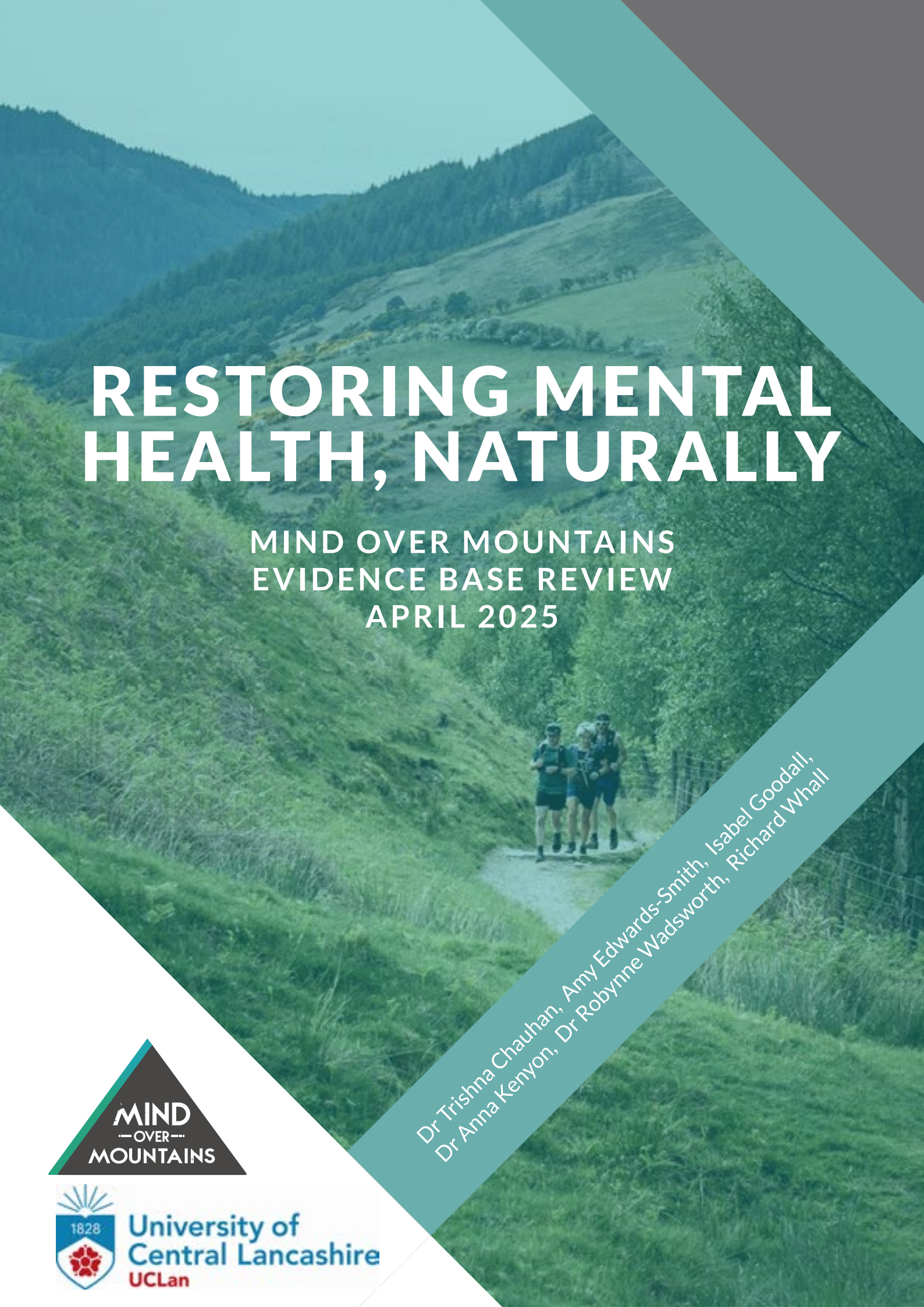

RESTORING MENTAL HEALTH, NATURALLY

MIND OVER MOUNTAINS EVIDENCE BASE REVIEW APRIL 2025

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MIND OVER MOUNTAINS

University of Central Lancashire
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CONTENTS

TABLE OF CONTENTS

EXECUTIVE SUMMARY

1. Executive Summary

Mind Over Mountains is an ambitious and innovative mental health charity that enables people to thrive through therapeutic outdoor experiences. The charity's programmes enable people to restore and sustain their mental health and wellbeing through a highly integrated practice that brings together the beneficial impact of nature, physical activity, human connection, mindfulness, and professional coaching and counselling.

This evidence base review summarises the academic evidence that underpins the Mind Over Mountains approach, and in particular the associations between the elements of that model (nature, physical activity, human connection, mindfulness, and professional coaching and counselling) and mental health recovery. It also briefly explores the potential implications of the charity's approach in tackling health inequalities. Where appropriate, this review also seeks to highlight gaps in current literature and evidence.

Findings

This review is organised according to the different elements of the Mind Over Mountains model. Each finding in the summary below is cross-referenced to the detailed articulation of supporting evidence and underlying references outlined in each section in pages 10-37.

Nature

- Widespread evidence exists for the benefits of time and physical activity in nature on positive mental health and on improvements in a wide variety of mental health challenges, including stress, anxiety, depression, schizophrenia and post-traumatic stress disorder, as well as on conditions like ADHD and autism (p.11).
- Nature-based interventions can be particularly effective in improving mood and reducing stress and anxiety when combined with psychotherapy, as it is in Mind Over Mountains' model (p.11).
- Nature contributes directly to human restoration and recovery, supported by two key theoretical frameworks: Attention Restoration Theory and Stress Reduction Theory. In bringing together nature, mindfulness, activity and coaching and counselling, Mind Over Mountains' therapeutic approach enables reductions in stress and improved calmness and attention (pp.11-12).
- The evidence suggests that Mind Over Mountains' focus on 'connecting with', rather than simply 'being in', nature can be particularly effective in supporting wellbeing and in helping people to be relaxed and to reflect (the Biophilia Hypothesis) (p.12).
- Mind Over Mountains' commitment to breaking down the barriers to nature-based activities can support access for vulnerable and disadvantaged groups to the outdoors. These programmes provide a credible pathway to reduced health inequalities, given the potential benefits to both mental and physical health (p.13).

Physical Activity

- Walking, particularly outdoors, is one of the most accessible forms of physical activity. There is an abundance of studies which demonstrate a positive relationship between physical activity, particularly walking, and mental health (p.17).
- Physical activity has been shown to have a comparable or greater impact on depression, anxiety and managing distress than psychotherapy or pharmaceutical interventions, when delivered independently of each other. Physical activity is therefore a clinically useful and low-cost intervention (p.17).
- The context of physical activity has an impact on outcomes, with meaningful, enjoyable activity more beneficial than work or domestic activity (p.17).
- Autonomy in the choice of physical activity and the provision of social support can help to promote long-term behaviour change (p.18).
- Studies point to a synergistic benefit from combining physical activity with psychotherapy, as it is in Mind Over Mountains' model (p.18).

Human Connection

- Among the key risk factors for mental health are isolation and loneliness. Mind Over Mountains' encouragement of human connection through group wellbeing walks and residential retreats can help to overcome feelings of isolation and encourage participants to recognise the value of greater connection (p.21).
- The charity's focus on creating a safe psychological space and in enabling an environment of generous listening can help to encourage peer connection and support and can help participants to feel heard and empowered (p.21).
- The power of 'shoulder to shoulder' conversations while walking, a fundamental component of Mind Over Mountains' model, is increasingly recognised by practitioners and to some extent by academics (p.21).

Mindfulness

- Mindfulness, a core component of Mind Over Mountain's therapeutic approach, has been shown to reduce stress and relieve anxiety and depression through improved emotional regulation, increased concentration and enhanced self-awareness. It can also have positive effects on PTSD and the symptoms of ASD and ADHD (p.25).
- Nature itself has been shown to promote greater mindfulness, both through the direct effects of nature on the mind and body and the ways in which nature fosters mindful practices (p.26).
- Studies also demonstrate that the integration of mindfulness with physical activity and nature connection, such as in Mind Over Mountains' model of intervention, can be particularly impactful (p.26).

Coaching and Counselling

- Coaching and counselling in the outdoors is a fundamental component of Mind Over Mountains' model (p.29).

- Coaching and counselling can be beneficial in any context in supporting mental health and wellbeing through improved self-awareness, reflection and self-management (coaching) and by exploring feelings, thoughts and behaviours (counselling) (p.29)
- Evidence is growing for the effectiveness of coaching and counselling delivered in the outdoors. This ranges from delivering traditional 'indoor' talking therapies in an outdoor setting to using nature itself as a co-therapist (p.29).
- Ecotherapy often has reconnection at its core, recognising that people can often have disconnection in their lives that is helped by becoming more connected to nature (pp.29-30).
- Effective coaching and counselling can lead Mind Over Mountains' participants to an increased sense of self-efficacy, particularly through feelings of competence (achievement), relatedness (connection) and autonomy and through effective individual goal setting and strategies for future wellbeing. (p.30)

Risks or adverse effects

- Despite the very significant value of Mind Over Mountains' model to mental health and wellbeing, no review of this type would be complete without a consideration of the potential risks or adverse effects. (p.33)
- Individuals taking part in outdoor activities are potentially subject to allergens, zoonotic disease and physical injury (p.33).
- They may also be subject to social, cultural or socioeconomic factors that discourage engagement. Such programmes may not be for everyone, or at least there may be significant barriers to access.
- Wider systemic risks, such as the impact on the environment and on wildlife, must also be considered (p.33).

Research gaps and future research

- Longitudinal studies are required to help establish the duration of the impact of interventions, particularly for nature-based therapy approaches and for the benefits of physical activity on mental health. These might helpfully include the extent of sustainable behaviour change, transfer of learning, and impetus towards voluntary, self-led participation in outdoor activity (p.37).
- Further research is also required to better understand differential outcomes across social and demographic groups, across different locations and contexts and for different forms of physical activity (p.37).
- We also need to better understand how to measure the complex and subjective experience of human change, such as an improvement in self-awareness or 'connection'. Again, this needs to involve longer-term, more nuanced measures of human thriving than are currently typically the case (p.37).
- Finally, research needs to focus on understanding the complex interaction of the components of integrated models like that delivered by Mind Over Mountains. We need to explore and understand whether the components are mutually beneficial and whether the whole is worth more than the sum of the parts (p.37).

In final conclusion, the integrated model delivered by Mind Over Mountains is supported well by the available, and growing, body of academic evidence. Each of the components of that model (nature, physical activity, human connection, mindfulness and coaching and counselling) can be seen, through the literature, to promote mental health and wellbeing in a variety of powerful ways. We look forward to continuing to work with the charity, and with other nature-based providers and practitioners, to demonstrate the effectiveness of these innovative approaches to mental health and wellbeing.

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2

NATURE

2 Nature

2.1. Time and Physical Activity in Nature

Research indicates that simply being in nature has benefits, with two hours a week in nature resulting in an improvement in self-reported mental health and wellbeing outcomes such as stress and anxiety (Roe et al., 2020; White et al., 2019), including for more vulnerable groups such as older adults (Finlay et al., 2015) and adolescents (D. Li et al., 2018). The COVID-19 pandemic has also triggered increasing awareness of the benefit of greenspace for mental health (Heo et al., 2021). Conditions associated with attention and communication difficulties, such as ADHD and autism, can also procure benefits from being outdoors (Hood & Baumann, 2024) by calming children (Barakat et al., 2019) and effectively enhancing attention and focus whilst promoting positive behaviour (Zachor et al., 2017). Given the increasing recognition and diagnosis of ADHD and autism in adults, the application of these benefits could well be replicated in adults, but requires more substantial research (Dennis et al., 2024).

Evidence suggests that the mental health benefits of physical activity outside in nature, such as through the programmes offered by Mind Over Mountains, are greater than benefits experienced by people taking part in activity indoors or in urban settings (Ma et al., 2024; Rogerson et al., 2016). Evidence has shown that walking in nature has benefits for anxiety, generalised depression and post-natal depression (Armstrong & Edwards, 2004; Choe et al., 2020; Niedermeier et al., 2017; Puhakka, 2023; Watkins-Martin et al., 2022).

Other mental health conditions have begun to see emerging evidence of the benefits of outdoor walking for improving the clinical symptomology of associated conditions. For example, a year-long outdoor walking programme for patients with schizophrenia improved their cognitive functioning (Mandini et al., 2022). Post-traumatic stress disorder symptoms were improved for veterans who had completed a nature-based therapy, which included elements of outdoor walking, reflection and meditation (Poulsen et al., 2016). A recent interventional systematic review of the evidence recommended that nature-based interventions can improve mood and reduce stress and anxiety, but to maximise treatment efficacy should be combined with psychotherapy (Ma et al., 2024). By offering the combination of nature-based activity with mental wellbeing support, Mind Over Mountains therefore enhances the health and wellbeing benefit of both nature immersion and walking in nature on their own.

2.2. Restoration and Recovery in Nature

Mind Over Mountains' approach facilitates human restoration (the calmness, recovery of attentional capacities and physiological relaxation (Berto, 2014)) and recovery (how we may 'recuperate' different components of our psycho-social-physical pathology that may be threatened by stressors or an absence of wellbeing (Corazon et al., 2019)).

The Attention Restoration Theory (ART) (Kaplan & Kaplan, 1989) proposes that being connected to nature enables people to engage in 'effortless' attention towards their environment. It is this form of effortless attention that is leveraged in natural environments. For example, nature provides stimuli (auditory sounds such flowing water, rustling leaves or visual landscapes – beaches, mountains and forests) that allow us, as humans, to attend to these effortlessly, promoting rest and recovery from mental fatigue (Kaplan, 1995). A recent randomized-controlled trial found that a nature-based intervention, consisting of multisensory experiencing, connection with places and considering the symbolic value of nature to support psychological processing and self-regulation, increased restorative experiences compared to a control group (Hyvönen et al., 2023). Similarly, other studies have shown how physical activities in outdoor settings can restore mental attention and consequently cognitive performance (Bailey & Kang, 2022; Berman et al., 2012; Berto, 2005; Bratman et al., 2015). Notably, recent research has also found similar effects for virtual reality stimulated environments (Mattila et al., 2020), but not for all age groups – where visually stimulated scenes had no effect on cognition or attention (Cassarino et al., 2019). Thus, while the evidence for virtually stimulated scenes is mixed, the presence of being in actual nature, in line with Mind Over Mountains' approach, has a stronger evidence-base to support it.

Secondly, the Stress Reduction Theory (SRT) promotes that looking at scenery with natural features (water, landscapes), generates pleasant emotions and sentiments, which can promote alertness after stress (Ulrich, 1983). These can also induce physiological benefits such as lower blood pressure, reduced cortisol levels, and slower heart rates (Hartig et al., 2003; Ulrich et al., 1991). Studies have shown nature sounds (Alvarsson et al., 2010) and visual natural (vs urban) landscapes (Suppakittpaisarn et al., 2023) can lead to stress reduction. The effect is more prominent, as evidenced by decreased cortisol levels, for physical activities i.e. walking in nature versus watching a passive scene of nature on a video (Olafsdottir et al., 2020), which again advocates for the integrated approach of Mind Over Mountains' interventions.

2.3. Connection to Nature

Mind Over Mountains' interventions go beyond immersion or even movement within nature as it extends to connection or reconnection with the natural world, particularly through mindfulness. The act of engaging with nature on walks and retreats not only taps into nature as a psychological resource but also helps individuals to rediscover a sense of balance and peace, which modern urban life often disrupts. The innate need to connect to nature which underpins Mind Over Mountains' ethos can be linked to the Biophilia hypothesis: humans feel an innate tendency to connect with nature since this attitude is rooted in our evolutionary history (Wilson, 1984). Research has shown how associations with nature invoke emotional happiness (Biedenweg et al., 2017; Capaldi et al., 2014), as it is a space where people can be relaxed and reflect (Moreton et al., 2019). Meta-analytical evidence has shown that exposure to natural environments can increase positive affect emotions and decrease negative emotions, therefore improving emotional regulation (Gaekwad et al., 2022), supporting the emotional component of the hypothesis.

2.4. Supporting Vulnerable Groups and Reducing Health Inequalities

People from vulnerable and marginalised groups are less likely to have access to nature and therefore less likely to engage with it (Public Health England, 2020; Robinson et al., 2023), even where it is a socially prescribed intervention (Gibson et al., 2021). Disadvantaged groups also have disproportionately worse health outcomes than their better-off counterparts (Public Health England, 2020). This also includes the older population, where research has highlighted a need to identify the effectiveness of social prescribing for older adults (Ghogomu et al., 2024).

By providing structured and supported pathways into nature without charging a fee, Mind Over Mountains can support vulnerable groups to access and gain benefit from nature. As such, this approach may help to reduce health inequalities by offering opportunities for improvements in mental health through nature access to disadvantaged groups, resulting in smaller discrepancies in health between disadvantaged groups (Garrett et al., 2023). In addition, evidence suggests that disadvantaged groups may benefit disproportionately from accessing nature (Mitchell & Popham, 2008), further supporting health outcomes and reducing health inequalities. Providing supported opportunities to access nature can also support the development of confidence and skills to access nature independently, thus resulting in a positive cycle of nature access and benefit for groups who may not otherwise feel empowered or inclined to do so.

2.5. Environmental Stewardship and Mental Health

Engagement with nature can support the development of environmental stewardship, or pro-environmental behaviour (Martin et al., 2020). In turn this can have a positive impact on animal health such as the importance of and methods of preserving natural habitats and conserving biodiversity (Capstick et al., 2022; Hahn, 2021; Kiss et al., 2022; Krasny & Delia, 2015). This also supports the Biophilia Hypothesis discussed earlier. In a continuum of the cycle, greater species biodiversity is generally associated with subjective health and wellbeing outcomes such as improved perceived health, lower risk of depression and mortality (Aerts et al., 2018; Marselle et al., 2021) and increased sense of life satisfaction (Biedenweg et al., 2017; Chang et al., 2020). In addition, people in natural environments tend to behave more altruistically (Guéguen & Stefan, 2016). Evidence suggests that green social prescribing can show improved health and wellbeing outcomes and a positive impact on the local environment (Kenyon et al., 2023).

"Simply being in nature has benefits, with two hours a week in nature resulting in an improvement in self-reported mental health and wellbeing outcomes such as stress and anxiety."

3

PHYSICAL ACTIVITY

3. Physical Activity

3.1. Physical Activity and Walking for Wellbeing

There is an abundance of evidence demonstrating that physical activity is not only a basic human need but an essential part of maintaining good health. A recent UK Active survey found that while mental health might be a key motivating factor for exercising, three-quarters of adults surveyed were not aware of the physical activity guidelines, with many thinking it was much less than the recommended 150 minutes per week (UK Active, 2025). But despite that, Teychenne et al., (2020) have found that some activity is better than none, with benefits even if the recommended guidelines are not reached. They also found that leisure time physical activity is most beneficial and that outcomes are enhanced if the activity is performed outdoors, as substantiated by the recent research of Teno, Silv & Judice (2024). Wicks et al., (2022) also provide substantial evidence to support the additional benefits of outdoor physical activity.

More specifically to Mind Over Mountains' model, walking is widely regarded as one of the most accessible forms of physical activity, with the potential to significantly enhance mental wellbeing and improve mental and physical health outcomes (Kelly et al., 2018; Ma et al., 2024; Mau et al., 2021). Again, walking that takes place outdoors is reported as delivering the most beneficial effects (Bailey et al., 2018; Boere et al., 2023),

3.2. Clinical impact of physical activity

Some studies suggest physical activity has a comparable or greater impact on depression, anxiety and managing distress than psychotherapy or pharmaceutical interventions (Singh et al., 2023) and that physical activity is therefore a clinically useful and low-cost intervention that can be demonstrated by the correlation between physical activity levels and measurement of mental health quotient (Heung & Brown, 2024). Research demonstrates an overall positive effect of physical activity to treat some mental illness (depression, anxiety, PTSD, schizophrenia) with slightly more favourable benefits from aerobic activity such as walking (Czosnek et al., 2019). Hartig et al., (2014) also found the physical health benefits of participating in walking activities are complementary to mental health improvements, with improvements in mental health reducing the burden of physical ill health and leading people to develop a sense of control and self-management and reduce symptoms. One of the primary mechanisms behind these benefits is the reduction of physiological stress markers, which are linked to several physical health conditions.

Rahmati et al., (2024) demonstrated physical activity to be an effective preventative measure against depression and stress-related mental health issues, though the context matters, with meaningful, enjoyable activity more beneficial than work or domestic related activity. Physical activity can also help to reduce the burden of ill health felt by people experiencing chronic conditions such as diabetes, dementia, CVD and hypertension (Ma et al., 2024; Robinson et al., 2023; Roviello et al., 2022).There are also positive associations between exposure to nature and immunoregulation.

3.3. Integrating Physical Activity

The Mind Over Mountains model facilitates connection with others and promotes autonomy and personal choice about what they take forward from the experience through professional coaching and counselling. Vella et al., (2023) found that since most types of physical activity appear beneficial, it is highly recommended to allow individuals autonomy to select what suits them and to provide appropriate support to help facilitate behaviour change, including social support, which Mind Over Mountains provides. There are also many studies that suggest a synergistic benefit from combining psychotherapy with physical activity (e.g. Remskar et al., 2024; Singh et al., 2023).

4

HUMAN CONNECTION

4. Human Connection

Among the key risk factors for mental health are isolation and loneliness, which often perpetuates in a vicious cycle. Mind Over Mountains' model can help to reduce isolation and loneliness through embedding connection with others on group walks and retreats, and in encouraging participants towards connection with others as a means to supporting their wellbeing. Mind Over Mountains' approach aligns with the principles of ecotherapy (Williams et al., 2020) and nature-based mental health interventions (Bloomfield, 2017), which are increasingly recognised for their positive impacts on mental wellbeing (Ma et al., 2024). They do this in a number of ways:

4.1. Peer Support

Peer support outdoor walking groups can be advantageous in reducing loneliness through human connection, meeting new people and sharing experiences (Mawani & Ibrahim, 2021). Walking coaches, such as those who staff Mind Over Mountains' programmes may also reap the benefits of peer support, as research has found their role can restore a sense of self through integration with others, leveraged by doing this in nature (Ivaldi, 2024).

4.2. Shoulder to Shoulder Connection

'Shoulder to Shoulder Walk and Talk' has recently been tested as a pilot for women and has been found to lead to empowerment, allowing individuals to make informed decisions about their health, encouraging change and having supportive conversations (Hanson & Hardeman, 2024).

4.3. Peer Connection and Reduced Isolation

Mind Over Mountains' wellbeing walks and residential retreats involve the creation of psychologically safe, non-pressured environments and activities. This enhances social bonds, creating opportunities for individuals to connect with each other and with nature (Christie, 2017). Similarly, a recent review reported how nature-based social prescribing can reduce isolation by increasing social connectedness and belonging, particularly for vulnerable populations (Leavell et al., 2019).

4.4. Feeling Heard and Empowered

Mind Over Mountains fosters empowerment not only by providing nature-based walks but also by integrating life coaching and mindfulness practices during their retreats. Psychological safety and generous listening are implicit in their approach. These elements, combined with the healing power of nature, help participants gain new perspectives on their personal struggles, find resilience, and become more proactive in managing their mental health (Bratman et al., 2015).


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5

MINDFULNESS

5. Mindfulness

5.1. Mindfulness and Mental Health

Mindfulness, a fundamental component of Mind Over Mountain's therapeutic approach, is a technique that encourages people to become more aware of the present moment by paying attention to sensations, emotions, and experiences as they unfold. The awareness of these experiences involves no judgement, so that people can accept what is happening without changing or controlling it, even if it is particularly uncomfortable for them. Mindfulness is closely linked with improvements in mental health through stress reduction and management of anxiety and depression through emotion regulation strategies, increased concentration, and enhanced self-awareness (Vago & David, 2012).

Within the clinical field, mindfulness is integrated within multiple therapeutic approaches, such as mindfulness-based cognitive therapy (MBCT) (Sipe & Eisendrath, 2012) and mindfulness-based stress reduction (MBSR) (de Vibe et al., 2012), to help people with more severe mental health diagnoses such as major depressive disorder (Chi et al., 2018; Li & Bressington, 2019; van der Velden et al., 2015) and generalised anxiety disorder (Ghahari et al., 2020; Vøllestad et al., 2011).

NHS England's webpage on Mindfulness (NHS England, 2022) suggests that mindfulness can allow people to become more aware of their thoughts and feelings. Having this awareness allows people to see how people can become tangled in negative thoughts, observe patterns and help people to understand when these thoughts take over and to learn ways to control this. Awareness of our thoughts can help us to identify signs of stress or anxiety early and therefore make it easier to deal with them more effectively.

Zhang et al., (2021) suggest that mindfulness-based practises are effective in reducing common mental health problems such as stress, anxiety, depression and PTSD. Furthermore, mindfulness activities can further contribute to a more positive mental health through improving sleep quality (Chen et al., 2020), reducing substance and behavioural addictions (Sancho et al., 2018), helping to reduce negative affect surrounding eating disorders (Sala et al., 2020) and also helping to decrease the severity of ADHD (Xue, Zhang, & Huang, 2019) and Autism (Kiep, Spek, & Hoeben, 2015) symptoms. In addition, mindfulness can have a positive effect on physical health by helping to manage chronic pain, reducing blood pressure and improving lung function, with consequent benefits for mental health too. Galante et al., (2021), through a meta-analysis of 136 studies, provide substantial evidence to demonstrate that mindfulness-based programmes help to improve wellbeing, anxiety, depression and distress.

5.2. Mindfulness, Physical Activity and Nature

Nature has been shown to promote happiness, wellbeing, and mindfulness through various mechanisms that support emotional regulation, mental clarity, and overall life satisfaction (Capaldi et al., 2014; Kasap et al., 2021). These benefits stem from both the direct effects of nature on the mind and body (Beilock, 2015), and the ways in which nature fosters mindful practices (Djernis et al., 2019), such as paying attention to the present moment. Studies have found that individuals who spend time in nature or 'greenness' report higher levels of positive emotions and overall life satisfaction compared to those who do not engage in nature (Capaldi et al., 2015; Patino et al., 2023).

Individual and group mindfulness opportunities, such as those within the Mind Over Mountains model, have the potential to support individuals' subjective wellbeing. The importance of wellbeing mindfulness, involves paying attention to the present moment without judgment, and is greatly enhanced by time spent in nature (Menardo et al., 2022). Djernis et al., (2023) found that a nature-based mindfulness retreat was effective in improving self-regulation. People experienced a physical and psychological balance, improved mindful attitudes, improved connection to themselves, others and nature. Experiences of positive emotions, calmness, energy, a sense of nature and feeling a part of the 'web of life' increased throughout the retreat and improved experience of stress, general mental health and happiness. The sensory richness of natural environments encourages individuals to focus on their surroundings, quieting internal distractions and helping them engage in mindful awareness (Menardo et al., 2022).

Mind Over Mountains seeks to enable people to sustain their mental health and wellbeing by integrating nature, mindfulness, and counselling. Current research demonstrates the benefit that mindfulness can have for mental health but suggests that they benefit is enhanced when combined with physical exercise and nature connection. Remskar et al., (2023) found that when interventions combine physical activity and mindfulness, they are more effective in improving mental health and wellbeing than those approaches alone. Depression, anxiety, stress and PTSD were significantly reduced across the length of interventions and general quality of life improved across the interventions.

6

COACHING & COUNSELLING

6. Coaching and Counselling

6.1. Coaching and Counselling for Mental Health

The British Association for Counselling and Psychotherapy (BACP) describes 'coaching' as helping someone to recognise and draw on the strengths and resources that they already have, in order to facilitate self-awareness, reflection and self-management. 'Counselling', on the other hand, can be a conversation that allows someone to explore their feelings, thoughts and behaviours to give them a better understanding of themselves and others.

The benefits of counselling will vary depending on individual conversations but range from improved communication and interpersonal skills, increased confidence, stress management, reduction in self-defeating habits, decision-making skills or greater sense of self and purpose. Randomised-controlled trials have consistently indicated that counselling can be beneficial in the short-term improvement of mild to moderate mental health problems (Linde et al., 2015). A meta-analysis by Winter et al., (2009) demonstrated the positive effect of talking therapies in suicide prevention.

6.2. Coaching and Counselling in Nature

There is further evidence to support the benefits of delivering counselling or coaching sessions in the outdoors. The field of 'Ecotherapy' or 'Ecopsychology' is vast, ranging from delivering traditional 'indoor' talking therapies like counselling in an outdoor setting, right through to using nature itself as a co-therapist (Bergen, 2006) with an equally vast scope of evidence. Ecotherapy often has reconnection at its core, recognising that people can often have disconnection in their lives that is helped by becoming more connected to nature, with the skills of the counsellor guiding and supporting that experience in the present moment and moving it forward into different parts of someone's life (Jordan, 2015).

The wellbeing leads on Mind over Mountains events and retreats are trained coaches or counsellors equipped with the skill to provide a psychological safe space to slow down and undertake these important conversations without judgement or opinion or claiming to have the answers, and also an ability to integrate the individual's experience to a connection with nature. The outdoors provides that additional sacred, non-threatening and calm space to explore different parts of the self away from the normal day-to-day activities. There is no power differential in walking alongside someone, no difficult eye contact. The silences aren't awkward, they can be mindfully punctuated by birdsong, a gust of wind or taking in beautiful scenery, allowing a truly dynamic counselling conversation to unfold with options of metaphor and symbolism allowing nature to become part of that individual's journey. The aim is not only to support individuals with their mental health and reduce stress, but for individuals to have the psychological wellbeing to thrive in the life they want to lead. Mind Over Mountains aims to empower people to be able to sustain their subjective feeling of wellbeing, life satisfaction, happiness, positive affect and flourishing in one of the most accessible and low-cost environments – our beautiful outdoors.

6.3. Self-Efficacy

Self-efficacy is an important part of motivation and commitment for individuals wishing to embark on change or personal growth. Mind Over Mountains can support individuals' self-efficacy in their various approaches to supporting mental health and wellbeing. Embedded in Mind Over Mountains' approach is the idea that nature can (re)connect individuals with three basic psychological needs: autonomy, competence, and relatedness which are underpinned by the Self Determination Theory (SDT) (Deci & Ryan, 1985). Importantly, human motivation is a core aspect of this, and through Mind Over Mountains' approach of goal setting, developing strategies for the future and creating a sense of achievement, they can support individuals to support their psychological needs to impact their overall wellbeing.

6.3.1. Autonomy

Mind Over Mountains' nature walks and retreats, foster autonomy by allowing participants to set their own pace, make personal choices, and reflect on their mental health in a non-judgmental environment. This promotes self-discovery and intrinsic motivation, helping participants achieve a sense of autonomy, which in turn supports their mental wellbeing and personal growth. Research has shown that self-discovery, through nature-based therapies is required through a safe physical, psychological, and social setting, where individuals have some control over how they choose to interact with the setting (Naor & Mayseless, 2021).

6.3.2. Competence

Mind Over Mountains' activities, and adventures, are physically oriented to promote confidence, achievement and a sense of belief to overcome obstacles. Research has shown that ecotherapy can instil competence in individuals that also gives them transferable knowledge and skills, and an overall sense of achievement (Wilson et al., 2010).

6.3.3. Relatedness

Mind Over Mountains' focus on peer connectedness, peer support and coaching enables individuals to feel that they are not alone. The charity's approach also supports nature-relatedness as a basic psychological need. Research has also shown connecting with nature benefits humans across their lifespan, although factors such as perception of safety and fear may impact the extent to which nature relatedness is considered a basic psychological need (Hurly & Walker, 2019).

7

RISKS OR ADVERSE EFFECTS

7. Risks or Adverse Effects

Despite the very significant value of Mind Over Mountains' model in improving mental health and wellbeing, any intervention has the potential to carry unwanted effects, and we can recognise that some aspects can have negative consequences:

7.1. Individual Risks

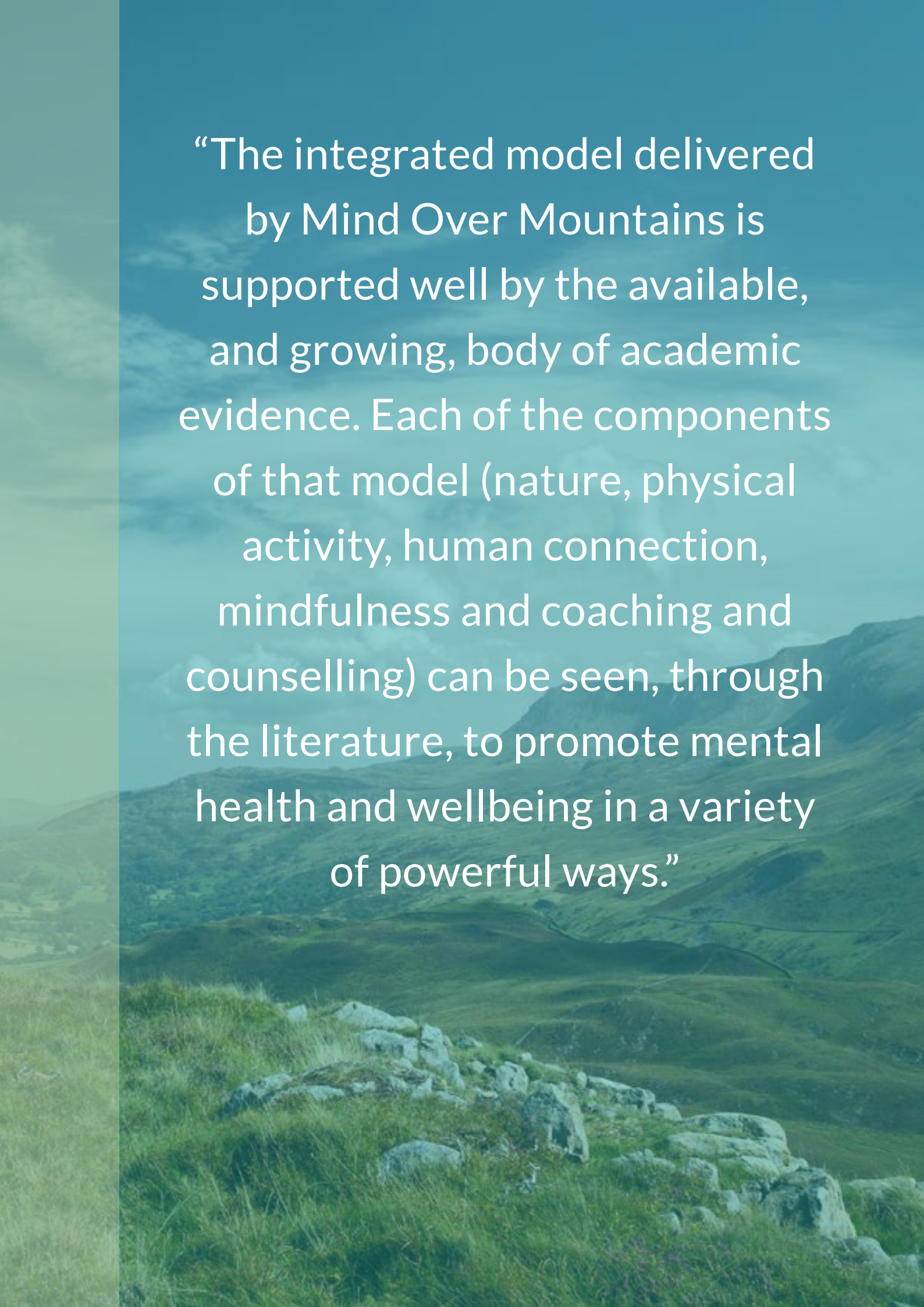
As described across this review, being out in nature holds significant psychological and physical health benefits. However, zoonotic diseases remain an ongoing threat resulting in risk to humans in relation to disease and allergies (Aerts et al., 2018; Marselle et al., 2021). In addition, there is the risk of any physical injury from walking in a natural outdoor environment. People may feel guilty or judged for taking time away from work or other responsibilities to participate in nature walks or retreats, as these activities are often seen as leisure rather than necessary for wellbeing (Ives et al., 2017).

Cultural attitudes may also play a role. In some communities, there might be a lack of appreciation for nature, or outdoor activities might be viewed as unnecessary or inaccessible (Keniger et al., 2013). Peer influence can either support or discourage engagement. Peers may increase the likelihood of visiting, but result in more negative outcomes, as Tester-Jones et al., (2020) found that some reported feeling less happiness and more anxiety during their time in nature.

Socioeconomic factors can exacerbate these pressures, as some nature-based programs may be seen as exclusive or requiring resources (time, money, transportation) that not everyone can easily access (Hartig et al., 2014). While support for the Biophilia hypothesis is outlined, critiques have suggested it may not be innate or universal due to cultural factors and advancing modern life (Gullone, 2000). Individually there also remains the unknown factor of the impact that conversations have on the individual's actions in both the short- and long-term following a coaching or counselling conversation.

7.2. Systemic Risks

Any human presence in natural environments needs to consider its effect on the environment and the potential to deter wildlife. For instance, in regions commonly inhabited by animals, such as forested areas or mountain trails, human activities like hiking or cycling have been linked to a decrease in wildlife populations (Kays et al., 2017; Taylor & Knight, 2003). However, these impacts vary and are often influenced by individual factors, including personal and cultural attitudes. If people hold negative perceptions about encountering animals, they may not experience the potential benefits of such interactions (Aerts et al., 2018) and may even avoid areas with wildlife out of fear. The relationship between humans and animals is complex; simply increasing wildlife populations does not automatically lead to enhanced human health and wellbeing (Cox & Gaston, 2018).



“The integrated model delivered by Mind Over Mountains is supported well by the available, and growing, body of academic evidence. Each of the components of that model (nature, physical activity, human connection, mindfulness and coaching and counselling) can be seen, through the literature, to promote mental health and wellbeing in a variety of powerful ways.”

8

FUTURE RESEARCH

8. Research Gaps and Future Research

In the field of ecotherapy, the evidence base on the association between contact with nature and wellbeing is well established and continues to grow. Future research should adopt longitudinal experimental study designs to better understand and quantify the associations between nature and wellbeing. Longer follow-up times are required to help establish the duration of the impact of interventions and more research is needed to determine the mental health outcomes for different social, demographic groups and across different locations (Kenyon, 2024).

Similarly, while research is overwhelmingly positive about the benefits of physical activity on mental health, there are a number of limitations and gaps in the literature. Measures of both physical activity and mental health are often reliant on participants' self-reporting and tend to focus on short-term studies. The nature (Matias & Piggin, 2022) and context (Vella et al., 2023) of physical activity have a significant influence on impact and requires further study, which relates strongly to the challenges of facilitating long-term behaviour change (Rebar and Taylor, 2017) and collaboration between the healthcare and physical activity sectors (McCurdy et al., 2020). These might helpfully include the extent of sustainable behaviour change, transfer of learning, and impetus towards voluntary, self-led participation in outdoor activity, all of which would lead to strong preventative outcomes.

One of the biggest challenges in this field of research is how to measure the unmeasurable, how to demonstrate tangibly a subjective experience of change, an improvement in self-awareness or 'connection'. Quantitative and even many qualitative outcome measures can only give a very brief snapshot of a situation without an appreciation of the cumulative 'micro-changes' that can ripple from a single counselling or coaching conversation, particularly those changes that may occur months or even years down the line. There is also limited understanding of the side effects of counselling. It is widely understood that the strength of the therapeutic relationship is the best predictor of a positive outcome, but perhaps we also need to explore the consequences of a rupture in a therapeutic relationship or of failing to make a connection with self, others or nature on an outdoor wellbeing walk in nature.

Furthermore, research needs to focus on complex interventions like Mind Over Mountains' that integrate nature, physical activity, connection, mindfulness, and coaching or counselling. While we know that combinations such as psychotherapy and physical activity have benefits, gaps remain in our understanding of how they work synergistically. Future research should consider a complex systems approach to account for individual interventions that are embedded within community, organisational and policy-level systems (Machaczek et al., 2022). There is plenty of evidence to suggest that each component can make a very meaningful contribution to improved mental health and wellbeing, but we have yet to understand fully how the components of this sort of model interact and the extent to which the integrated whole is worth more than the sum of the parts. Anecdotally, there are reasons to believe it is – but that remains an important avenue for further research.

9

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