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Nature as a therapeutic place and tool for enhancing service users' engagement in mental health services: A comprehensive synthesis of evidence

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ABSTRACT

This systematic review explored how nature-based care settings influence engagement in mental health therapy. We relied on Joanna Briggs Institute's guidelines for systematic reviews to synthesise data from nine articles selected from an initial pool of 649 records retrieved from PubMed, CINAHL, ScienceDirect, SocINDEX, and JBI EPB. Synthesis revealed six analytical themes: nature as a therapeutic tool, therapeutic relationships, nature's impact on power balance, nature as a safe space, risk of nature and patient-centered care. The findings shed light on the benefits while highlighting some challenges that influence participation in mental health interventions. The findings suggest that integrating nature into mental health care could be an alternative or complementary approach to enhancing patient engagement. However, the specific types of mental health care of this impact vary. Robust clinical trials that examine the effectiveness of the reported benefits are recommended. Such studies must target specific patient groups, such as the young and the elderly. Longitudinal studies that examine the long-term effects and moderating factors are needed to strengthen the evidence base and enhance patient-centered care.

1. Introduction

Recent studies suggest that exposure to green and blue spaces can significantly reduce stress levels and improve psychological well-being, making nature an essential element in mental health care (Britton et al., 2020; Foley and Kistemann, 2015; Müller-Riemenschneider et al., 2020; Rodgers, 2020). Specifically, blue-space includes any water sources in natural areas, including, lakes, ponds, oceans, and rivers, which have health-enabling attributes (Britton et al., 2020; Foley and Kistemann, 2015). In contrast, green space refers to parks, gardens, fields, bushes, or forests (Davies et al., 2020; Liu et al., 2020; Müller-Riemenschneider et al., 2020; Rodgers, 2020). The profound impact of nature on mental health and well-being has been extensively documented (Coventry et al., 2021). The reported positive association between time spent in nature and improved mental health (MH) has led to various types of MH care taking place in nature (Bratman et al., 2019). For example, Beyer et al. (2014) demonstrated a positive correlation between environmental green space and mental health outcomes across a number of situations. Similar findings were reported by Gascón et al. (2015) in research that involved the use of residential green and blue spaces for the mental health of adults. There is also mounting evidence regarding the therapeutic potential of activities conducted in natural environments. Rajoo et al. (2021) for instance, revealed that young adults who are afflicted with anxiety, sadness, or stress benefited from exercise and therapeutic interventions carried out in nature. Two studies, by Marselle et al. (2019) and Pouso et al. (2021), suggest that group walks in nature and other activities that combine nature exposure and physical activity are good for mental health and well-being. Receiving MH care in nature, either sitting or moving, enables clients who need support to access and gain the benefits of the natural environment, potentially meeting their physical activity requirements simultaneously.

The increasing popularity of this field has led to many primary studies and systematic reviews. Systematic reviews by Gascón et al. (2015), Houlden et al. (2018) and Tillmann et al. (2018) have, for example, reported the positive impact of natural environments on mental health and well-being for all age groups. Another review by Gritzka et al. (2020) also extends our understanding of this relationship by suggesting that nature-based treatments might have the capacity to

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enhance the mental well-being of employees. Nature's impact on physical and mental well-being has further been presented in a comprehensive review by Hossain et al. (2020) and emphasised by Coventry et al. (2021). Collectively, these reviews reinforce the positive correlation between nature and mental health and offer a more nuanced understanding of mental health care practises in nature.

While these reviews provide a valuable initial understanding of green/blue spaces for mental health interventions, they are often limited to reports on benefits. To date, the evidence on specific ways in which nature as a therapeutic environment helps or hinders participation in MH therapy has not been synthesised. The gap in synthesising this evidence exists, despite studies such as that by Mailey et al. (2022) reporting that it may be difficult for some service users (SUs), especially those with depression, to leave their safe space to receive care in the green or blue spaces. Beyond the reported benefits, it is equally important to understand the opportunities, challenges, and constraints that influence participation in MH therapy (Fazel and Betancourt, 2018). We address this gap with a systematic review that examines how natural environments facilitate or hinder mental healthcare. The review extends beyond the general therapeutic benefits of nature and explores strategic use in therapy. We achieve this by asking the question: How does having a care in nature impact the engagement in care of Mental Health (MH) service users (SUs)?

2. Methods

2.1. Study design

We relied on Joanna Briggs Institute's (JBI) guidelines for mixed methods systematic reviews (Lizarondo et al., 2020). The framework offered a comprehensive and transparent approach to examining the impact of nature-based care on engagement, participation, or involvement in mental health (MH) services.

2.2. Inclusion criteria

A phenomenon of interest was identified, and a review question was formulated. Elements of population, exposure, comparison and outcome (PECO), as well as settings were identified as follows during the systematic review.

- **Population**: The review focused on MH SUs, also called MH clients or consumers.
- **Intervention (Exposure):** The intervention of interest was care in natural settings. This encompassed care in nature, the natural environment, blue or green space. We included studies that reported various forms of nature-based care (e.g. Nature therapy, outdoor therapy and nature-guided therapy).
- **Comparison:** The comparison was made with traditional care provided in clinical settings.
- **Outcome:** Primary outcomes were engagement, participation, or involvement in care. Studies were included if they explored nature's impact on service users' MH care.
- **Settings:** Included studies covered a range of MH services, including inpatient facilities, community care, or nature-based interventions.

2.3. Search strategy

We adhered to the PECO framework: Population, Exposure, Comparison, and Outcome. Population referred to mental health service users (MH SUs), with synonyms such as "MH consumers," and "Mental Health Clients", "Mental Health,". We used "Psychiatric" interchangeably with mental health to extend the breadth of search results. Exposure referred to nature-based care, with synonyms such as "ecotherapy," "ecopsychology," "bush therapy," "wilderness therapy (WT)," "adventure therapy," "nature space therapy," "adventure-based counselling," "outdoor behavioural healthcare," "green care," "surf therapy," and various others. Comparison or standard care included "Clinical settings" or "standard MH care". The terms "engagement," "participation," and "involvement in care" were utilised to describe the outcomes. Citation searching has also been applied to identify additional studies by checking reference lists of primary studies and reviews to add completeness and rigour.

2.4. Search procedure

The search was undertaken from 5th April to 22nd June, by A.T. After designing and testing the search strategy in PubMed, we customised it across other databases, including CINAHL, Science Direct, SocINDEX, and JBI EPB. The specific search strategies for each database, including modifications, are detailed in Appendix 1.

2.5. Search records

The citations were organised using the reference management software Zotero. Screening was done in duplicates to minimise bias (Shamseer et al., 2015). Following this, the inclusion and exclusion criteria were applied to the titles of each article, followed by the existing abstracts. Full texts were then screened. The findings were presented comprehensively using a Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) flow diagram, ensuring transparency and adherence to established reporting standards (Moher et al., 2009). A.T. and M.C. performed the full-text assessment of articles and disagreements resolved by I.A. through discussion. The review focused specifically on the impact of nature on engagement in care. Thus, only articles addressing this topic were included. Exclusion criteria comprised studies not specific to mental health (MH), including those focusing on dementia or substance use patients. Additionally, articles that linked mental health and nature but lacked a focus on care in nature were excluded. Studies from any country and written in English were considered. Qualitative, quantitative, and mixed methods studies were included. No date limits were imposed, given the ongoing discourse on green-care interventions and the relationship between nature and well-being. Once the final texts that met the eligibility criteria were finalised, data was extracted into a table consisting of methodology, settings, participants, and key findings. The results from the search outcomes are presented in a PRISMA diagram (Fig. 2).

2.6. Quality appraisal

The risk of bias was assessed by the Critical Appraisal Skills Programme (CASP) tool for qualitative studies (Critical Appraisal Skills Programme, 2018) (Fig. 1). Regardless of the bias uncovered by the CASP tool, all studies were still included, as this aided in the overall discussion of findings and limitations and ensured a well-rounded understanding of nature's impact on MH engagement (Shamseer et al., 2015).

2.7. Synthesis

We extracted the following data from the nine studies: objectives, methodologies, findings, and notable quotes. We then used Braun and Clark's (2006) thematic analysis framework to generate initial codes by closely reading the text and identifying key ideas and concepts. These were then organised into potential themes. I.A. and A.T. rigorously reviewed the themes to ensure coherence. Initially, themes were validated against the coded extracts to confirm a coherent pattern. We then re-examined the data to verify that the themes captured the significant insights of the studies. Themes were defined and named through an iterative process involving constant comparison with data extracts. We minimise bias through the integration of data from various sources and methodologies. This reduced biases and errors and enhanced the

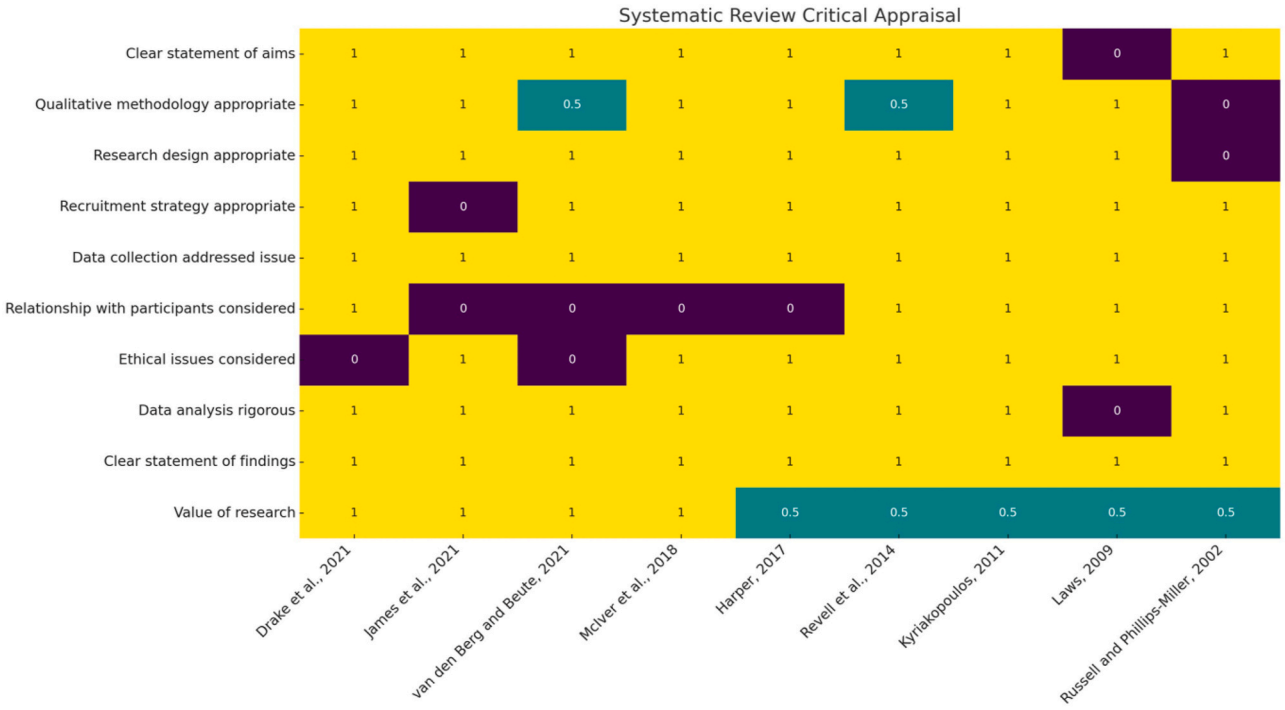

Fig. 1. Systematic review Critical appraisal using CASP criteria.

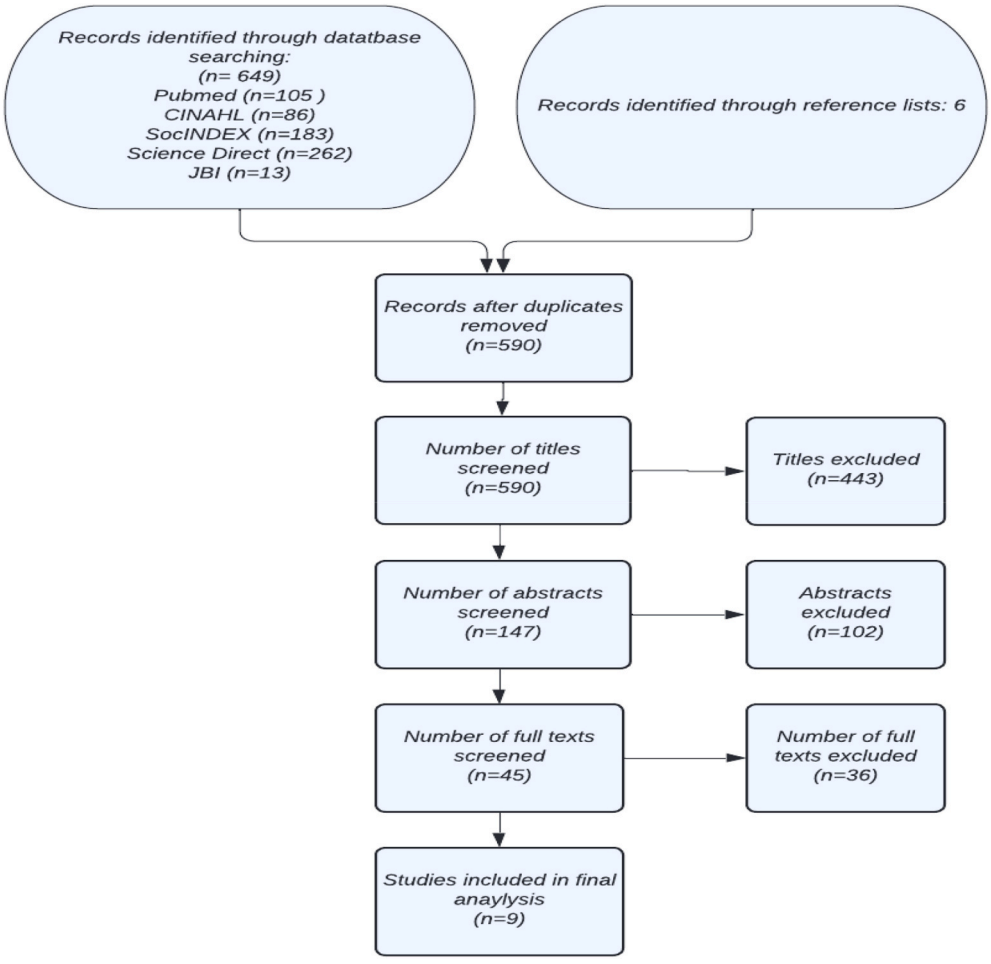

Fig. 2. PRISMA flow diagram.

trustworthiness and applicability of the conclusions drawn.

3. Results

3.1. Search results

The search generated 649 records from across four databases. 590 records remained after duplicates were removed. 590 records were screened based on the title and 147 for abstracts. A full-text review of the remaining articles led to the exclusion of 36 studies. Reasons for exclusion included studies not focusing on adults (18 years or older) (n = 15), studies not involving nature-based interventions or therapies conducted in natural outdoor settings (n = 15) and studies that did not report on mental health outcomes or patient-centered care experiences (n = 6). A total of 9 articles were identified for inclusion in the systematic review.

3.2. Characteristics of included studies

The nine (9) included studies were published between 2002 and 2021. The countries of origin for these studies were Australia, Canada, the United Kingdom, and the United States. Study methodologies included qualitative (n=6), quantitative (n = 2), scoping review (n = 1) and case study (n = 1). The studies investigated therapeutic pathways, barriers, processes, and outcomes of nature-based mental health and well-being interventions. The settings for these interventions included adult mental health inpatient rehabilitation units, university student counselling services, alternative self-help groups, youth-focused therapeutic communities, online surveys, wilderness therapy programmes, and natural settings. Participants included youth and adults experiencing mental health issues such as anxiety, depression, stress, and burnout. These participants were exposed to therapeutic interventions like surf therapy, wilderness therapy, therapeutic camping, adventure education, outdoor psychology sessions, adventure therapy combined with individual counselling, self-help groups in natural settings, outdoor therapy, and walk-and-talk coaching in nature. Study characteristics are presented in Table 1. The synthesis of these study characteristics highlights the broad range of nature-based interventions and their potential applications in supporting mental health and well-being across various populations and settings presented in Table 2.

3.3. Summary of findings

Table 2 summarises the qualitative findings of this study. Synthesis of the nine studies that explored the therapeutic potential of nature-based interventions revealed the following themes: nature as a therapeutic tool, therapeutic relationships, nature's impact on power balance, nature as a safe place, risks of nature, and patient-centered care.

3.3.1. Nature as a therapeutic tool

Nature as a therapeutic tool emerged as a central theme across the reviewed studies. Participants described how engaging in challenging outdoor activities, such as surfing (Drake et al., 2021), hiking, and abseiling (McIver et al., 2018), facilitated skill development, psychological benefits, and a profound sense of accomplishment. The transformative potential of these experiences was exemplified by a participant in Drake et al.'s (2021) study, who powerfully expressed, "Initially, I wasn't having fun when surfing because I was getting thrown off the surfboard, but by the end, I was proud that I could stand up for quite a long time" (p. 4). These experiences underscore the inherent therapeutic value of nature-based challenges. They provide opportunities for individuals to push beyond their perceived limitations, cultivate a stronger sense of self-efficacy, and experience personal growth. The studies further highlight how natural environments facilitate a safe, neutral space that promotes self-reflection and emotional relief (Drake et al., 2021; Harper, 2017; James et al., 2021; McIver et al., 2018). Nature serves as a backdrop and actively engages participants in developing new personal skills and processing emotions. A participant in Kyriakopoulos' (2011) research shared, "I felt excited doing this, in a way I feel it facilitated my sense of well-being" (p. 125), while another participant in Revell et al.'s (2014) study described carrying out "rituals with nature-based materials to process distress" (p. 284) with the act of placing a sculpture in a river and watching it float away being "cathartic like a release" (p. 284). These findings demonstrate how immersive

Table 1
Study characteristics.

Study, Year and Country	Focus/Objective	Methods/Study Type	Setting	Sample Characteristics	Therapeutic Approach
Drake et al. (2021), Australia	Investigate therapeutic pathways and barriers in surf therapy for youth mental health	Qualitative; Inductive Thematic Analysis	Surf therapy program	Youth (n = 9, M = 12.8, SD = 2.6), mentors (n = 9, M = 37.60, SD = 13.62), program coordinator (n = 1, M = 26)	Surf therapy
Harper (2017), Canada	Articulate outdoor adventure programs in child and youth care literature from 1997 to 2017	Scoping Review	Child and youth care literature	63 empirical and conceptual publications from 9731 periodicals reviewed	Wilderness therapy, therapeutic camping, adventure education
James et al. (2021), United Kingdom	Examine the feasibility of outdoor psychology sessions in mental health inpatient units	Qualitative	Adult mental health inpatient rehabilitation unit	Adults in mental health rehabilitation (sample size not specified)	Outdoor psychology sessions
Kyriakopoulos (2011), UK	Evaluate the combination of individual counselling with adventurous outdoor experiences for anxiety and depression	Qualitative; Interpretative Phenomenological Analysis	University student counselling service	Six students (three male, three female) with self-reported anxiety and depression	Adventure therapy combined with individual counselling
Laws (2009) United Kingdom	Explore spatial dynamics of alternative self-help groups	Qualitative	'Alternative' self-help group	Sample characteristics not specified	Self-help group in a natural setting
McIver et al. (2018)	Investigate narratives of wilderness therapy participants to identify meaningful changes	Qualitative	Youth-focused therapeutic community	Staff and residents at a therapeutic community (sample size not specified)	Wilderness therapy
Revell et al. (2014), USA	Investigate helpful aspects of outdoor therapy from participant perspectives	Mixed Methods; Online Survey, Grounded Theory	Online survey	43 participants from an international survey	Outdoor therapy
Russell and Phillips-Miller, 2002	Examine wilderness therapy processes and outcomes	Multisite Case Study; Qualitative	Four wilderness therapy programs	12 adolescent clients across four programs	Wilderness therapy
van den Berg and Beute (2021)	Assess effectiveness of walk and talk coaching in nature for stress and burnout	Controlled Trial; Experimental	Natural setting	40 adults (31 females) with stress and burnout complaints, split into intervention and control groups	Walk and talk coaching in nature

Table 2
A synthesis of therapeutic outcomes across diverse environmental interventions.

Theme	Subcategory	Description of subcategory	Representative Quotes/Data	Stude References
Nature as a Therapeutic Tool	Facilitated Activities and Personal Growth	Nature-based activities are utilised to facilitate personal growth, skill development, and psychological benefits.	• "Initially I wasn't having fun when surfing because I was getting thrown off the surfboard but by the end I was proud that I could stand up for quite a long time." - Youth 1, male age 12 (Drake et al., 2021, p. 4) • "I felt exciting doing this, in a way I feel it facilitated my sense of well-being." - P4 (Kyriakopoulos, 2011, p. 125)	Drake et al. (2021), Hartley et al. (2020), McIver et al. (2018), Russell and Phillips-Meyer (2002), Kyriakopoulos (2011), Van den Berg and Beute (2021), Revell et al. (2014)
Patient-centered care	Personal Growth and Development	Focuses on the personal development, self-awareness, acceptance, and enhancement of self-concept through therapeutic activities, particularly in nature	• "I have become more confident with myself, not as much self-doubt … it built up my confidence which also then benefited in my recovery." (McIver et al., 2018), "It made me feel like I was able to finish things like university." (Russell and Phillips-Miller, 2002), "Increased self-awareness, acceptance, and optimism about the future were noted as key changes." (Van den Berg and Beute 2021),	McIver et al., (2018), Russell and Phillips-Miller, 2002, Van den Berg and Beute (2021), Revell et al., (2014), Kyriakopoulos (2011)
Therapeutic Relationships	Mentor and Peer Support	Supportive relationships with mentors and peers enhance therapy outcomes and personal growth.	• "He was understanding there was like one session where I didn't want to surf but we just went a grabbed a coffee and talked which was good. I didn't feel pushed or like a letdown." - Youth 6, male age 18 (Drake et al., 2021, p. 4) • "It's like they're human, they're not these machine people … Yeah, they talk in realistic terms." - Client (Russell and Phillips-Miller, 2002, p. 432)	Drake et al. (2021), Hartley et al. (2020), James et al. (2021), Revell et al. (2014), McIver et al. (2018), Russell and Phillips-Meyer (2002), Kyriakopoulos (2011), Van den Berg and Beute (2021)
Nature's Impact on Power Balance	Empowerment and autonomy	Nature-based activities empower participants and alter traditional power dynamics in therapy	• "I make sure I note to the kids that say they don't think they will be able to surf and when they do get there I say 'you said you weren't going to be able to get up to your feet and surf like that just shows you that anything in life that you do you're going to be able to progress through that and achieve anything that you put your mind to." - Program leader male (Drake et al., 2021, p. 4)	Drake et al. (2021), Hartley et al. (2020), James et al. (2021), Laws (2009), Revell et al. (2014), McIver et al. (2018), Russell and Phillips-Meyer (2002)
Nature as a Safe Place/Space	Emotional and Psychological Safety	Natural settings provide a secure environment for emotional and psychological growth, relaxation, and self-exploration.	• "Makes me happier being near water. When I was in the ocean it took my mind off everything that worries me." - Youth 1 and 3, male ages 12 and 13 (Drake et al., 2021, p. 5) • "SUs reported having their psychology sessions outdoors helped them experience a sense of freedom and was good for my anxiety." - James et al. (2021), p. 4	Drake et al. (2021), Hartley et al. (2020), James et al. (2021), Laws (2009), Revell et al. (2014), McIver et al. (2018), Russell and Phillips-Meyer (2002), Kyriakopoulos (2011), Van den Berg and Beute (2021)
Risks of Nature	Environmental Challenges and Safety Concerns	Nature-based therapy presents challenges related to weather, privacy, safety, and risk management.	• "On the coldest day no one wanted to go in the water." - Youth 8, female age 11 (Drake et al., 2021, p. 5) • "One of the challenges identified during outdoor sessions was maintaining SUs' confidentiality due to the potential for other people to be present." - James et al. (2021), p. 5	Drake et al. (2021), Hartley et al. (2020), James et al. (2021), Laws (2009), Revell et al. (2014), McIver et al. (2018), Russell and Phillips-Meyer (2002), Kyriakopoulos (2011)

nature experiences enable participants to reframe their perceptions of what is achievable and provide a medium for emotional processing and letting go of negative experiences.

3.3.2. *Therapeutic relationship*

Therapeutic relationships emerged as another salient theme across the reviewed studies. Participants emphasised the value of supportive and authentic connections with mentors and peers in enhancing therapy outcomes and personal growth. The informal, open environment provided by nature-based settings allowed for more genuine interactions and a breakdown of conventional power dynamics often present in more clinical settings. This was exemplified by a youth participant in Drake et al.'s (2021) study, who shared, "He was understanding there was like one session where I didn't want to surf, but we just went a grabbed a coffee and talked which was good. I didn't feel pushed or like a letdown" (p. 4). The narrative highlights the importance of mentors' flexible approach to addressing personal challenges. The sense of mutual respect and partnership was more effective in a natural environment than in traditional settings (Drake et al., 2021; Russell and Phillips-Miller, 2002).

The studies also demonstrate the transformative nature of peer relationships in nature-based therapeutic settings. The collaborative and inclusive nature of these connections was captured by a participant in McIver et al.'s (2018) study, who stated, "The group working together … the joint experience and sharing of ideas; it's very inclusive" (p. 399). This quote illustrates how the shared experiences and mutual support fostered by nature-based interventions contribute to participants' sense of belonging and empowerment. The findings suggest that the

combination of supportive mentor-participant relationships and the collective experience of facing and overcoming challenges in nature creates a unique therapeutic environment that promotes personal growth, emotional resilience, and social connectedness (Harper, 2017; Revell et al., 2014). These insights extend our understanding of the importance of relational factors in therapeutic processes and highlight the potential of nature-based interventions to foster more effective and meaningful therapeutic alliances.

3.3.3. Nature's impact on power balance

Nature-based activities empowered participants and altered traditional power dynamics in therapy. Natural settings were considered less structured, providing reduced hierarchical structures between therapists and clients. Such structure fostered an egalitarian and empowering interaction (James et al., 2021; Revell et al., 2014). This shift in power dynamics was captured by a programme leader in Drake et al.'s (2021) study, who described how they encouraged participants to recognise their potential: "I make sure I note to the kids that say they don't think they will be able to surf and when they do get there I say 'you said you weren't going to be able to get up to your feet and surf like that just shows you that anything in life that you do you're going to be able to progress through that and achieve anything that you put your mind to" (p. 4). Nature-based interventions can foster a sense of empowerment and self-efficacy by providing opportunities for participants to challenge their self-imposed limitations and discover their inner strengths.

The power-balancing effect of nature-based interventions also influences participants' sense of autonomy and control. As Laws (2009) puts it, "It's ours up here; we've claimed it for ourselves" (Becky, p. 1829). The quote depicts a sense of ownership and empowerment derived from engaging with natural spaces. Similarly, McIver et al. (2018) reported that "several participants saw the activities they engaged in during the program as legitimate avenues to obtain the adrenaline rush they had previously sought through dangerous and damaging activities" (p. 400). These studies demonstrate how nature-based interventions can provide healthy alternatives for risk-taking and self-expression. Nature-based interventions promote an internalised sense of control and self-regulation.

3.3.4. Nature as a safe space

Participants in the included studies described the natural settings as a secure environment for emotional and psychological growth, relaxation, and self-exploration. Many of the study subjects referred to nature's tranquil and restorative qualities. Compared to the often overwhelming stimuli of urban environments, they reported feeling emotionally and cognitively relieved in these settings. For example, a participant in Drake et al.'s (2021) study mentioned that it "makes me happier being near water" (p. 5), while another shared, "When I was in the ocean, it took my mind off everything that worries me" (p. 5). The safety and comfort provided by natural settings create a conducive environment for therapeutic processes and personal growth. Participants in Kyriakopoulos' (2011) described the peacefulness of nature: "There was nothing. No distractions … It was just really nice and peaceful and quiet" (p. 125). Similarly, McIver et al. (2018) reported that "being in nature was recognised as a permission for releasing anxieties, building friendships, and sharing positive experiences" (p. 399). The findings challenge the traditional notion of therapy confined to indoor clinical settings.

3.3.5. Risks of nature

The review also identified potential negatives and risks associated with nature-based interventions. These risks included environmental challenges, privacy concerns and safety concerns. Adverse weather conditions were, for example, seen as a barrier to effective therapy. A youth participant in Drake et al.'s (2021) study lamented, "on the coldest day no one wanted to go in the water," while another mentioned, "My feet were freezing! They should provide booties" (p. 5). These challenges call for careful planning and adaptation of outdoor therapy sessions (Kyriakopoulos, 2011). McIver et al. (2018) emphasised the importance of providing adequate support and gradual exposure to challenging situations. Collectively, the authors advised a balanced approach to nature-based interventions (Harper, 2017; James et al., 2021; Laws, 2009; Revell et al., 2014; Russell and Phillips-Miller, 2002).

3.3.6. Patient-centered care

Studies reported that nature-based therapy leads to personal and self-concept development. Such patient-centered improvements were seen in participants' increased awareness, acceptance, and optimism. A participant in McIver et al.'s (2018) study narrated: "I have become more confident with myself, not as much self-doubt … it built up my confidence, which also then benefited in my recovery" (p. 400). The patient-centered approach contributes to nature-based therapy's effectiveness in promoting holistic well-being as it prioritises individual needs, goals, and preferences and creates a supportive environment. The integration of nature-based activities and experiences also allows for a more engaging and experiential therapeutic process, which aligns with the principles of patient-centered care (Harper, 2017; James et al., 2021; Laws, 2009; Revell et al., 2014; Van den Berg and Beute, 2021). These insights extend our understanding of how nature-based interventions promote well-being and highlight the importance of patient-centered approaches in fostering positive therapeutic outcomes.

4. Discussion

Numerous secondary reviews exploring the link between nature and MH currently exist. We identified several reviews that have explored this link, but they have yet to specifically ask how nature impacts engagement in care, except for Masterton et al. (2020) who conducted a realist review into how and what green-care interventions offer and the benefits they provide in MH care. This review focuses on more regimented courses in nature, though, rather than the MH catchups it was seeking to evaluate. Cooley et al. (2020) explored talking therapy and nature, focusing on how this could work for psychologists. WT remains a focus for research, as seen by the included articles in this review. We read two other secondary reviews focused on WT, both only for youth participants and courses immersing participants in nature for weeks at a time (Bettmann et al., 2016; Kraft and Cornelius-White, 2020). Other reviews included one solely focused on blue-care interventions and the need for active engagement in this type of nature (Britton et al., 2020), one focused on how nature-based activities impact the well-being of older adults (Gagliardi and Piccinini, 2019), and how nature-based interventions impact mental and physical health (Coventry et al., 2021). These reviews all add valuable insight to the available literature on MH care in nature but have not been able to answer the question of how care in nature enhances the engagement of SUs. So, the current review extends the current evidence by reporting on which elements of care in nature impact engagement and how they could enhance care.

Findings from this review suggest that nature offers therapeutic benefits as both a passive and active resource for stress management across different age groups. Passive interaction, involving exposure to natural scenes, sounds, and smells, can reduce physiological stress responses while enhancing mood and cognitive performance for both youth and adults (Berto, 2014). While Drake et al. (2021) found that youth view immersive virtual nature experiences as an escape from daily stressors, it's important to note that this doesn't preclude active engagement with nature. Drake et al. (2021) also highlighted that nature promotes self-efficacy, mastery, and social persuasion among youth, suggesting active benefits. Similarly, adults benefit from both passive and active interactions with nature. Active engagement through activities like gardening, hiking, or forest bathing can support physical exercise, personal development, and improved social ties for both age groups (Björling et al., 2022; Bonham-Corcoran, Armstrong, O'Briain, Cassidy and Turner, 2022). While adults may derive value from exerting

control and building social connections in natural settings, these benefits are not exclusive to adults. They can also apply to youth, albeit potentially manifesting differently due to developmental stages. The impact of nature-based interventions appears to be influenced by individual factors, including age, personal preferences, and clinical needs, rather than following a strict adult-youth dichotomy. Both passive and active approaches to nature-based therapy can contribute to immediate stress relief and long-term mental health benefits for individuals across age groups. However, more research is needed to fully understand how developmental stages and individual characteristics interact with different forms of nature engagement to produce therapeutic outcomes.

The qualitative studies indicate that nature-based therapy promotes personal and self-concept development, which is crucial for patient-centered care. Participants experienced increased self-awareness, acceptance, and optimism, aligning with the principles of individualised care. McIver et al. (2018) reported that participants gained confidence and reduced self-doubt, enhancing their recovery. This supports existing literature, such as Harper (2017) and James et al. (2021), which emphasises the supportive and engaging nature of outdoor therapy. These studies highlight how nature-based activities create a more experiential therapeutic process, improving therapeutic outcomes. However, challenges such as privacy and security in public spaces, as noted by Laws (2009), must be addressed. Despite these concerns, the benefits of nature-based therapy in fostering patient-centered care are well-documented. Revell et al. (2014) and van den Berg and Beute (2021) further demonstrate how these interventions promote well-being by catering to individual needs and creating a supportive environment.

Overall, the findings confirm that nature and care in nature positively impact therapeutic relationships, particularly for youth participants in WT groups. These studies highlighted the power that knowing a MH care provider believes in you when participating in nature care has for the therapeutic relationship. This impact of nature on the therapeutic relationship enhanced engagement, and the SU's desire to connect with their MH care provider (Drake et al., 2021; Harper, 2017; Kyriakopoulos, 2011; Revell et al., 2014; Russell and Phillips-Miller, 2002). In the New Zealand-based thesis from Horn (2021), it was determined that nature positively impacted the therapeutic relationship from the MH care provider point of view. Supporting this idea that nature can influence the therapeutic relationship is the work from Cooley et al. (2022) exploring barriers to care occurring in nature. They highlight the importance of both the SUand MH care provider collaborating regarding their choice of place of care to ensure safety, which would also support the therapeutic relationship. So, therapeutic relationships and the therapeutic use of self are key components to enhanced levels of care, especially in MH, and if nature can foster them, then MH care providers should have an obligation to explore these as an option for their SU (Cooley et al., 2022; Hartley et al., 2020; Horn, 2021).

4.1. Limitations

Five of the studies were focused on youth and young adults below the age of 25. None of the studies focused on older adults. The ethnicity of participants was not available for most of the studies, and most of them were focused on developed countries (UK, USA, Canada, Australia, the Netherlands), except for one study, which considered global participants. The homogeneity of the participants could be both a strength and a limitation of this review. The findings from this review would indicate that nature benefits some SUs. However, if transferring findings to SUs who were not demographically included in the studies, special consideration would need to be taken to ensure the findings apply to them. Most of the studies were qualitative, with only two being mixed methods. Another bias to consider is the selection bias from some of the studies, where participants volunteered themselves to be involved, potentially skewing the results were more positively inclined toward nature. Compounding this is the point from Revell et al. (2014) that the terminology may differ globally, so the search terms used in this review may not have captured all relevant studies.

4.2. Implications for mental health practice

The findings have several implications for mental health practice. Nature-based interventions can potentially improve engagement in care for MH service users (SUs). MH practitioners should consider incorporating nature-based interventions as an alternative or complementary approach to traditional care settings to enhance the therapeutic experience and outcomes for SUs. While the studies included in this review primarily focused on psychologists and mentors for wilderness programmes, the findings can be applied to MH practice more broadly. As Hartley et al. (2020) emphasise, SUs value their therapeutic relationships with MH practitioners, as these relationships are key to their progress in improving mental well-being. MH practitioners should consider incorporating nature-based interventions as an alternative setting for care, particularly for regular meetings with SUs that would traditionally occur in a clinic room. However, it is important to note that nature-based interventions may not be suitable for all types of MH care, especially when privacy and specific medical procedures are required. Practitioners should collaborate with SUs to determine the appropriateness and feasibility of nature-based interventions on a case-by-case basis, considering individual needs, preferences, and treatment goals.

4.3. Recommendations for future research

To further advance the understanding and application of nature-based interventions in MH care, several recommendations for future research can be made based on the findings of this review. First, as the review did not explicitly examine the role of MH nurses in nature-based interventions, future studies should explore how MH nurses can effectively utilise nature in their care to promote engagement. This research could provide valuable insights into the strategies and considerations for incorporating nature-based approaches into nursing practice. Second, while this review primarily focused on qualitative studies, with only two mixed-methods reviews, future research should employ more quantitative methodologies to measure and evaluate the impact of nature on MH engagement. Although several systematic reviews have explored blue care and green care (Britton et al., 2020; Cooley et al., 2020; Masterton et al., 2020), there is a need for more quantitative studies to provide empirical evidence for the effectiveness of nature-based interventions in enhancing SU engagement and improving MH outcomes. Third, future research should investigate the impact of nature-based interventions on specific populations, such as indigenous communities and older adults. By examining the cultural, social, and developmental factors that may influence the effectiveness and acceptability of nature-based approaches, researchers can contribute to developing more culturally responsive and age-appropriate interventions. Finally, to strengthen the evidence base for nature-based interventions in MH care, future studies should employ more rigorous research designs, such as randomised controlled trials, to establish causal relationships between nature exposure and MH outcomes. Additionally, researchers should explore the long-term effects of nature-based interventions on SU engagement and well-being, as well as the potential mediating and moderating factors that may influence the effectiveness of these approaches.

5. Conclusion

This review has synthesised evidence from multiple studies to demonstrate the potential of nature-based interventions to enhance engagement in MH care. The findings highlight the therapeutic benefits of nature, such as providing a safe and supportive environment for emotional processing, fostering a sense of empowerment and autonomy, and strengthening the therapeutic alliance. Whether through the freedom of nature offering SUs space to think, the impact of a neutral space on power dynamics and therapeutic relationships, or the

opportunity to focus on the whole person, nature-based interventions offer enhanced aspects of care for many SUs.

When choosing a care setting, MH practitioners must consider individual needs, preferences, and treatment goals. By collaborating with SUs and discussing nature-based interventions as an alternative or complementary approach to traditional care, MH practitioners can tailor their interventions to optimise engagement and outcomes. The implications of this review extend beyond specific disciplines and underscore the potential of nature-based interventions to transform MH care more broadly. By integrating nature-based approaches into clinical practice, MH practitioners can promote a more holistic, patient-centered, and engaging approach to care that harnesses the therapeutic power of nature. As the evidence base for nature-based interventions continues to grow, MH practitioners need to stay informed about the latest research findings and incorporate e this knowledge into their practice to provide the highest quality of care for their SUs.

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CRediT authorship contribution statement

Alexandra Troughton: Writing – original draft, Methodology, Formal analysis, Conceptualization. **Mellisa Chin:** Writing – review & editing, Writing – original draft, Project administration. **Isaac Amankwaa:** Writing – review & editing, Supervision, Resources, Methodology.

Declaration of competing interest

The authors declared no potential conflicts of interest.

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Appendix 1. Search Strategy for PubMed

Search Details	Results
"nature therapy" [Title/Abstract] OR "Outdoor therapy" [Title/Abstract] OR "nature guided therapy" [Title/Abstract] OR "nature assisted therapy" [Title/Abstract] OR "horticultural therapy" [Title/Abstract] OR "garden therapy" [Title/Abstract] OR "walking therapy" [Title/Abstract] OR "ecotherapy" [Title/Abstract] OR "ecopsychology" [Title/Abstract] OR "wilderness therapy" [Title/Abstract] OR "adventure therapy" [Title/Abstract] OR "adventure based counsel*"[Title/Abstract] OR "green care" [Title/Abstract] OR "surf therapy" [Title/Abstract] OR "blue space" [Title/Abstract] OR "green space" [Title/Abstract]) AND ("Mental Health" [All Fields] OR "psych*"[MeSH Terms]) AND ("involvement"[Title/Abstract] OR "participation" [Title/Abstract] OR "engagement" [Title/Abstract] OR "patient participation" [MeSH Terms])	105
"involvement" [Title/Abstract] OR "participation" [Title/Abstract] OR "engagement" [Title/Abstract] OR "patient participation"[MeSH Terms]	759,641
"Mental Health"[All Fields] OR "psych*"[MeSH Terms]	5,246,574
"nature therapy" [Title/Abstract] OR "Outdoor therapy" [Title/Abstract] OR "nature guided therapy" [Title/Abstract] OR "nature assisted therapy" [Title/Abstract] OR "horticultural therapy" [Title/Abstract] OR "garden therapy" [Title/Abstract] OR "walking therapy" [Title/Abstract] OR "ecotherapy" [Title/Abstract] OR "ecopsychology" [Title/Abstract] OR "wilderness therapy" [Title/Abstract] OR "adventure therapy" [Title/Abstract] OR "adventure based counsel*"[Title/Abstract] OR "green care" [Title/Abstract] OR "surf therapy" [Title/Abstract] OR "blue space" [Title/Abstract] OR "green space" [Title/Abstract]	1831

Systematic review critical appraisal table.

	Drake et al. (2021)	James et al. (2021)	van den Berg and Beute (2021)	McIver et al. (2018)	Harper (2017)	Revell et al. (2014)	Kyriakopoulos, 2011	Laws (2009)	Russell and Phillips-Miller (2002)
Clear statement of aims	1	1	1	1	1	1	1	0	1
Qualitative methodology appropriate	1	1	0.5	1	1	0.5	1	1	0
Research design appropriate	1	1	1	1	1	1	1	1	0
Recruitment strategy appropriate	1	0	1	1	1	1	1	1	1
Data collection addressed issue	1	1	1	1	1	1	1	1	1
Relationship with participants considered	1	0	0	0	0	1	1	1	1
Ethical issues considered	0	1	0	1	1	1	1	1	1
Data analysis rigorous	1	1	1	1	1	1	1	0	1
Clear statement of findings	1	1	1	1	1	1	1	1	1
Value of research	1	1	1	1	0.5	0.5	0.5	0.5	0.5

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