

Healing through Nature: Exploring the Psychological and Neurological Effects of Nature Environments on Human Wellbeing

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ABSTRACT

Our relationship with nature, its existence and its impact on both our minds and bodies may be far deeper and significant than we might think and could be far more essential than our assumptions suggest. This review explores how nature influences physical and emotional well-being spending time with natural environments can reduce stress, elevate mood, and even alter how the brain functions, according to several recent studies. In this research we aim to understand why these effects occur, we will examine the Stress Recovery Theory, the Attention Restoration Theory, and the Greenery Hypothesis, where each one of them provides a unique perspective. Despite the fact that numerous studies clearly show the advantages of connection with nature and its benefits, the majority of studies are either self-reporting or short-term. Further research is required to fully understand these effects. In conclusion, restoring our connection with nature is more than just beneficial; it could be something we actually require on both biological and emotional level.

1. INTRODUCTION

Nature is a living, breathing system where every element interacts with another, disruption in one element affects the air we breathe and the water we drink, it is not just a silent background to humans and their existence, for example: melting ice in the Arctic can change wind patterns over African deserts, as if the universe whispers a silent lesson: ecological balance is not a luxury, it is the pulse of the life [1].

The significant role of the environment in our lives has been the focus of various scientific domains as years advance as well as the growing awareness of sustainability increases encourages the need to research the relationship between humans and nature as many recent experiments' results show that connection to nature can lead to serious positive changes in brain response and mental health in general. To dive in

furthermore for instance, Studies show that twenty-minute walk in nature can lower cortisol levels by 53%, calming the mind, and quiet overwhelming thoughts [2]. More than that, exposure to nature enhances cognitive function [3], emotional regulation [4], brain activity, reduced blood pressure, physical activity, and lower levels of cardiovascular disease. [5] Not only that, but also nature connection can act as a buffer against the effects of mental health disorders [6]. Acknowledging this information observation nature like when we look at a plant or a tree, we are not just seeing branches and leaves but something deeper In a study done by Ulrich he found patients who had a view of landscape from their hospital window recovered from surgery faster and required less pain medication than those who had a blank wall in front of them [7] Some studies even suggest that it is not only the sight of nature that can affects us but more, the smell of plants is not less important some experiments found that it may help our bodies heal faster study reported that smells of certain plants such as peppermint were effective in reducing muscle pain, as well as tiredness, they had a muscle relaxation effect [8].

Moreover, study by Jia Wei Zhang and his peer researchers found that deep connection to nature can enhance the potential health benefits from environments [9]. In other meaning, the more the connection is experienced on a deeper level through full engagement by emotional presence the better emotional regulation and lower levels of perceived stress [4]. Like simply paying attention to our surroundings while spending time in nature can leave us feeling more restored afterward. This kind of mindful awareness seems to deepen experience, leading to greater engagement with the natural world.

This leads us to ask: What happens when we become fully present with the natural surroundings? Feeling the forest breeze when our ears catch the birdsong or touch tree leaves? reprogram our exhausted minds, reconnecting, and restoring the sense of natural balance that modern life has disrupted. As environmentalist Rachel Carson wrote, “Love of nature springs from a sense of wonder!” wonder about witnessing its beauty, grandeur, and mystery, leaving us humbled before it’s.

In our modern life, humans seem disconnected from the natural world that shaped their evolution and mental health disorders have become more and more common than ever, life become fueled by noise and stress. As a result, we found ourselves in an Era that looks nothing like the centuries before. Anxiety has become the defining element of our time, and approximately 275 million people worldwide suffer from anxiety disorders. This accounts for 4% of the global population, with rates ranging from 2.5% to 6.5% depending on the country. While depression haunts minds, creeps into thoughts, and weighs down on spirits, nature still offers a primordial antidote.

Many experiment done over the last 10 years using different methods to observe the impact of nature on humans’ well-being, as most results show real positive effects of spending time in nature on human well begin psychological and physiological response, however most of the studies focused on short term outcomes and a limited number tried to explore the genuine cause of these benefits or give more deeper understanding to the environments connection and its impact and influence on mental health and the underlying reasons behind the positive reaction in our bodies and minds [6].

In This review we try to explore the relationship between nature and human well-being by examining several studies, systematic reviews, and meta-analyses that explore the connection with nature and its beneficial effects on mental health and the body. To know more on How can reconnection with nature serve as an antidote to modern anxiety? What theories have explored this connection? By addressing these questions, we aimed to provide a deeper understanding of the benefits of the relationship between humans and the environment to give bigger picture on how nature can have a huge positive impact on emotions and psychological health.

1.1. How Our Brain Reacts to Natural Exposure

How many times have you gone for a walk among trees or sat in a garden, listening to the birds, and feeling a breeze on the skin? only to suddenly feel a deep feeling of relief, Why do we experience such peace and Calmness the moment we connect with nature, as human? Is there a biological explanation for this near-immediate effect? [9]

These simple questions have led many scientists and researchers to explore the neurological changes that occur when humans come into contact with nature. In this section, several experimental studies specifically explore the response of the brain to nature under various conditions are reviewed.

When people visit natural settings, they usually seek rest and escape the noise of the city. Among the general public, it is commonly believed that nature helps to lower stress levels. Several researches findings support that places with no nature or greenery are more prone to inducing anxiety and negative effects to the human brain in comparison to natural places [10] However, the real question is: Does the brain respond in a way that reduces stress as a result of natural exposure? To answer this question, we must first understand what stress is actually.

Stress occurs in two forms: acute and chronic. Acute stress is short-lived and is caused by sudden events such as stepping away from a car or pulling one's hand back from something hot. This type of stress is generated from neural signals in the brain's cognitive centers, starting with the amygdala (a brain region responsive to processing fear), which becomes hyperactive during stressful moments. The amygdala sends signals to other brain regions such as the hypothalamus, which regulates the hormonal stress response. This chain reaction involves the release of CRH, a hormone that stimulates the pituitary gland to release ACTH, which activates the adrenal glands to produce cortisol. Cortisol helps the body react to stress by raising blood sugar, boosting energy, and sharpening focus, which explains the body's quick reaction to unexpected threats [11].

On the other hand, chronic stress results from prolonged exposure to acute states. It can be linked to mental health disorders, such as anxiety and depression, especially when tied to unhealthy environments, noise pollution, academic or work pressure, and lack of natural surroundings [1].

Several studies provide insight into how nature sitting can changes brain activates, As it mentioned earlier the amygdala is closely associated with fear for example a study investigated the effects of a 60-minute walk in natural versus urban settings The results, based on MRI scans, showed that participants who walked for 60 min in a natural environment showed significantly reduced in amygdala activity whereas it remained the same after walking in an urban environment [12].

Another study from Stanford University used fMRI to analyze brain activity before and after a 90-minute nature walk versus an urban walk. Participants who walked in natural environments showed greater activation in the prefrontal cortex, which is associated with memory, emotional regulation, and cognitive flexibility, whereas there was no change after urban walking [13].

However, the influence of nature does not stop at reducing stress, and recent evidence has shown that exposure to natural settings can impact the perception of physical discomfort. Pain is a complex experience that involves multiple brain regions. When the body encounters pain, such as shock or burns, the thalamus sends signals to the secondary somatosensory cortex, which helps determine the intensity and location of pain. It then reaches the posterior insular cortex (pINc), which gives us internal awareness of pain, and finally, the ACC of the anterior cingulate cortex, which adds negative emotion to the experience. Moreover, experiment conducted by Maximilian O. Steininger explored how natural exposure affects physical pain perception [14].

In this experiment, researchers hypothesized that viewing natural scenes could reduce pain perception (hypoalgesia) by directly altering the activity in these brain regions. They compared three groups of scenes: natural scenes, urban scenes, and indoor settings. Using fMRI, they measured brain activity and pain response while the participants viewed each type of visual stimulus. The results showed that participants viewing nature scenes perceived less pain, with significant reductions in activity in the S2 and the pINS [14]. Nature exposure may activate communication between the ACC and pain processing regions, essentially lowering the volume of pain signals. This leads to a lower emotional response and an increased ability to tolerate pain although these findings prove the impact of nature on pain response in brain regions but it focus only on charp pain and does not extend further to ongoing pain, however, the study strongly supports the idea that contact with nature can modify brain signaling.

Furthermore, Nature can support the body in more ways than we think. A study by Crandall et al.

examined how hot weather and other environmental conditions affect the body's reaction to blood loss. They used a method called LBNP to test this (simulated blood loss). The results showed that people in hot conditions had a harder time dealing with blood loss. Their bodies have lower blood volume and less blood going to the brain, which can lead to serious problems such as cardiovascular disease [15].

However, when the skin is cooled (such as in a cold or natural place), the body can handle blood loss better. In fact, cooling helps people stay stable for longer periods. This shows that being in a cool, natural space might help the body stay calm and strong, even in harsh situations, suggesting that natural temperature responses, such as being in a cool or hot environment, may have direct effects on survival mechanisms under extreme physiological conditions.

These findings indicate that exposure to natural environments alter brain activity in regions responsible for stress and fear, including the amygdala and prefrontal cortex. These changes may explain the often-reported feeling of calm and reduced anxiety during or after contact with nature. It is possible that nature plays a larger role in how our brain works than we usually realize.

This pushes us further to understand more how the brain responds to nature, research shows that natural colors such as green and yellow-red in living or working spaces can influence our mental state. For example, a experiment done by Hye Sook Jang, Jongyun Kim their study goal was to examine brainwave activity in response to flower colors they found that the colors of plant has huge impact on brain waves where green increased alpha waves, which are associated with creativity and focus, and yellow stimulated theta waves, linked to positive emotions and happiness [16] despite the interesting result of this study specially in term of the effect of colors in nature and the increases of alaph waves, certian limitation must be acknowledged, the experiment conducted inside controlled indoor sittings which might be limiting the other environment factors, such as sound, smell, etc. also the small sample size of the experiment where it included 30 participation's under the age of 30 s this specific group of age may respond differently compared to other ages, and as a result of these limitation the findings need further future studies to demonstrate the causal effects of natural environments colors on the brain on long term experiments with various sample space size.

However, a fundamental question remains: How do these neurological changes translate into measurable improvements in mental health, mood, and cognitive performance?

1.2. Psychological Effects of Nature Exposure

While neurological responses offer insight into how the brain processes natural exposure, many studies have shown that being in nature has measurable effects on mental health indicators. such as mood enhancement, cognitive functioning, emotions distress. These effects are not just theoretically interesting, it becomes deeply relevant when you consider that nearly 1 billion people around the world suffer from a mental health disorder with anxiety and depression being the most common [5].

Several studies have shown that spending time in nature can reduce stress and anxiety significantly. systematic review conducted in 2019 suggested that viewing natural elements or indoor plants can provide sensible physiological benefits such as relaxation and stress recovery [1] also another systematic review examined eight studies with focus on Asian countries about the psychological effects of natural exposure therapies. These findings suggest that being in nature, such as walking in a forest, can help reduce stress levels, anxiety, and depression. However, the review also noted that these positive effects were mostly observed in healthy individuals. most of the experiments had limitations, such as tests on people who do not suffer from mental health disorders [17].

Also study conducted by Gregory N. Bratman and his peers examined whether interacting with nature improves mood and cognitive functioning, Participants completed a group of cognitive and emotional tests before and after taking a 50 minutes walk in natural or urban setting There hypothesis was that walking in nature would lead to greater improvements in mood and cognitive performance compared to walking in a urban setting, Results showed that individuals who took the one hour walk in a forest had significantly higher positive affect and lower negative affect compared to those who walked the same amount of time in

the city [13]. As for cognitive functioning, participants who walked in nature performed significantly better on the operation span task (a test of complex working memory) compared to those who walked in urban settings [13] senses in intentional connection with the natural; participants spent a day walking through the forest, focusing on the senses, sounds, and smells of nature [18].

They completed the Profile of Mood States (POMS) questionnaire, which measures emotional states such as depression and anxiety before and after walking. Interestingly, while none of the participants had depression, their mood improved significantly after the forest experience, showing reduced feelings of depression and stress [18] though the study did not include any participants with mental health issue thus the outcomes may not apply to serious emotional disorder. Moreover, in a survey of over 600 U.S. adults, Repke et al. explored whether access to nature nearby is linked to better mental health through lower impulsivity. Participants who reported more exposure to natural spaces showed lower levels of stress, anxiety, and depression and were also less impulsive in their decision-making, suggesting that nature may help people slow down and think more clearly [11]. Nevertheless, the study relied on self-reported data and did not include objective or behavioral health measures.

All these studies presented links between natural exposure and mental health well begin. In fact, some researchers suggest that even brief contact with natural elements can lead to noticeable psychological benefits for example study by Owens and Bunce 2022 tested a short nature meditation on young people mental wellbeing over two weeks period for 20 minutes. The results showed a reduction in depressive rumination and an improvement in well-being [19].

A study in Denmark analyzed data from over 900,000 people and found that children who grew up near green spaces had a significantly lower risk of developing mental health disorders in their lives. The more nature they had around their home, the lower the risk that the association remained strong after adding other factors such as money or family mental health history. However, the study had some limitations despite it's large sample size and valuable insights, as it only looked at people in Denmark. Second, the study used satellite images to measure green space, but it did not account for the actual time spent in nature [20].

Similarly, a study conducted across multiple European cities surveyed more than 3500 adults and found that those who had greater exposure to nature during childhood reported better mental health in adulthood than those with less contact with natural environments [21].

These findings strengthen the possibility that nature has long-term psychological and physiological effects that begin in early life. While the results are meaningful, the study relied on participants' memories and self-reports rather than direct observation or experimental data, which may limit the strength of their conclusions. Further research is needed to examine how nature contact during childhood influences long-term mental health to confirm and expand these findings.

Moreover, nature connection not only impacts mental health, as shown in the studies mentioned earlier, but may also support physical well-being by helping the body fight diseases. In a controlled study, Li et al. examined the effects of the forest environment on immune function. Twelve healthy male participants took part in separate 3 day trips from one group to a forest and another to a city, and blood and urine samples were collected. Forest exposure significantly enhanced NK cell activity and the expression of anti-cancer proteins, whereas city exposure showed no such effects [22]. Despite the small size and the short duration, the result gives sight into the benefits of brief exposure to pure nature and what can lead also These result could be further explained by the systematic review done by Twohig-Bennett and Jones, in which they discussed the support that nature provides to the immune system through the exposure to microbes that live in nature whether in the soil or the air in natural form [23].

These psychological benefits were not limited to direct contact. Several studies have shown that just watching videos or images of nature can lead to similar emotional effects. For instance, a controlled experiment exposed 76 adolescents to a six-minute video of either a virtual nature or a crowded urban scene. Participants who viewed the natural scene reported reduced stress, improved mood, enhanced attention [19]. While the results support the benefits of virtual nature exposure, the limitations include the lack of bio marks measures. These positive findings with previous research where virtual nature interventions often provide benefits smilier to real-world nature, but not always, yet they can be helpful to those who lack natural

access, and while the connection to nature shows several benefits, it is important to understand the underlying mechanisms driving these effects.

2. THEORETICAL FRAMEWORKS

After reviewing the wide range of psychological and physiological effects associated with natural exposure, an important question arises: What are the mechanisms behind these benefits? Researchers have proposed several frameworks that try to explain the mechanisms behind the brain response to connection with nature environments not just through biology, but also through psychological theories that try to explain this unique connection.

As shown in [Table 1](#), Ulrich's Stress Reduction Theory (SRT) explains how natural environments can help people recover from psychological and physiological stress. This theory suggests that emotional responses to the environment are often automatic and unconscious because they are inherent in our survival instincts. Landscapes with water, soft shapes, and little complexity sometimes make us feel safe and relaxed without even realizing it [24]. More recent study conducted in 2017 found that certain natural environments, especially wild and coastal areas, were more strongly linked to feelings of restoration and connection with nature [25]. SRT may help explain the strong effects of these types of environments.

Table 1. Comparison of theoretical frameworks: Attention Restoration Theory (ART) vs. Stress Reduction Theory (SRT).

Aspect	Attention Restoration Theory (ART)	Stress Reduction Theory (SRT)
Focus	Cognitive restoration through effortless attention	Physiological and emotional stress recovery
Mechanism	Directed attention replenishment	Activation of parasympathetic nervous system
Environment	Fascinating, engaging natural scenes	Calming, safe, and low-arousal settings
Outcomes	Improved concentration, memory, mental clarity	Reduced anxiety, lower heart rate and cortisol levels

Key Proponents Kaplan & Kaplan (1989), & Ulrich et al. (1991).

In fact, early experimental work by Ulrich in 1984, he examined this theory by asking participants to give a picture of natural scenes and reported increased positive emotions along with reduced fear and stress, versus viewing urban environments that were linked to higher sadness and a slight increase in aggression [26].

Some of the findings discussed earlier might make more sense when viewed through the stress reduction Theory SRT.

The idea that our minds may respond to nature automatically offers a powerful explanation on why Ulrich's experiment on hospital rooms view [7] and Owens and Bunce's [19] showed positive emotional benefits. While these results were presented earlier in different contexts, looking back at them now suggests that they may not have just occurred as random outcomes by chance, but rather signs of something deeper.

Overall, the SRT says that our response to nature may not be randomly shaped by deep instincts. This is why some environments feel more calming than others because over time, our brains have used to see them as safe places and resources to survive.

Attention Restoration Theory ART developed by Kaplan and Kaplan in the 1980s [18] explains how natural environments help the mind recover from mental tiredness. This is not about emotional stress, but something more like a mental fatigue that almost everyone experiences in daily life. Whatever comes from

constant focus, decision making, pressure, and to be alert most of the time.

ART proposes that nature gives our brains a break not by turning it off but by offering a different kind of attention. One that feels effortless. For example, watching sunlight shines through leaves or hearing the steady flow of a stream. These small moments and details capture our attention in ways that feel effortless and soothing, which can provide the brain space to rest without going completely idle.

To better understand, Kaplan described four key features that must be contained in the landscape to create called an environment “restorative”. First, being away means mentally escaping the routines or pressures of daily life. Second, fascination refers to aspects of the environment that grab attention without any effort.

Several of the results discussed earlier may reflect this theory. For example, a meditation study by Owens and Bunce found that meditation in nature helped reduce depressive rumination and improve well-being among young participants [27]. While their findings do not test ART directly, it is possible that meditation was effective because it took place in a natural environment that provided a sense of being away, fascination, and extent. These soft natural stimuli may have allowed the participants to reset their attentional systems.

Similarly, the forest bathing review by Antonelli et al. highlighted consistent reductions in cortisol levels after participants walked or relaxed in natural environments [28]. Although this has often been linked to SRT, it is also reasonable to link it with ART.

Moreover, In Bratman’s nature walk experiment, participants who walked in natural environments not only showed improved mood but also performed better on tasks that required working memory, such as OST (the operation span task). These cognitive gains make sense through ART; when attention is restored, thinking becomes clearer and more efficient [13].

An amygdala study by Sudimac et al., which showed reduced amygdala activity after a natural walk, might include ART as part of the explanation for why participants also reported greater “perceived restrictiveness” after walking, which is a key marker of ART’s effects [12].

Additionally, most natural settings, including parks, where it offer many of these characteristics, when combined, the effect becomes stronger. For instance, forest landscape, especially when used for walking or meditation, offers fascination through texture and sound, extent through the open spaces, and compatibility by supporting peaceful movement and reflection.

Also, Holt et al. study found that coastal and wild natural areas were more likely to produce strong feelings of psychological restoration and emotional connection, compared to urban green spaces [25]. Their findings support ART, particularly it’s components of extent and fascination.

Finally, ART provides a way to explain how nature could help the mind recharge without effort or instruction. It reminds us that sometimes healing does not come from doing more but from simply being just to be present in the right kind place.

While both Stress Recovery Theory and Attention Restoration Theory offer some explanations for how humans psychologically may respond to nature, they are not the only theories to understand this effect. More recently, Fukano and Soga 2024 introduced the Greenery Hypothesis, which also takes an evolutionary approach to explain why natural environments, particularly greens, produce positive psychological outcomes [6].

According to their hypothesis, the human brain has developed an automatic preference for green landscapes because throughout evolutionary history, greenery is strongly associated with food, water, and survival in general. Barren or dry environments are associated with the danger of scarcity. This theory suggests emotional responses to green environments are not learned, but are deeply rooted in our survival instincts. This idea might offer a new way to understand why some studies have found beneficial effects from simply being exposed to a green nature. For example, the study on flower color and brainwaves who is found that green, among the rest of five tested colors, had the strongest effect on alpha waves, which are linked to focus and relaxation [16] also that just looking to images of forests can result in reduced cortisol levels and improved emotional states effects [29] also a study conducted by Lee and Kim tested two types of plants on the rooftop: grass and shrubs. The combination of the two results in a layered green space, which shows the

greatest psychological and physiological benefits [30].

Despite the appeal of this theory, it is important to recognize its limitations. One clear criticism is that not all natural environments are green, and yet many of them like coastal areas or mountainous mountains landscapes have been shown to produce restorative and calming effects [25] if the color green is the only reason then how we can explain the calm feeling places where green is almost absent, however the greenery might play a significant role, it's likely just one aspect of a broader system of environmental factors that influence how we feel. Elements, such as sound, space, openness, and natural patterns, may interact with color in complex ways. Further research is needed to better understand how greenery works alongside with other features of nature to shape the psychological and physiological responses. Eventually each of these theories approaches the nature human connection from different angles and aspect they all emphasize the powerful impact of nature on our mental and physiological well-being, providing a deeper understanding of why reconnecting with nature is not just optional, but essential. whether by reducing stress; as explained in first theory mentioned in this section or by restoring attention according to art, or due to the evolutionarily tendency for green landscapes as stated by the green hypothesis. All these frameworks and theories offer possible insights on how nature effect our minds and why we receive such positive response toward connection to the environment.

3. LIMITATIONS AND FUTURE STUDIES

Some of the reviewed studies and experiments relied mostly on self-reported data rather than experimental proof, and numerous of them were short-term, This highlights the need for further research, especially studies with a long term and a larger sample size involves individuals with various ages and lifestyle to fully understand the mental and physical benefits that comes from spending time in nature also studies should consider other landscapes environments where a clear absence of green spaces such as desert and coastal areas to provide more insight on how concoction with different nature forms can impact well begin For more accurate and objective conclusions.

4. DISSECTION

After reviewing the psychological and physiological effects of natural exposure and the theories that have tried to explain this effect, the question remains as to what really happens when we are exposed to the natural environment?

The first theory discussed in this paper is SRT. which suggests that nature may reduce activity in brain regions that are linked to feelings of stress, which leads to lower cortisol levels. Several studies have supported this idea. For example, an experiment showed that looking at natural sense improved mood and increased positive emotions and helped people manage [2] emotions better [5].

However, nature's effects not only begin with stress for instance the second theory is Attention Restoration Theory ART that provides another explanation. It says, nature can give our brain kind break by catching our attention in soft and gentle ways, like watching trees moving or hearing birds sounds feeling the wind. These simple things help to restore mental energy and [19].

reduced mental fatigue [31] according to ART. This theory may explain why some studies showed positive results from activities such as nature-based meditation [27] or forest walks [28]. When we combine both theories, we see that nature may affect us in more than one simple way. It might calm the nervous system first, as it says in SRT, and then help the mind regain focus on ART by restoring the attention toward nature. Alternatively, this process could be reversed.

Berman et al. proved that natural exposure improves thinking and focus. This could mean that stress reduction and attention restoration work together, each supporting the other [32].

In addition to these theories, a new study suggests another theoretical model called the Greenery Hypothesis, which offers a different perspective. Fukano and Soga proposed that humans naturally prefer green environments because they are connected to food and safety during evolution. This may explain why the color green has a strong relaxing effect on the brain, as seen in studies on plant colors and brainwaves where

it increases alpha waves [16].

However, this theory raises the following question: What about places that are not green, such as deserts and coasts? Are these less effective? Some studies have shown that these locations also have a calming effect [25]. So maybe green is important, but it is only one piece of a bigger picture. Like the Sounds, smells, and space may also work together to create a full impact on our minds and bodies.

Moreover, it is simply being in nature enough to feel better. Some people may walk in nature, but may feel no difference in study they asked people to engage in nature every day for a month [33]. The results showed that happiness and mental health improved. However, the key factor was how deeply they felt bound to the nature. Those who felt emotional beauty showed the greatest improvement. This means that to obtain benefits, we need to be mentally and emotionally present. In other words, just being in nature may not be sufficient enough. Further research is needed to confirm this concept.

In addition, positive effects are not limited to direct presence. Studies have shown that listening to natural sounds or smelling plant scents can help [34]. found that patients felt less pain during a medical procedure when they saw nature images in their session [35]. Another study found that peppermint oil improves physical performance and reduces muscle pain [8].

These effects may be related to the natural scents that we breathe when walking in nature. Plants such as forest tree can release natural compound BVOCs [36] which may reduce stress, improve mood, and support immunity [36]. Nevertheless, each plant produces different compounds, so the benefits may vary depending on another type of the plant. However, these findings may also show a different side of nature. Perhaps the positive impact is not just because we are around trees restore our attention or the green spaces nether reduce stress brain region, but also because of the natural smells in those places. Even though these studies did not focus on scents, it is possible that what we smell plays a significant role in how we feel. This could be interesting to explore further in future studies.

All of these ideas and whether about stress or improving mental health show how deeply our connection link with nature truly is. However, further studies are required. Many past studies had short-term or self-reported results. We need long-term experiments that are more accurate to clearly understand how and why nature affects our health and minds [28].

5. CONCLUSIONS

Nature has always been the primary source of knowledge. Whether it is a forest, desert, or coast, many of us feel an overwhelming feeling of calm when we step away from the noise of the city, but what exactly is the specific reason that make us feel this way? Is there any scientific explanation for this? This is what the study set out to explore and to understand [5].

By reviewing the scientific evidence and psychological theories, it became clear that the human–nature relationship runs deeper than we might think. Interacting with nature does not just influence mood, but also leads to real physiological changes in the brain and body. While existing research offers strong clues about this connection, there is still a need for experimental studies to fully understand how this effect works and the underlying mechanisms.

Last, reconstructing with nature may not be just a luxury; it could be a biological and emotional need that we have overlooked in a world filled with noise; perhaps the solution to many of our modern struggles is simpler than we often think by spending more time with nature.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest regarding the publication of this paper.

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