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A grounded theory exploration of programme theory within waves of wellness surf therapy intervention

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ABSTRACT

Objective: Poor mental health represents a large proportion of disease burden faced by young Australians, which has been further exacerbated by the Covid-19 pandemic and the reluctance of this population to seek support. Surf therapy is a novel form of intervention targeting mental health. The objective of this study was to interrogate programme theory within surf therapy, as delivered by the Waves of Wellness Foundation (WOW) in Australia.

Methods and Measures: The study utilised grounded theory to understand or develop theoretical mediators for WOW surf therapy based on interviews exploring the experiences of previous intervention participants ($n=16$; mean age = 18.4 years, $SD=2.8$, range 14–24). Data were analysed through constant comparative analysis.

Results: Five categories emerged from participant data as foundational to WOW programme theory: (a) Safe Space, (b) Social Support, (c) Sensory Grounding, (d) Mastery and (e) Respite. These categories have novel theoretical and practical implications for both surf therapy and wider clinical practice, especially around concepts such as delivering ‘mental health by stealth’ and fostering longer term ‘mental health maintenance’ for participants.

Conclusion: The study developed an initial WOW programme theory, highlighting the importance of foundational therapeutic structures beyond simply going surfing.

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Introduction

In Australia ‘mental and substance use disorders’ were estimated to be responsible for 12% of total disease burden and 23% of non-fatal disease burden in 2015 (Australian Institute of Health & Welfare, 2019). Young people make up a large proportion of this burden 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

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to 17 years) met the criteria for a diagnosis of a mental disorder (Australian Bureau of Statistics, 2015). The implications of this mental health burden can be fatal with one in ten young Australians aged 12 to 17 years old engaging in 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 (Australian Bureau of Statistics, 2015). These challenges to mental health have been further exacerbated during the COVID-19 pandemic where young Australians with existing mental health diagnoses were worst affected (Li et al., 2022). Compounding on this prevalence of negative 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).

While seeking professional support when required is vital in the battle against mental illness, other less formal aspects of our lives have been shown to be important positive contributors. For example, physical activity interventions have been shown to have promising positive effects on youth depression (Bailey et al., 2018; Carter et al., 2016) and across other mental health challenges such as anxiety and mood (Pascoe et al., 2020). One modality of physical activity intervention that has seen promising results associated with mental health is surf therapy (Benninger et al., 2020). Specifically, surf therapy has been associated with improvements to youth mental health domains including well-being (Godfrey et al., 2015), hope (Sarkisian et al., 2020), prosocial behaviours (Gomes et al., 2020), anxiety and depression symptom reduction (Olive et al., 2023) and emotional regulation (De Matos et al., 2017). While the strength of these findings remains limited by some methodological concerns (e.g. small sample size, lack of control groups, focus on specific mental health outcomes) initial associations between surf therapy and youth mental health appear promising.

Given these limitations, further research examining the impact of surf therapy is required. However, to understand why surf therapy may work, it is also important to investigate potential mechanisms of surf therapy practice. In this regard, an important element of understanding the link between surf therapy and a potential positive impact on mental health is rigorous exploration of programme theory. Programme theory presents an interpretation of pathways, made up of theoretical mediators, that connect intervention inputs and outputs (Bauman et al., 2002). Programme theory exists as both an interpretive product and a process of mapping pathways to impact (Vogel, 2012). The need to explore programme theory has been highlighted both in surf therapy (Benninger et al., 2020) and in wider 'blue space' (aquatic environment) based intervention literature (Britton et al., 2020).

To date two studies have specifically explored programme theory in depth within the context of surf therapy and mental health for youth. Marshall et al. (2019) used grounded theory to explore programme theory within the UK-based Wave Project surf therapy intervention. They found that there were several pathways to positive mental health outcomes. These included facilitating participants taking on multiple challenges carried out at their own pace, combined with a supportive and non-judgemental safe space. These mediators allowed for elements of mastery, social support, and respite from negative emotions or symptoms. The study also highlighted the fulfilment of basic human needs from Self Determination Theory (autonomy, relatedness, and competence) as possible framework for similar interventions. A

pragmatic exploration of programme theory alongside the surf therapy organisation Waves for Change in post-conflict Liberia (Marshall et al., 2020a) also examined theoretical mediators linking surf therapy to youth mental health outcomes. The study similarly highlighted the importance of respite within surf therapy, but also posited the possibility of flow states (Csikszentmihalyi, 2002) providing the mechanism for this respite. The study also highlighted the importance of positive social connections within programme theory alongside the place of specific models of skill transfer and reinforcement (Pierce et al., 2017).

The aim of the present study was an in-depth exploration of participant experiences within the Waves of Wellness Foundation (WOW) surf therapy intervention. Rigorous exploration of participant experiences will allow for the generation of novel programme theory around the intervention that will help to optimise its future delivery while also contributing knowledge to wider surf therapy and youth mental health paradigms. Given the study's aim to determine theoretical underpinnings of the intervention, a grounded theory approach was deemed appropriate.

Methods

WOW is a mental health charity that uses surf therapy to promote mental health and well-being. The organisation aims to implement innovative surfing-based mental health programmes. While working as an occupational therapist in an early psychosis community outpatient service, co-founder Joel Pilgrim became aware of the potential to deliver therapy while surfing. He had the opportunity to take one of his patients surfing, where it became evident the outdoors and nature was a far more appropriate setting to connect and explore concepts of recovery, rather than traditional clinical setting. During his time on the water, this patient was able to relax in an environment in which 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 WOW Surfing Experience programme features Cognitive Behavioural Therapy (CBT)-based mental health discussion topics over the 8-week programme that provides participants with the mental health literacy 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 surf-instructors) who create a relaxed, environment on the sand, in which participants feel comfortable sharing their experiences. A 1.5-h surfing lesson follows each discussion, delivered by WOW and/or local surf schools with the support of up to 5 WOW volunteers per program. The aim is for participants to continue to utilise new mental health knowledge independently, with the support of WOW partner organizations. These include surf schools with discounted surfing lessons for people to continue building their skills, discounted surfboards, and wetsuits from industry partners. Participants are also connected *via* WhatsApp upon completion of their program, pending consent, and often continue to meet outside of formal WOW programming.

Since its establishment in 2017, WOW has 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, refugees and women's programs. 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 best practice in mental health programme delivery. WOW currently run programmes in 4 states around Australia, with operations in Newcastle, Sydney, Yamba, Sunshine Coast, Melbourne and Perth. As of February 2023, WOW have run over 300 programs, reaching more than 3,320 participants.

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 information about the study across a range of mediums and on multiple occasions to ensure suitably informed consent.

Procedures

The study 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. 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. Sixteen participants were interviewed between December 2019 and July 2020 with a mean interview time of 54min (range 30 mins – 1 h 28 mins). The average age of participants was 18.4 with a standard deviation of 2.8 and a range of 14 to 24. The sample included a mix of genders to gain sufficient variance in representation of WOW participant experiences. This is important given there is some evidence to suggest surf therapy can have different effects based on gender (Glassman et al., 2021), but the gender makeup of the sample was not designed to be proportional. Getting perspectives from different genders was also important as prior research has identified that the spaces in which general surfing takes place have been identified as contested with negative power structures related to gender (Britton et al., 2019). Without a varied sample in terms of gender it would be impossible to understand if and/or how these issues were adequately addressed within the intervention. None of the WOW programmes explored were gender specific. Gender statistics of the sample have not been included as they do not pertain to analysis or discussion and could lead to a threat to anonymity. The sample also included a range of prior experience with surfing, which did not seem to have impact on the sessions

due to sufficient staffing enabling different skill levels to engage with the surfing component at their respective levels. The majority of the sample for this study had done little to no surfing prior to their WOW experience.

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 lead researcher was in Australia and due to a limited time-frame 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 information sought through prompts. The interviews also included photo elicitation to generate further discussion with the aim of adding further depth to participant descriptions that may not have been possible purely through conventional interviewing (Harper, 2002). Participants were asked for verbal reflections on pictures related to different aspects associated with the WOW programme, with responses recorded in the same manner as the rest of the interview. 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.

Interview schedule design

The initial interview schedule was designed to thoroughly explore participants' experiences within the WOW intervention and is presented in Table 1. 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 1. Notable questions that were added as a part of the iterative analysis was a question around sensory components of the programme, as this was repeatedly brought up in 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 being added. Finally, the question around falling off whilst surfing 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. The interview schedule was developed based on theoretical

Table 1. Initial interview schedule (questions added to initial schedule as part of concurrent data collection and analysis are in italics).

Please tell me about your experience of surfing alongside the Waves of Wellness.
Can you talk me through your process of getting involved with Waves of Wellness?
When you look back 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?
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 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 Waves of Wellness Foundation?
Is there anything you would like to ask me in relation to anything we have discussed?
<i>Can you tell me about any expectations you had prior to taking part in Waves of Wellness?</i>
<i>Can you tell me about any sensory experiences you felt on the beach and in the water?</i>
<i>How would you describe the beach setting for mental health discussion in comparison to a more traditional setting?</i>
<i>Can you tell me about having access to clinical expertise in a non-clinical setting?</i>
<i>Can you tell me about your experience of mindfulness with Waves of Wellness?</i>
<i>Can you tell me about any elements from Waves of Wellness that you still use, if any?</i>
<i>How would you describe your experience of wiping out (falling off) during surfing?</i>

mediators that have been highlighted in prior research exploring surf therapy and mental health (Caddick et al., 2015; Marshall et al., 2019, 2020a, 2020b). While these previous studies helped interview schedule development, there were significant differences in populations studied and a lack of clinical facilitators in these interventions. Alongside open-ended questions, prompts were used to interrogate experiences and encourage resonance and depth for subsequent analysis (Charmaz, 2014).

Three pictures were included for the photo elicitation element of interviews and pictures were used that explored different elements of the programme. The first picture was of the beach that the intervention was based at, with waves and anonymous surfers visible. This picture was aimed at encouraging discussion of the intervention site, the beach environment, and general feelings around the water and waves. The second picture was of the group discussion element of the programme with the group sat in a circle, with a perimeter of surfboards, in the early morning light. This picture aimed to promote discussion of the talking elements of the programme, the beach environment, the clinician/instructors and volunteers, and session structures. The final picture was of a WOW participant riding a wave in quite rough conditions, intently focused on what they are doing, with an instructor visibly cheering them along in the background. This picture targeted discussion of the surfing element of the programme, spending time in the water, and the in-water support of clinician/instructors.

Analysis

The lead researcher transcribed interviews excluding any interruptions or filler discussion. Transcription occurred concurrent with further data collection and analysis. Analysis and theorising 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. Initial coding utilised Process and *In Vivo*

approaches as both allow for nuanced and highly contextualised exploration of the physical, emotional, and social processes that participants discussed within their experiences of WOW. Both approaches, especially *In Vivo* coding, assist in ensuring that as the data is coded it remained 'truly grounded' in participant experiences (Timonen et al., 2018). Focused coding was utilised in the intermediate stage to explore initial emergent categories within participant experiences before conceptual coding was utilised to identify core categories, or 'the spine' that support, aligns, and underpins the WOW intervention (Saldaña, 2021). Constant data refamiliarization and reflection on initial codes at all stages of analysis and theorising ensued that the study remained truly grounded in data was prioritised (Timonen et al., 2018). The different stages of coding allowed for in-depth exploration and comparison of reported processes, that 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. The use of memos is essential within grounded theory (Charmaz, 2014), especially in terms of helping the research team organise iterative analysis and capture important contextual nuance. The lead researcher would always capture reflective memos immediately after data collection ensuring emotional responses that a transcript might not capture; for example participant response to photo elicitation which offer valuable insight that words alone might not reflect. Initial thoughts, perceived correlations, and feelings captured in memos by the researcher immediately after interviews proved invaluable during later analysis. Having completed 13 in-depth interviews it was noted that similar 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. The lead researcher managed the study design process, collected data, and conducted analysis with support at all stages from the other members of the research team.

Methodological rigor

To enhance the rigor of data collection, several strategies were employed, including prolonged participatory engagement with the intervention, triangulation, and member reflection (Korstjens & Moser, 2018; Tracy, 2010). 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 lead researcher established a role of observer-participant within WOW surf therapy programmes to maximise engagement with the intervention and provide context for participant experiences. The lead researcher also held informal discussions with WOW practitioners and local stakeholders such as local key workers, mental health charity staff, teachers, volunteers and parents. 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. For example, these discussions allowed some understanding of referral processes to the WOW intervention. This in turn enabled a measure of reflection on

participant experiences prior to their first session on the beach, providing further context for analytical consideration. 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 lead researcher and participants in the study. An example of this member reflection was the ability for participants to give feedback on the research team's analysis and interpretation of concepts around mindfulness, a concept that has a lot of variation in its interpretation. Through member reflection the research team were able to ensure that categories relating to mindfulness in this study accurately represented and related to participant experience, including refinements to language and/or understanding where appropriate. These processes bolstered rigor within the study, providing a contextualised, in-depth and truly grounded interpretation of participant experiences of WOW surf therapy programs (Charmaz, 2014; Timonen et al., 2018).

Positionality and reflexivity

The research team included expertise in surf therapy practice, mental health, clinical psychiatry, 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. 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 to make sure that the research team maintained respective roles as critical researchers rather than becoming simply advocates for WOW (Sparkes & Smith, 2014). There exists a well-documented romanticised concept of the 'healing power' of both surfing (Wheaton et al., 2017) and sports more generally (Coalter, 2007) that does not stand up to robust inquiry. Appropriate individual reflective and collaborative practice aimed to challenge any complacency or bias in this regard. As such, these reflective discussions of both data and memos 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. One of the research team is a board member of WOW and was as such excluded from data collection to avoid any inherent power imbalances within interviewing. All data was anonymised, cleaned, and scrubbed at transcription stage by the lead researcher with no identifiable elements left in the data within analysis stages. This was communicated with participants and removed any perception of negative repercussions due to one of the researchers being involved with WOW. This pre-existing relationship with WOW was invaluable in making the study feasible and provided unique insight within the analysis stage. The lead 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, not taking status as a cultural outsider would have been inappropriate. 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. The whole research process was based on sincerity, honesty and transparency around the project, its motives and the research team's background (Hill & Dao, 2021).

Results

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 beach-based discussions/activities and those that emerged from the surfing element specifically. The 5 categories alongside domains, sub-categories and initial themes are presented in Table 2. 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.

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 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

Table 2. Programme theory components 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	SOCIAL SUPPORT				
Feeling like facilitators were invested						
Breaking down power relationships within intervention structure						
Avoiding stigma associated with mental health in conventional setting	Challenging Isolation					
Realising not alone in struggles						
Recognising variety of mental health and its prevalence						
Forming lasting relationships and support through programme	Peer Celebration					
Thanking/affirming peers sharing of lived experiences						
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	Sand Fidgeting/ Aquatic Immersion	SENSORY GROUNDING				
Fidgeting with the sand/feeling the sun/hearing beach noises as grounding during mental health discussions				Sand Fidgeting/ Aquatic Immersion		
Favouring natural sensory grounding to artificial/sterile options						
Feeling better from sensory experiences (<i>note this may represent an independent pathway to respite</i>)	Clarifying Mindfulness			MASTERY		
Recognising mindfulness is more than meditation						
Trying to surf or swim mindfully at the session						
Maintaining mindful activities post intervention	Realising competency		Surfing Benefits			
Feeling sense of accomplishment while surfing						
Reinforcing accomplishment through peer celebration/support						
Translating sense of accomplishment into wider life	Demanded Focus/Flow	RESPITE				
Surfing demanding focus leaving no space for negative emotions in the moment						
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					

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, 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. It'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 in the water that wasn't necessarily on the board. WOW Participant 11

This clarification of mindfulness as not being limited to meditative 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 respite from negative mental health symptoms and 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 potential direct pathways to improved well-being.

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 often dealt with 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 reevaluate 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 as enjoyable, but also a space where they felt they could escape from negative thoughts or mental health symptoms. Sensory elements of the ocean environment have already described a possible route to respite, but participants also describe a pathway linked with the complete focus that the activity of surfing 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, importantly, similar activities to help manage mental health within their wider lives.

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. Some elements identified within this research

are already evidentially well supported in terms of being mediators for positive mental health. The development of new positive social connections within 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 et al., 2015; Marshall et al., 2019, 2020b) including exploratory research with WOW (McKenzie et al., 2021). WOW facilitated new positive and relatable relationships for young people who faced isolation due to both internalised and externalised stigma around mental ill health, aligning with wider literature (Pernice et al., 2017). 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.

A further well-established mediator to positive mental health was identified in participant descriptions of activity-based improvements to confidence and self-efficacy beliefs that transferred into wider life (Bandura, 1997). This theoretical mediator's presence within this study triangulates exploratory research conducted at WOW (McKenzie et al., 2021), wider surf therapy alongside a comparable population (Marshall et al., 2019), and systematic analysis of wider physical activity interventions for young people (Lubans et al., 2016).

Participants described the WOW 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). 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), especially since the COVID-19 pandemic (Fegert et al., 2020). It is also an integral element to the WOW programme as the beach and surfing environments are not inherently safe spaces. They have in previous research been identified as contested spaces with negative power structures around race, gender, economics and ability (Britton et al., 2019). One element that underpinned safe spaces was the participatory nature of WOW staff facilitation, utilising their own experiences within discussion topics and teaching. Participants consistently identified how this approach fostered trust, broke down negatively perceived power structures, and facilitated comfort around difficult topics. The participatory use of personal experience within therapeutic practice is not new (Oates et al., 2017), but it seems to have been utilised very effectively by WOW and the research findings offer further depth to enhance WOW facilitator training on this topic. Further exploration of this specific element of the intervention could help to generate guidelines and best practice around participatory facilitation, which are currently lacking (Oates et al., 2017). The effective safe spaces delivered by WOW underpinned their 'mental health by stealth' approach that avoids the 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). This research provides a clear directive that surf therapy recognises the value participants found in such a 'stealth' approach and doesn't in turn overly medicalise or commodify blue spaces, reintroducing the kinds of negative stigmas or perceptions that are currently avoided.

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 (Britton & Foley, 2021; Franco et al., 2017), including within surfing (Lisahunter & Stoodley, 2021) and surf therapy alongside different populations (Caddick et al., 2015; Wheaton et al., 2017). Participant descriptions in this research directly mirror accounts of complete sensory immersion, or 'getting into your body,' within a community development surfing programme in New Zealand (Wheaton et al., 2017). 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). This suggests surf therapy needs be intentional in discussing or teaching 'techniques of the body' as they relate to blue space interactions (Humberstone, 2015). This can empower participants to re/connect to self-awareness of their bodies and utilise intentional embodiment to affect positive change (Wheaton et al., 2017), a concept that is well established within trauma-informed recovery (Van der Kolk, 2015). Further research into this sensory component of surf therapy, from both physiological and psychological perspectives, should also be a future priority. Participants in this study also highlighted the importance of natural sensory grounding and embodiment when handling difficult discussions within the CBT-based element of the programme. Nature-based embodiment experiences were frequently described preferentially over approaches experienced in traditional therapeutic settings that can be imbued with a range of negative perceptions and stigma (Ferrie et al., 2020). The search for natural opportunities for sensory grounding within therapy in contrast to unnatural or manufactured 'stress ball' style grounding or coping should be a priority not just for surf therapy, but also wider community and clinical practice.

Alongside sensory embodiment within the beach and ocean environment, other elements of the programme emerged as tied to the actual activity of surfing. Participants noted how surfing, as a focal point, seems to have supported the 'mental health by stealth' approach of WOW, immediately pulling focus away from mental health elements. Surfing was also described by participants as having immediate antidepressant or anxiolytic properties, primarily through the complete focus that the activity demanded. Participant descriptions included ecstatic feelings, complete involvement, serenity, and notions of temporal distortion that point towards participants experiencing 'flow' states (Csikszentmihalyi, 2002). The concept of flow states is by no means new within surfing literature and has long been posited to better understand transcendental descriptions of surfing experiences (Stranger, 1999). WOW participants describe how intense activity focus allowed for a 'freedom' from what else is going on in life, with the term freedom being mirrored in other surf therapy research (Caddick et al., 2015; Wheaton et al., 2017). The potential association between freedom or respite from negative mental health symptoms and flow states has previously been identified within surf therapy (Marshall et al., 2020b) and other sporting-based interventions (Ley et al., 2017). Integral to realising potential flow states is managing an appropriate balance between challenge and skill within activities (Csikszentmihalyi, 2002). 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 the 'surf environment' (Marshall et al., 2019), but this ability to self-select is also contingent on successful facilitation of a safe space as demonstrated by WOW. Confirmation of the presence of flow within surf therapy using validated flow measurement tools, *in situ*, should be a priority for future research. If this theoretical mediator can be confirmed, it would have significant implications for community-based intervention design given certain key requirements for achieving flow states are well established. The need for maintaining skill/challenge balance, and activities that provide immediate feedback are examples of flow state elements that could be managed or prioritised within intervention development, should the flow respite mechanism be robustly confirmed. It is important to note despite some similarities, this activity-focused respite seemed a distinct pathway from identified sensory pathways. Given the complex and individual nature of mental health, interventions providing multiple pathways to respite supports a participant-centred approach accounting for preference, background, and needs. The benefits of supporting multiple pathways to respite have been identified in previous surf therapy research (Marshall et al., 2019).

Both the sensory and activity-based components of the intervention were utilised to facilitate discussions around mindfulness. Mindfulness has become a multi-billion-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, trialling, and reflection on different mindfulness practices, both those included within different elements of the programmes structure, and through 'crowd sourcing' mindfulness or coping strategies had worked in participants' previous experience. The clinical expertise of the WOW coordinators was very important in guiding discussion appropriately, and supporting participants who experienced any adverse effects (Farias & Wikholm, 2016). 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 focus on exposure to different forms of positive mental health behaviours (sensory embodiment, activity-based respite, or mindfulness) and understanding the concepts behind them, runs throughout WOW and is important for sustainability beyond the time-limited intervention. By learning what works for them, participants become empowered to build appropriate mental health support structures, so aptly described as '*maintenance*' by one participant, into their ongoing lives.

The core components of WOW programme theory provide implications for wider clinical, psychiatric, 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. In addition, the wider findings of this study support the continued facilitation, optimisation and proliferation of the WOW model of surf therapy in Australia.

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. Given the findings of the study, particularly the aspects related to the creation of a safe space, additional elements to this research exploring WOW 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 initial conceptual framework for the WOW intervention, in line with pragmatic grounded theory (Timonen et al., 2018). This initial framework remains of value, providing in depth understanding of key mediators within WOW delivery and potential further optimization through enhanced training for facilitators. Furthermore, the initial framework provides clear direction for future research to develop a complete framework offering further insights.

One key theoretical mediator identified within this study, sensory grounding, has not been explored in depth within surf therapy literature to date, though innovative approaches to '*in situ*' research are being explored (Lisahunter & Stoodley, 2021). It is plausible that sensory components are important within wider surf therapy delivery but did not naturally occur in discussion as participants did not recognise sensory elements 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, drawing on wider literature around embodiment, physiology, and mental health and utilising aforementioned '*in situ*' approaches (Lisahunter & Stoodley, 2021).

A key limitation associated with surf therapy, and wider physical activity interventions is the question of what happens after the programmes finishes and how are positive changes sustained? Recent research, including exploratory research conducted with WOW, suggests that positive mental health changes are not maintained at follow up (McKenzie et al., 2021; Olive et al., 2023). These conclusions are somewhat at odds with long term adoption examples identified within this study such as one participant's adoption of running as mental health 'maintenance,' though the purpose of this study was not to explore outcomes. Further research robustly interrogating long term impact of surf therapy and understanding mixed levels of adoption of mental health literacy skills amongst participants would be useful not only for optimising this intervention, but for the wider surf therapy paradigm.

There exist notable critiques of grounded theory, especially around the impossibility of 'quarantined' researchers approaching grounded theory as a blank piece of paper, and around issues with term theory around grounded outputs (Thomas & James, 2006). These criticisms were acknowledged at the study design stage, but a grounded approach was deemed the best way to explore the study aims. Said critiques also

informed the prioritisation of reflective practice, not to completely abstract the research team, but to take seriously preconceptions and their potential to impact on understanding. The study was fundamentally pragmatic in its approach (Timonen et al., 2018) and cautious around theoretical claims with a focus on improving understanding in relation to surf therapy programme theory.

Conclusion

In conclusion this grounded study has generated a conceptual framework to understand programme theory within the WOW intervention. Emergent categories underpinning the intervention included: (a) Safe Space, (b) Social Support, (c) Sensory Grounding, (d) Mastery and (e) Respite. While some of these categories triangulate with established research, novel findings included the role of participatory facilitation in establishing safe spaces and the importance of redefining mindfulness for mental health populations. Separate, but complementary pathways to respite through both sensory and activity-based mediators were also identified and explored in depth. These categories both individually and in combination have implications for surf therapy and the wider mental health paradigm, especially community based 'stealth' approaches, while also informing future research priorities.

Authorship statement

All authors contributed to the study conception and design. Material preparation, data collection and analysis were performed by Jamie Marshall. The first draft of the manuscript was written by Jamie Marshall and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

Competing interests

The authors have no relevant financial or non-financial interests to disclose.

Consent to participate

Informed consent was obtained from all individual participants included in the study, and where appropriate also obtained from parents and/or guardians.

Data availability Statement

Due to the nature of the research and ethical considerations supporting data is not available.

Disclosure statement

P. Ward declares he is a board member at Waves of Wellness Foundation, though this had no impact on the processes or findings related to this piece of academic work. The remaining authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Ethical approval

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