefined consensus (Agree or Strongly Agree >80%) were adopted directly into intervention recommendations that are the primary output of this research. From the 17 respondents who responded in this round predefined agreement was reached for 23 statements. Four items did not reach consensus (italicised withing Table 6.5) and further feedback on why they did not reach consensus was sought in Round 3 of the Delphi study.

Table 6.5 Percentage Agreement of Round 2 Statements

No	Statement	Percentage Agreement (Agree or Strongly Agree)
1	The intervention should maintain a safe space for all participants, free from judgment	100%
2	Perceptions around maintaining a 'stiff upper lip' or 'toughening up' should be challenged at the	94%
3	*The intervention should be structured completely independently of any workplace.*	*76%*
4	The intervention should promote evidence-based/scientifically proven coping mechanisms.	88%
5	The intervention should support participants in not isolating themselves.	94%
6	The intervention should provide information and support about accessing other services, if required.	94%
7	Anonymity should be maintained at all times around intervention.	82%
8	Positive examples and case studies would be helpful in promoting coping strategies.	88%
9	The intervention should not promise things it cannot deliver on.	100%
10	*The intervention should recognise and provide recognition around the work carried out by emergency service and healthcare workers.*	*76%*
11	Promoting a healthy lifestyle would be a positive element to the intervention.	94%
12	The intervention's setting outside of an office/classroom setting is a positive element to the intervention.	100%
13	*Self-referral is a preferable form of referral to the intervention.*	*53%*
14	The referral process would be easiest on an online platform	94%
15	The referral process should be as simple and transparent as possible.	100%
16	The intervention should consider how to promote appropriate use of the service, in contrast to just accessing free surf lessons, within referral process design.	100%
17	The intervention should be advertised as broadly as possible both within work place and primary healthcare settings.	100%
18	A work-place team referral option would be beneficial within the intervention.	82%
19	*It would be beneficial if the intervention avoided putting co-workers on the same course, outside of team refe*	*35%*
20	The intervention should stress at recruitment it is accessible to all levels of fitness.	94%
21	The intervention should be aware and as flexible as possible with regards to attending around shift based	94%
22	It would be beneficial for the intervention to occur regularly over a long period to make up for missed sessions due to scheduling.	88%
23	The intervention should be explicit about there being no judgment over missed sessions.	100%
24	Attending the intervention in my spare time would not be a problem.	82%
25	The intervention should provide plenty of advance notice as to the intervention dates and times.	100%
26	Good public transport links would be beneficial for the intervention.	82%
27	Given the intervention is Edinburgh based, avoiding rush hour times would be preferable.	82%

6.4.3 Round 3

Within Round 3 participants were presented back statements that did not meet the predefined threshold for consensus and asked for further feedback. Sixteen participants provided data within this round of the study. This feedback was thematically analysed to help generate modified or completely reformulated statements for Round 4. Statement 3 (The intervention should be structured completely independently of any workplace), nearly reached consensus level (76%) with many participants highlighting the importance of separation and workplace within Round 3 feedback. The key theme that emerged was around the wish to not exclude any kind of workplace collaboration through this separation. Participants recognised the possibility of positive collaborations with the intervention such as team referrals or organisational workshops. An addition was made to the statement indicating workplace collaborations would not be excluded. The revised statement was: 'The intervention should be structured completely independently of the workplace to protect anonymity and prevent stigma. However, this should not exclude possible collaborations such as team or organisational group referrals/workshops).'

Statement 10 (The intervention should recognise and provide recognition around the work carried out by emergency service and healthcare workers), was also very close to consensus (76%) and the main theme within feedback was fears around either disingenuity or risk of flashbacks associated with recognition of work. Based on this analysis an addition to the statement was made ensuring recognition would not include any of these negative elements and the revised statement was: 'The intervention should positively acknowledge the nature of the work carried out by emergency service and healthcare workers. This acknowledgment should be structured so as to not be disingenuous, nor reinforce any negative stereotypes and not risk any kind of flashback trigger.'

Self-referral came up as a clear theme within Round 1 analysis but only 53% of participants agreed with it being the preferable form of referral to the intervention in Statement 13 (Self-referral is a preferable form of referral to the intervention). Analysis of the round 3 feedback on this statement provided no clear single referral method which emerged as preferable, however there was a clear focus on making the process as easy as possible for potential participants. As such, a new statement highlighting making referral pathways as easy and accessible as possible was drawn up. The reformulated statement also included a list of possible referral pathways that were

referenced by study participants, with the revised statement being: 'The intervention should offer multiple referral pathways to make the process as easy as possible for potential participants. These pathways could include but are not limited to self-referral, occupational health referral, other workplace referral and/or healthcare-based referrals.'

Statement 19 (It would be beneficial if the intervention avoided putting co-workers on the same course, outside of team referrals), received the lowest agreement rating of any statement (35%) despite the negative aspects of attending with individuals from the same workplace being a clear theme within Round 1. In contrast within Round 3 analysis the benefits of attending with individuals from the same workplace also emerged. The feedback clarified the key concern from earlier data was around finding out that someone from the same workplace was on the same course on the day of delivery. This could lead to worries around confidentiality or anonymity that may be a preference for individual participants, as highlighted both within the literature and in other statements. These concerns could in turn contribute to participants dropping out of the intervention or a negative experience. To better address this, the statement was reformulated to state the intervention should check preferences prior to including individuals from the same workplace on the same course. The new statement was: 'Where co-workers may be referred onto the same course (outside of team referrals), the intervention should check and accommodate participants preferences prior to course commencement.' This solution was generated from participant suggestions within feedback provided. These modified or reformulated statements were presented back to participants to explore consensus within Round 4 (Table 6.5).

Table 6.6 Percentage Agreement of Round 4 Statements

No	Modified or Reformulated Statement	Percentage Agreement (Agree or Strongly Agree)
3	The intervention should be structured completely independently of the workplace to protect anonymity and prevent stigma. However, this should not exclude possible collaborations such as team or organisational group referrals/workshops.	88%
10	The intervention should positively acknowledge the nature of the work carried out by emergency service and healthcare workers. This acknowledgment should be structured so as to not be disingenuous, not reinforce any negative stereotypes and not risk any kind of flashback trigger.	94%
13	The intervention should offer multiple referral pathways to make the process as easy as possible for potential participants. These pathways could include but are not limited to self-referral, occupational health referral, other workplace referral and/or healthcare based referrals.	94%
19	Where co-workers may be referred onto the same course (outside of team referrals), the intervention should check and accommodate participants preferences prior to course commencement.	100%

6.4.4 Round 4

The fourth and final of the study consisted of 17 participants rating their agreement with the modified or reformulated statements. Table 6.6 shows percentage agreement for these statements. Predefined consensus (Agree or Strongly Agree >80%) was reached on all statements and were consequently adopted directly into intervention recommendations. As consensus had been reached on all items the study was deemed complete. The primary output of this research was a list of recommendations for mental health interventions working with the emergency responder/healthcare population. The full list of practical recommendations can be viewed within figure 6.2, an infographic designed to support practitioners in implementing these recommendations within the proposed surf therapy programme at Wavegarden Scotland.

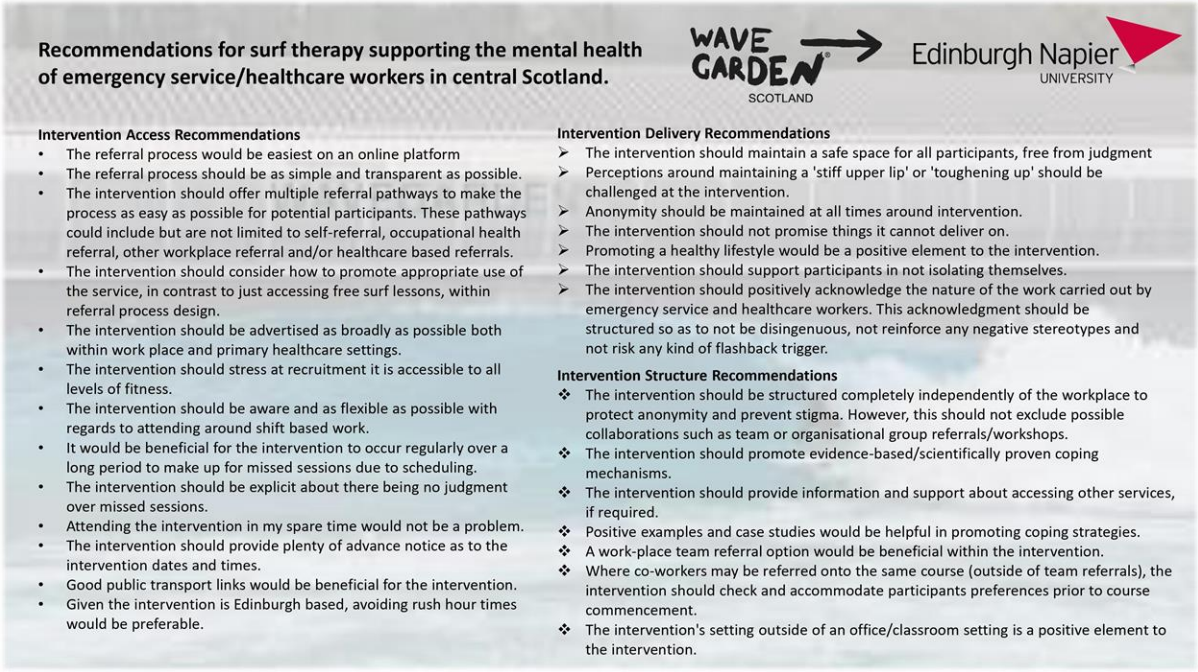

Figure 6.2 Infographic Surmising Delphi Recommendations

6.8 Discussion and Implications

This study aimed to build a list of practical recommendations for the implementation of a novel surf therapy intervention for emergency service and healthcare workers in central Scotland. The recommendations produced by this study identify both how to best implement theoretical mediators associated with surf therapy as identified within previous chapters of this thesis, particularly how to implement a safe space for this population, but also recommendations for skill transfer and positive socialisation. The study also identified and provided solutions to pragmatic barriers to participation for this population. The first implementation recommendation within the results directly aligned with chapters 3,4 and 5, prior surf therapy literature (Marshall et al., 2019) and wider mental health literature (Bryant, Tibbs & Clark, 2011; Walker, Hart & Hanna, 2017) in prioritising a safe space free from judgment within the proposed intervention to achieve positive impacts on mental health. Other recommendations produced by the Delphi process expanded upon how this safe space could be implemented specifically for this population, for example recommendations 21, 22 and 23 highlight the challenge of shift work for potential participants.

The Delphi process recommended flexibility (21), regular and long-term delivery (22) and explicitly removing any sense of judgement over missed sessions (23) to ensure the challenges of shift-based work do not undermine the safe space that is integral to intervention implementation, and which could otherwise undermine continued participation. This recognition of the shift work and its impact on availability as a potential barrier to intervention participation aligns with previous literature (Haugen et al., 2017; Hernandez et al., 2014; Johnson et al., 2019) and the generated recommendations offer a plausible means to overcome this barrier. This potential threat to the intervention's safe space was not apparent in any other surf therapy practices explored within this thesis or within wider literature and highlights the importance of contextual adaptation of even perceived generalisable theoretical mediators.

Another contextually specific set of recommendations centred on the prevention of population-specific stigma (2, 3, 7, 12, 19), specifically beliefs around needing to remain silent around mental health due to the negative impact it could have on participants' careers. This form of stigma is, again, a well-documented barrier to accessing mental health support for this population (Edwards & Kotera, 2020; Haugen et al., 2017). The Delphi recommendations

highlighted how the surf therapy intervention was well placed to separate itself from any workplace and maintain anonymity. This provides reassurance to participants that accessing the service would have no negative impact on their future careers (3, 7, 12) alongside specific recommendations such as checking with participants as to their comfort about having colleagues from the same workplace on their intervention cycle (19). It is notable that both sets of recommendations addressed established barriers to accessing mental health support for this population and were not explicitly tied to surfing, so have implications for any intervention design targeting the mental health of emergency service and healthcare workers. Effective delivery of a safe space within surf therapy has been identified as a foundational mediator of surf therapy throughout all chapters of this thesis and the above Delphi recommendations offer specific insight as to how to deliver this for emergency service and healthcare workers. Not only this, but elements such as the challenges of shift work and population-specific stigma, not present in previous chapters, stress the importance of contextual consideration of programme theory at intervention design stage.

Positive socialisation was another theoretical mediator that appeared throughout all chapters of this study and was one of the most common mediators identified within wider literature exploring surf therapy and associated paradigms. The importance of this mediator was recognised within the Delphi recommendations (5) specifically around the importance of explicitly supporting participants to break cycles of isolation. This recommendation speaks to the importance of specifically targeted surf therapy design such as icebreakers to help participants get to know each other and activities that promote teamwork or communication. In chapter 4 one of the activities utilised by W4C was the idea of 'pair surfing' whereby participants are partnered up, share a board, and support one another in the learn to surf process. While positive socialisation has often been identified as an inherent part of physical activity interventions (Lubans et al., 2016; Doré et al., 2020), more explicit activities such as 'pair surfing' or targeted use of volunteers identified in previous surf therapy research (Marshall et al., 2019) could be useful for populations with high prevalence of social isolation. It is noteworthy there were significantly fewer Delphi recommendations around this mediator than safe spaces though when reviewing previous chapters this is unsurprising. Chapters 3 and 4 both explored directionality in terms of programme theory and in both cases the positive social components of the intervention were contingent on the

provision of an effective safe space. This directionality is also mirrored in existing published research into surf therapy (Marshall et al., 2019), while within SfD research safe spaces also have a mediating impact on subsequent positive socialisation (Coalter, 2013; Draper & Coalter, 2016). For this reason, while not many recommendations directly addressed social mediators, the extensive recommendations around safe spaces indirectly contribute to the pragmatic delivery of social components within programme theory.

Similar to social recommendations, limited outputs of the Delphi process addressed potential surf therapy mediators around skill transfer (4, 8). It was notable that respondents were very focused on the evidence-based nature of any delivered coping strategies (4) which is perhaps unsurprising given the many medical qualifications represented and the mental health training/awareness that will have been delivered to non-medical emergency service workers. The next step within the development of the intervention alongside Wavegarden Scotland will be the development of a curriculum. Further review of literature as well as consultation with appropriate clinicians would ensure delivery of the most appropriate form of mental health skills for this population. It was interesting that participants highlighted the importance of positive examples and case studies around coping skills (8) as this was also highlighted within chapter 5 both in terms of surf therapy facilitators offering examples from their own lives along with space for peer sharing of coping strategies that have worked amongst participants. These examples from chapter 5 align with existing research (Oates et al., 2017) and can offer further pragmatic insight as to how to achieve recommendation 8 within the future intervention delivery. This recommendation also speaks to offering participants pathways to becoming future mentors as referenced within chapter 4, someone who has been through the intervention can provide in-depth and relatable examples of coping strategies delivered. The recommendations around skill transfer offer clear direction for implementation of the future intervention including next steps in terms of consultation on population targeted curriculum development, once again stressing the importance of adapting potentially generalisable theoretical mediators to context within intervention design.

Alongside exploring how to contextualise foundational mediators for surf therapy, the Delphi process also offered specific pragmatic guidance around implementation for the proposed intervention. A portion of these results centred on the referral process to the intervention (13, 14,

15, 16) and focused on making the process as easy as possible for participants but did not specify a preferred route. This is unsurprising given established feelings of hesitancy around accessing mental health within this population due to stigma and a lack of knowledge around referral pathways (Edwards & Kotera, 2020; Haugen et al., 2017). Ease of use was the main priority (13, 14, 15) along with ensuring intervention access was targeted for those who needed support (16) and these recommendations should inform future consultation around referral pathways. Other pragmatic suggestions for the intervention centred on helping participants access further support (6), promotion of a healthy lifestyle (11), timing (24, 25) and transport (26, 27). It is important to note unlike WOW in chapter 5, the proposed intervention will not include access to clinical support within the surf therapy programme. Helping participants access referral pathways to clinical support where appropriate will help address recognised lack of awareness on this topic (Edwards & Kotera, 2020; Hernandez et al., 2014), while peer support within the intervention may help overcome stigma related to accessing treatment (Edwards & Kotera, 2020; Haugen et al., 2017). This kind of support aligns with wider literature highlighting the need for community-based interventions to improve mental health literacy (Castillo et al., 2019) and integrate with clinical care streamlining referrals where appropriate (Khodyakov et al., 2013). The importance of finding appropriate times for the intervention and minimising transport difficulties address barriers already established in the wider literature on this population (Haugen et al., 2017; Hernandez et al., 2014; Johnson et al., 2019). The pragmatic recommendations, while not tied to foundational mediators for surf therapy previously discussed within this thesis, further emphasise the importance of contextualising intervention design to the target population.

6.9 Limitations

The key limitation of this study was that, despite offering some useful recommendations (13, 14, 15, 16) the Delphi process did not build clear consensus on a specific referral pathway for the intervention. What the study did do was highlight the importance of an easy and accessible process that ensures the people who most need the intervention can access it. The Delphi process also highlighted that referral needs separation from the workplace and a degree of anonymity to overcome associated stigma. While consultation with potential participants led to these recommendations, further consultation with other stakeholders such as workplace occupational

health, primary and secondary healthcare providers, and mental health support charities that work extensively with this population could help to generate a specific referral pathway that fits with participant described priorities. Consultation with these stakeholders could also offer insight into the optimisation growing social prescribing paradigm for this population (Gottlieb et al., 2018).

The study was also not able to explore implementation recommendations around the surfing component of the proposed intervention that notably tie to theoretical mediators such as respite or mastery tied specifically to surfing components within the previous chapters of this thesis. This was largely down to consulting with potential participants with no experience of surfing but highlights the need for ongoing process and impact evaluation to ensure that surfing theoretical mediators translate for this population in the foundational manner seen for other populations through previous chapters of this thesis.

6.10 Practical Challenges in the Field

Given this research was conducted during nationally implemented social restrictions due to COVID-19 this study had potential for significant challenges. The Delphi method lends itself to an online anonymous approach which minimised need for any kind of physical contact mitigating COVID-19 risks. This online and in the participants own time approach, was also beneficial in mitigating the variation of availability inherent to shift based work for this population.

At the planning stages some consideration was given to a more integrated approach to participant recruitment alongside the NHS of Police Scotland for example. Such an approach involves significant reviewing of research procedures by said institutions and on some occasions can be tied to organisation specific reporting back to partners. Given the complexity this would have added to the study in terms of review by multiple different partners along with the ethical implications in terms of undermining anonymity by reporting back by organisation, a public recruitment approach was adopted. These considerations are important for any future research looking to work in a more integrated manner alongside emergency service providers.

6.11 Conclusion

Chapter 6 consisted of an initial consolidation of theoretical mediators for surf therapy from throughout the previous chapters identifying foundational (Physical and Emotional Safe

Spaces, Positive Social Connections, Respite from Negative Emotions / Symptoms, Transferable Mastery) and contextual (Physical Therapy, Coping Skill Transfer, Sensory Grounding) mediators. Foundational mediators appeared across multiple of the different contexts studied, though it must be noted these studies account for a small portion of contexts and populations that surf therapy addresses, and generalisability should not be assumed. These mediators offer valuable insight for surf therapy programme theory and can inform intervention design within future surf therapy delivery.

Alongside this theoretical basis future surf therapy must adapt to ensure its programmes are suitably adapted and targeted to ensure they have a positive impact on mental health. The remainder of chapter 6 offers a worked through example of how to adapt surf therapy for a specific population, in this case emergency service and healthcare workers in the UK. A Delphi style consultation offered insight into how best to adapt established mediators for this population, especially in terms of holding a safe space for participants in the face of work-associated stigma around mental health. The recommendations generated by the Delphi process informed targeted application of multiple mediators discussed in pervious chapters but also highlighted how important it is to adapt even foundational mediators for this population, or any population. Future research should rigorously explore best practice guidelines in working with different populations for community mental health approaches for the benefit of the whole paradigm. At an intervention level this worked through example can support future interventions in comparable consultations with participants to in make similar contextually and population appropriate adaptations to their service delivery. These recommendations also extend to informing other interventions working with the emergency service and healthcare worker population away from surf therapy. Finally, the recommendations from the Delphi in this chapter, combined with the consolidation of theoretical mediators from previous chapters of this thesis provide the foundation for direct impact in terms of a theoretically informed and population-specific surf therapy intervention at the upcoming Wavegarden Scotland artificial wave site.

Chapter 7 : General Discussion, Conclusions, and Recommendations

Surf therapy being delivered in Sierra Leone. A new program piloted through the Wave Alliance and enabled by research from this programme of study. Credit Mohamed Bangura

7.1 Conclusions

7.1.1 Overview.

This thesis focused on exploring programme theory and theoretical mediators within the emergent surf therapy paradigm. The thesis was targeted in this manner due to the identified knowledge gaps related to mediators both in surf therapy and related paradigms such as physical activity, blue space research and SfD. To best understand how generalisable mediators may be, a range of surf therapy interventions delivered within different contexts and with varied populations were investigated. The importance of context was apparent throughout the programme of study as it pertained to the objectives of the thesis:

1. To investigate and where appropriate generate programme theory within a diverse selection of surf therapy interventions.
2. To critically compare these programme theories to understand any potential foundational theoretical mediators within surf therapy alongside better understanding of contextual differences.
3. To offer a worked through case study of adapting theoretical mediators to provide the framework for a novel surf therapy intervention for emergency service and healthcare workers in central Scotland.

The success of Objectives 2 and 3 were dependent on robust findings for comparison and adaption within the individual studies and the addressing of Objective 1. These individual studies underpinned wider thesis aims but also had important implications on an individual level in terms of optimisation for the studied interventions. This overview will explore the studies consecutively to summarise individual conclusions and implications before a general discussion of wider objectives.

7.1.2 Study 1

Study 1 investigated surf therapy conducted with military veterans in the US, a population who face greater prevalence of poor mental health (Fulton et al., 2015) and increased risk of suicide (Kaplan et al., 2007; McCarthy et al., 2009) compared to the general population. The study took a grounded theory approach interviewing 18 participants from the Jimmy Miller Memorial

Foundation intervention in-depth about their experiences of surf therapy. Key theoretical mediators identified within this research process were the provision of a safe space within the intervention, a transferable sense of accomplishment, respite for negative emotions or symptoms, non-veteran centred social connections, and physical therapeutic benefits. The safe space at the intervention helped participants challenge feelings of judgement (both internal and external) and approach the task at their own pace rather than being completely focused on performance. Supported by this safe space, overcoming the challenging task of surfing gave participants a transferable sense of mastery and confidence to approach challenges in day-to-day life, aligning with wider literature on mental health and self-efficacy (Bandura, 1997; Lubans et al., 2016). Positive social connections and a sense of respite also appeared to be important mediators, aligning with previous literature exploring surf therapy with this population (Caddick, Phoenix et al., 2015; Caddick, Smith et al., 2015). What was notable within this positive socialisation was the mixing of veterans and non-veterans, breaking down veteran-centric isolation that can be prominent within this population (Wilson et al., 2018). Furthermore, the sense of respite described incorporated many identifying elements of flow states within participants (Csikszentmihalyi, 2002), offering a plausible psychological pathway to respite. The study also included limited but important discussion of physical therapeutic benefits. This novel programme theory had clear implications for the intervention around how to best support surfing, volunteer recruitment and elements that contribute to safe spaces. These specific findings support the continued delivery and optimisation of the intervention alongside addressing Objective 1 of the thesis, but also have wider implications for the whole paradigm and provide the foundations to addressing Objective 2.

7.1.3 Study 2

To diversify the kinds of surf therapy investigated within the thesis, study 2 explored surf therapy delivered with a very different population, youth at risk of negative mental health within the context of post-conflict Liberia. Youth within these kinds of context face higher prevalence of a range of mental health challenges (Attanayake et al., 2009) compounded by the lasting and complete collapse of protective communal, family, and social structures (Borba et al., 2016). The study was centred on the Waves for Change surf therapy intervention and interviewed 23 participants within a basic qualitative framework. The study found safe spaces, positive social

connections, coping skill transfer and respite as key mediators within the interventions novel programme theory. Safe spaces once again featured prominently, with emphasis both on physical and emotional safety not readily available within participants' day-to-day lives. Positive social connections also featured again, with a focus on peer support and integration of local communities that otherwise rarely mixed. The surfing component of the intervention was associated with respite and participant descriptions of flow state indicators were again apparent (Csikszentmihalyi, 2002). Novel within this study was the importance of skill transfer, that is the learning and uptake of evidence-based coping skills by participants. Specifically, the intervention offers a worked example of the Model of Sport-Based Life Skills Transfer (Pierce et al., 2017) through the creation of a culture around the intervention. This culture supported intrinsic motivation for skill use and the opportunities to practice skills in response to real-world physiological and emotional challenges experienced in the surfing environment. The study findings had clear implications for the further optimisation of W4C such as protection of surfing time to ensure opportunities for respite and further details around specific skill transfer models, further contributing to Objective 1. Like study 1, these findings also have wider implications for surf therapy: as a global first exploring its delivery in a post-conflict setting, inclusion into the wider SfD literature especially as a worked example of skill transfer, and in contributing further to Objective 2 of the thesis.

7.1.3 Study 3

Study 3 of this thesis explored another context where surf therapy is delivered, the Waves of Wellness intervention working with young people at risk of or currently with a negative mental health diagnosis in Australia. Australian youth experience high prevalence of poor mental health with one in seven young Australians experiencing a mental health condition in any given year (ABS, 2015) and one in 40 attempting suicide (Lawrence et al., 2015). Another element that distinguished this intervention from those previously studied was the use of mental health clinicians in the on-beach delivery and facilitation of the programme. A grounded theory approach was again used in this study and interviews were conducted with 16 participants with previous experience of WOW surf therapy. Key mediators identified within WOW programme theory included a safe space, social support, sensory grounding, mastery and respite. Once again, the concept of a safe space was identified as integral for the intervention, highlighting the importance

of creating a space free from judgement for participants. Unique to this intervention's safe space was overcoming pre-existing negative stigma around clinical mental health support through access to clinicians within the scope of surf therapy. This was combined with positive support including peer support and peer learning processes to provide a 'mental health by stealth' approach for the Australian youth population, who are less likely than any other age group to seek professional mental health help or support (Slade et al., 2009). A unique element of this intervention was the use of natural sensory grounding from the abundance of sensory inputs available within the beach and ocean environments. These haptic benefits align with wider blue space literature (Franco et al., 2017; Britton & Foley, 2020) while also being identified by participants as preferable to manufactured grounding implemented in other settings. These findings also align with trauma informed care and its focus on intentional embodiment (Van der Kolk, 2015) and wider discussions of utilising movement and sensory inputs within therapeutic structures (Burns, 2011). The study also found mediators connected to transferable senses of accomplishment and a sense of respite while surfing that again included multiple flow state indicators (Csikszentmihalyi, 2002). Theoretical mediators within the study had implications for the intervention especially around safe space components, intentional use of sensory grounding, and maintaining prerequisites for respite within surfing activities, all of which can be focused on in future staff training. These specific findings also address Objective 1 of this thesis. Furthermore, the findings have wider implications for related paradigms especially in terms of supporting mental health of hard-to-reach populations through a 'mental health by stealth' approach and provide further mediators for consideration within Objective 2 of this thesis.

7.1.4 Study 4

Study 4 built upon previous studies, initially consolidating findings to understand any foundational mediators for surf therapy across the multiple populations and contexts explored, directly addressing Objective 2 of this thesis. Foundational mediators identified across previous studies included physical and emotional safe spaces, positive social connections, respite from negative emotions/symptoms, and transferable mastery. Mediators that appeared more contextual or population specific included physical therapy, coping skill transfer and sensory grounding. The implications around the generalisability of these mediators are discussed further in the general

discussion below. Study 4 built upon these consolidated mediators to explore how they could be adapted in the development of a new surf therapy intervention for emergency service/healthcare workers. Further mental health support, such as surf therapy, is required for this population who experience higher prevalence of negative mental health (MIND, 2015; Bell & Eki, 2015; Petrie et al., 2018) and more severe symptoms (Wagner et al., 2010) than the general population. The study conducted a Delphi-style process to better understand how to adapt mediators identified within previous studies, alongside barriers to accessing a proposed surf therapy intervention at the Wavegarden Scotland site near Edinburgh. Eighteen participants, from a range of emergency service/healthcare worker roles, took part in the process to build consensus on recommendations for the proposed intervention. The findings developed mediators from previous studies, namely around adaptation of a safe space to best support this specific population. Examples of these adaptations included the importance of intentional statements around no-judgement for missing sessions due to shift work or providing anonymity and clear separation from the workplace to avoid population-specific mental health stigma. Recommendations for mediators around skill transfer and positive socialisation were also generated. Alongside the adaptation of identified surf therapy theoretical mediators, flthe Delphi process also highlighted pragmatic challenges around the intervention such as the referral process and access to transportation. These recommendations have direct implications for the piloting of the proposed intervention but also offer insight into issues that should be considered within any intervention design working alongside this population. Finally, the study offers a worked through example of a participant-centred consultation to ensure theoretical mediators identified in previous studies, alongside the wider literature, are appropriately targeted and adapted to benefit a specific population, directly addressing Objective 3 of this thesis.

7.2 General Discussion

The following paragraphs summarise the key findings from this research in relation to each of the objectives explored within this programme of study. This will highlight the significant and original contribution this thesis has made in terms of programme theory related knowledge gaps within surf therapy (Benninger et al., 2020) and across related paradigms.

7.2.1 Objective 1 - To investigate and where appropriate generate programme theory within a diverse selection of surf therapy interventions.

The current research programme involved working with three surf therapy programmes supporting positive mental health within a range of contexts for a variety of populations. Within each individual study a programme theory was generated that maps the theoretical mediators linking intervention inputs with associated outcomes. Each of these programme theories are of significant value to the interventions involved in terms of better understanding, optimising, and further proliferating their surf therapy interventions.

The programme theories generated through this research programme also highlighted the importance of contextual adaptation and intimate knowledge of the population targeted. This was identified at all study sites in the form of population-specific adaptations to foundational mediators such as safe spaces. Within study 1 there was a focus on going at one's own pace and avoiding judgment around performance targeting challenges that military veterans faced both within and outside of surf therapy. This contrasted to a safe space in study 2 with a focus on physical and emotional safety not readily available to participants in a turbulent post conflict setting. Finally, in study 3 the safe space was constructed in a manner to deliberately avoid negative stigma associated with overtly clinical approaches to mental health. These differences highlighted the importance of understanding context and population even with regards to mediators that appear foundational for each intervention modality. This was further supported by specific mediators identified as unique to specific interventions such as the physical therapeutic elements identified within study 1 or the curriculum-based skill transfer approach to addressing mental health infrastructure inadequacies within study 2. Further research into surf therapy and any community approach to mental health should prioritise detailed knowledge of target populations at every step, from intervention design through to implementation and evaluation.

Finally, these programme theories also help to address the identified knowledge gap around mechanisms of action within the surf therapy paradigm (Benninger et al., 2020). They provide a foundation for the continuation of research into surf therapy programme theory that exists as an ongoing process (Vogel, 2012), with research targeting different populations remaining a priority.

A useful approach to such research includes comparison of programme theory from different interventions, as was the priority within Objective 2 of this thesis.

7.2.2 Objective 2 - To critically compare and contrast these programme theories to understand any potential foundational theoretical mediators within surf therapy alongside better understanding of contextual differences.

Empirically investigating programme theory in multiple surf therapy sites allowed for comparisons of theoretical mediators to explore plausible foundational mediators across surf therapy alongside contextual differences. Four foundational mediators were identified, Physical and Emotional Safe Spaces, Positive Social Connections, Respite from Negative Emotions/Symptoms, and Transferable Mastery. The appearance of these mediators across multiple surf therapy programmes, in different contexts, and with different populations, suggests they could be generalisable across surf therapy, though as previously noted their successful implementation is dependent on contextual and population-specific adaptation. It is also important to note while these studies examined surf therapy across a diverse range of populations, they by no mean represent all populations that surf therapy targets and further research into theoretical mediators of surf therapy within different populations is warranted. Elements of identified foundational mediators have wider implications for both surf therapy and broader paradigms such as physical activity for health, blue space and SfD research.

One of the primary foundational mediators identified was the construction of Physical and Emotional Safe Spaces within all the interventions studied. The importance of these spaces within interventions and their characterisation as lacking in judgement, respectful, open, and trustworthy aligns with previous research into surf therapy (Marshall et al., 2019), research within SfD (Coalter, 2013; Draper & Coalter, 2016; Verkooijen et al., 2020) and wider mental health settings (Bryant, Tibbs & Clark, 2011, Walker et al., 2017). As already highlighted, the nuances of how these safe spaces were adapted for different populations' needs is of the utmost importance, but provision of a physical and emotional safe space should be a priority for surf therapy practitioners. Future research should prioritise the exploration of safe spaces including the development of evidence-based guidelines around what physical and emotional safe spaces look like for different populations. The studies within this thesis have demonstrated how community-led interventions

can successfully implement such safe spaces, and future targeted research exploring the key components alongside expert stakeholders would be beneficial not only for surf therapy, but across multiple paradigms addressing mental health challenges.

Safe spaces within the interventions directly supported the development of Positive Social Connections, another foundational mediator identified across all studies. The role of positive socialisation within surf therapy (Caddick, Phoenix et al., 2015; Caddick, Smith et al., 2015; Marshall et al., 2019) and other forms of mental health interventions such as physical activity (Fox, 1999; Lubans et al., 2016; Doré et al., 2020), blue health (De Bell et al., 2017, White et al., 2016; White et al., 2020) and SfD (Armour et al., 2013; Holt et al., 2017) is not new. Once again, the importance of contextual adaptations in terms of challenging specific types of isolation such as veteran-centric isolation in study 1 compared with mental health stigma induced isolation and social aversion within study 3, must be stressed. The identification of positive social connections as a foundational mediator within surf therapy is one of the least surprising findings within this thesis but adds to a large body of evidence that stresses the importance of social components within interventions supporting positive mental health.

Comparable to the strong evidence base for social components in supporting mental health, the foundational mediator of Transferable Mastery also aligns with a wide body of evidence. The mediation of self-efficacy on how people feel is well established (Bandura, 1997) and mastery has been identified as a mediator for positive mental health both within physical activity (Petruzzello et al., 1995; Fox, 1999; Biddle & Mutrie, 2008; Doré et al., 2020) and SfD (Holt et al., 2017; Jones et al., 2017) paradigms. While not identified in one study, the sense of mastery that surf therapy participants felt in achieving surfing goals and the way in which it transferred into confidence in wider life was reported consistently by participants. The one study that did not identify mastery (study 2) did have mediators related to skill building and transfer which may have masked explicit descriptions of mastery. Overall, the transferable sense of mastery identified across multiple surf therapy sites connects with well-established research on self-efficacy and offers better understanding this mediator for not only surf therapy, but any activity-based mental health intervention utilising learning of new skills.

The final foundational mediator identified across all studies was Respite from Negative Emotions / Symptoms. Again, this mediator is not completely novel, bearing similarities to the distraction hypothesis within physical activity research (Bahrke & Morgan, 1978), senses of escape within SfD research (Massey & Williams, 2020) and previous discussions of respite in surf therapy (Caddick, Smith et al., 2015; Marshall et al., 2019). It should be noted that previously the process and parameters for effective distraction had been described as vague and not well established (Petruzzello et al., 1995; Biddle & Mutrie, 2008). Research conducted within this thesis consistently found this sense of respite was described by participants as having antidepressant and anxiolytic properties. Furthermore, descriptions of respite within surf therapy consistently included key indicators of flow states such as temporal distortion, ecstasy, clarity, and intrinsic reward (Csikszentmihalyi, 2002). Flow state theory has previously been linked to positive mental health (Nakamura & Csikszentmihalyi, 2009) and if further empirical study can confirm both its presence within surf therapy interventions and its connection to the antidepressant/anxiolytic described by participants, it may provide more clarity around the processes involved in distraction/escape/respite. The manner in which surfing seems to enable the accessing of flow states for a range of populations seems to be one of the distinguishing factors between surf therapy and other activity or nature-based interventions. It should be noted that flow has been associated with negative aspects such as dependency (Partington et al., 2009). And if flow states are to be integrated into wider coping strategies, ensuring individuals have the opportunity to explore multiple avenues to experiencing flow is deemed important. Especially for interventions based around a sport like surfing that is not always accessible and can be highly weather dependant. Further rigorous exploration around these possible negative aspects and their mitigation would be beneficial. Despite this, the association between plausible flow states and emotional respite is a novel and substantial contribution within the programme of study. Further research into flow states within surf therapy, should be a priority given the implications this finding could have for mental health intervention design across multiple paradigms.

Overall, the opportunity to compare theoretical mediators from multiple varied surf therapy interventions offered unique insight into foundational mediators within surf therapy. The identification of these foundational mediators, their implications and further research priorities they direct, help to fill knowledge gaps identified within surf therapy programme theory

(Benninger et al., 2020) while also offering practical recommendations for surf therapy practitioners in terms of implementation priorities. This is further supported in Objective 3 through the provision of a worked through example in adapting foundational mediators for an unresearched surf therapy population.

7.2.3 Objective 3 - To offer a worked through case study of adapting theoretical mediators to provide the framework for a novel surf therapy intervention for emergency service and healthcare workers in central Scotland.

The final objective of this programme of study aimed to provide a worked through example of the implementation of key theoretical findings within the design of a novel surf therapy intervention. A consistent theme throughout this thesis has been the importance of in-depth knowledge of targeted populations and the use of such knowledge to adapt and contextualise key theoretical mediators within surf therapy delivery. A Delphi process, as carried out within study 4 is one such way of directly consulting with a target population during the design and planning phase. The study identified key recommendations, especially regarding adaptions to previously identified mediators that would be beneficial for surf therapy delivered for emergency service/healthcare workers. These adaptations were most significant around how to deliver a safe space within the intervention, specifically in avoiding work-related stigma and ensuring anonymity/separation between the intervention and workplaces. The specific recommendations within the study provided a pathway in terms of supporting the piloting of surf therapy for emergency service/healthcare workers at the Wavegarden site in central Scotland. Research and evaluation of this pilot process should be a priority to demonstrate the presumed positive impact of surf therapy on mental health in this population and to continue the process of developing and refining this nascent programme theory. The recommendations out of this study are also of use for other interventions looking to work with emergency service/healthcare workers as they address a range of challenges associated with this population such as negative stigma around mental health, cultures of self-reliance, lack of time to participate, lack of knowledge of referral pathways and transportation challenges (Edwards & Kotera, 2020; Haugen et al., 2017; Hernandez et al., 2014; Johnson et al., 2019).

Alongside these direct impacts from the study, elucidating the process of consulting with a target population and working on adapting mediators based on the findings was an important component of Objective 3. A comparable consultative study could be based on the importance of contextual and population-based adaptations identified within this thesis, should be carried out for any novel surf therapy intervention. It is noteworthy that such consultation could, in the future, not

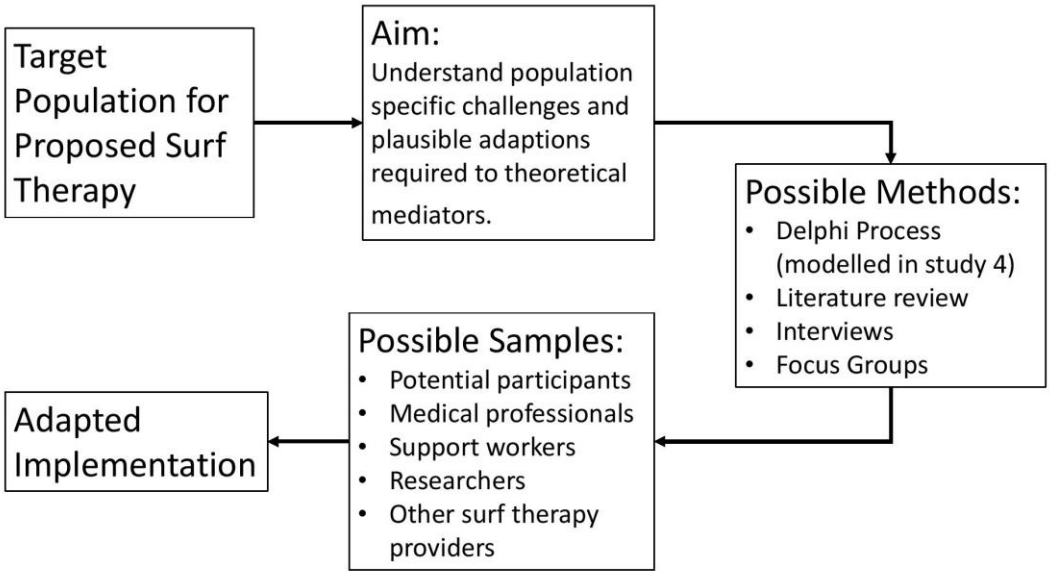

Figure 7.1 Target Population Consultation Process

be limited solely to participants and involve other stakeholders such as clinicians, occupational health leaders and surf therapy practitioners, though participant contributions should be prioritised. Figure 7.1 visualises the different approaches surf therapy practitioners could take in designing such a consultative process. A participatory approach such as this aligns with recommendations around developing complex interventions (Craig et al., 2008). This finding also highlights how surf therapy should not be viewed in isolation but integrated into wider theoretical landscapes it aligns with through context, population, modality or delivery, or geography. In this manner, surf therapy itself can be best informed in terms of its development and implementation but can also contribute insight and new learnings within these wider theoretical landscapes.

In conclusion, in fulfilling Objective 3 this thesis offers a range of findings in terms of direct impact through adapting surf therapy for emergency service/healthcare workers in central Scotland. The findings may also have implications for other interventions working with this population. In addition, the process also demonstrated a viable method of adapting theoretical mediators within intervention design processes and reinforcing the value of consulting with target populations.

7.3 Future Research Priorities

Throughout discussions of the individual studies, and within the general discussion above, findings from this thesis have suggested novel potential research priorities for further exploration. These priorities are surmised below:

1. Descriptors matching flow state indicators (Csikszentmihalyi, 2002) were identified consistently within all studies investigating surf therapy programme theory. In participant descriptions these flow state indicators were also associated with anxiolytic, antidepressant, or other symptom-reducing effects. Empirical investigation to confirm the presence of flow states within surf therapy using validated flow state measures (Jackson & Eklund, 2002) is one area for future development. Such work would be a valuable contribution to enhancing surf therapy and would provide a foundation for further research exploring the mental health effects of flow state exposure.
2. Another key theoretical mediator identified in multiple study sites was the physical and emotional safe spaces held within the interventions. The concept of a safe space is not new in mental health (Bryant, Tibbs & Clark, 2011) but identifying a non-surfing related mediator integral to multiple surf therapy interventions highlights its importance. Previously identified key characteristics of safe spaces are "a lack of judgement with a focus or respect for others and with a psychological sense of community" (Walker, Hart & Hanna, 2017, p.54). Many empirical descriptions of safe spaces in relation to mental health remain vague and future research to understand what safe spaces look like, and the practical steps to implement them, would be of benefit not only for surf therapy but also related paradigms such as physical activity, SfD, and wider mental health. A Delphi style study, comparable to that carried out in chapter 6, working with surf therapy practitioners and/or

participants to better understand and offer practical recommendations for holding a safe space, would be one way to address this research priority. Understanding the components of safe spaces within mental health interventions could also lay the foundations for the development and validation of a safe space tool to measure successful implementation of safe spaces and support evaluation in the future.

3. While this thesis explored surf therapy delivered to different populations in a variety of contexts, those explored by no means encompass all populations that surf therapy targets. The foundational mediators identified offer the basis for further research into surf therapy programme theory, especially for populations that have not been empirically studied. Examples of populations that surf therapy works with that should be priorities in future programme theory research include children formerly associated with armed forces and armed groups, gender-based violence survivors, adults with various addictions and co-occurring psychological disorders, adults with disabilities, young adult cancer survivors, and ex-gang members and/or individuals recently released from prison. One such example is the Live for More programme (https://www.liveformore.org.nz/) that works with predominantly young Māori men within the criminal justice system in New Zealand and combines surf therapy with in-depth and individually tailored approaches to social work and support. Rigorous exploration of this programme would offer valuable insight to surf therapy's potential role when working with similar populations and important findings around integrated approaches to surf therapy within social care.
4. One element of surf therapy programme theory that this thesis did not target, nor explore in significant depth was gender based elements within its delivery. While the multiple populations not yet rigorously investigated all have merit, one priority should be exploring gender based differentiation within surf therapy which have already been identified within prior research. (Glassman et al., 2021). There are also multiple surf therapy interventions that specifically target women on issues such as gender based violence or domestic abuse that warrant academic investigation. It would not have been appropriate to include such research within this programme of work given it was carried out by a male candidate with and all male supervisory team however conclusions from this thesis may prove useful starting points for targeted gendered research. For example, research exploring what safe

spaces may look like within all female surf therapy or exploring variations in haptic experiences between male and female participants would be valuable additions to surf therapy literature. As highlighted within chapter 4 there also exist contextual barriers to female participation of surf therapy that warrant exploration to better understand and develop mitigation strategies. Such research could furthermore be sited within a critical feminist theoretical framework continuing to develop feminist understandings of mental health for the benefit of a wide range of associated paradigms.

5. One of the limitations of the study in chapter 6 was the inability to build a consensus on a preferred referral pathway for emergency service/healthcare workers into the proposed surf therapy intervention. While separate from surf therapy, optimising referral pathways is a key element of implementation science and future research into this would be of benefit to the proposed surf therapy intervention and other interventions in the UK looking to work with this population. A consultative investigation working with other key stakeholders such as occupational health professionals, primary and secondary healthcare providers, and mental health support charities may be able to develop an appropriate referral process to further build upon the findings of study 4.

7.4 Summary

This research programme represents an original and significant contribution to surf therapy and its associated paradigms. Findings from both the individual studies and the overall thesis help to bridge the established knowledge gap around surf therapy programme theory (Benninger et al., 2020). Foundational mediators that were identified offer insight for the paradigm both in terms of future research and for the consideration of practitioners implementing surf therapy on the ground. While highlighting these proposed foundational mediators, the studies emphasised the importance of understanding both the context and the needs of the target population for optimised surf therapy delivery. It also offered a worked through example of adapting theory to pragmatic and targeted intervention design, the outputs of which offered a pathway to positive impact on the mental health of emergency service/ healthcare workers in central Scotland. Finally, these studies highlight future research priorities and the need to develop a robust evidence base for surf therapy. Taken together the conclusions of this thesis

contribute to surf therapy's aim to become a trusted, prescribed, and standard means of therapy (International Surf Therapy Organisation, 2018).

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