

Nature and Emotional Well-Being

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Introduction and scope

Time outdoors is often described as calming, but the research asks a more specific question: which aspects of nature experience influence emotional well-being, and how confidently can those effects be explained? This review considers short-term stress responses, mood and repetitive negative thinking, and the feeling of connection with the natural world. The central argument is that nature can support emotional well-being through several overlapping pathways, while the evidence is stronger for some outcomes than others.

This is a focused narrative review, not a systematic review. Selected peer-reviewed studies published between 2012 and 2025 were located through targeted web searches and checked against journal pages and PubMed records. Full-text findings were used where accessible; some studies were assessed from their abstracts. Selection emphasized outdoor-exposure experiments, everyday nature contact, and research on connectedness. No exhaustive database search, formal risk-of-bias scoring, or new pooled analysis was conducted.

Stress: bodily responses and lived experience

Hunter et al. (2019) followed 36 urban adults over eight weeks. Participants chose outdoor settings that gave them a sense of contact with nature, and saliva samples were collected before and after selected visits. Cortisol declined beyond its expected daily decline. The greatest reduction per minute occurred during visits lasting 20 to 30 minutes, although benefits continued with longer visits. Because there was no randomized non-nature comparison group, the study cannot fully separate nature from taking a quiet break. Its value lies in examining flexible, ordinary experiences rather than only tightly controlled outings.

Sudimac et al. (2022) compared one-hour walks in natural and urban settings. Amygdala activity decreased after the nature walk and remained stable after the urban walk. However, the study did not find corresponding environment-by-time effects in its self-reported stress and mood measures or physiological stress indicators. This is a useful qualification: a change in brain activity does not automatically mean a person feels less stressed. Together, the studies support a possible stress-restoration pathway, while showing why biological and subjective outcomes should be examined separately.

Mood, attention, and repetitive negative thinking

Bratman et al. (2015) found that a 90-minute nature walk reduced self-reported rumination and activity in a brain region associated with repetitive self-focused thought; an urban walk did not produce the same pattern. The result suggests that natural settings may interrupt a cycle of returning to distressing thoughts. Participants were healthy adults, and outcomes were measured around a single outing. The findings therefore support a short-term mechanism rather than demonstrating lasting recovery from depression or prevention of a mental health disorder.

Berman et al. (2012) extended this research to 20 adults with major depressive disorder. Participants completed both natural and urban walks in a counterbalanced design. Memory span improved more after the nature walk, and mood also improved, with cognitive and mood changes appearing separable. Having participants experience both settings strengthened the comparison, but the small sample and immediate measurements limited generalizability. The study supports nature as a potential complement to care and suggests that feeling emotionally better and thinking more clearly may arise through different processes.

Connection, meaning, and awe

Being outdoors and feeling connected to nature are related but different experiences. Nature connectedness refers to a subjective sense of relationship with the natural world. Pritchard et al. (2020) found a small positive association between connectedness and eudaimonic well-being, which includes meaning, growth, and psychological functioning. Across 20 samples involving 4,758 participants, the correlation was $r = .24$. It was not significantly stronger than the association with pleasure-related well-being. This supports a modest relationship, while leaving open whether connection improves well-being, well-being encourages connection, or both share other influences.

Sturm et al. (2022; first published online in 2020) examined outdoor walks with instructions designed to encourage awe. Compared with ordinary-walk instructions, the awe approach supported prosocial positive emotions. The study suggests that the way a person attends to an outing may matter alongside the outing itself. However, an emotional orientation toward others is not equivalent to demonstrating reduced loneliness, more friendships, or stronger community ties. Those outcomes require their own measures.

Monroy et al. (2025) provide more recent, indirect evidence about awe. An online randomized intervention for people with long COVID improved stress, depressive symptoms, and well-being compared with a control group, without a significant difference in anxiety. Because the intervention was delivered online and was not a test of outdoor nature exposure itself, it should not be treated as proof that nature caused those improvements. It strengthens the case for studying awe as a possible pathway.

How much outdoor time is enough?

White et al. (2019) analyzed survey data from 19,806 adults in England. Reporting at least 120 minutes of recreational nature contact in the previous week was associated with better self-reported health and well-being than reporting none. The association appeared whether time accumulated through one longer visit or several shorter visits. However, the observational design cannot establish a required dose: people with better health, more time, or easier access may also spend more time outdoors. Two hours is a research finding, not a universal minimum someone must reach before an outing can help.

The weekly association in White et al. and the visit-level findings in Hunter et al. address different questions. One concerns overall reported health and well-being; the other concerns short-term biomarkers. Their time estimates should not be combined into a single prescription. The evidence is more consistent with flexible opportunities for nature contact than with a precise schedule proven suitable for every person.

Interpretation, limitations, and research needs

Across the selected literature, nature-related experiences show promising short-term effects, but the outcomes are not interchangeable. Reduced rumination, improved mood, altered brain activity, lower cortisol, and greater connectedness each describe a different result. Their convergence suggests several possible pathways, rather than one established explanation. It also leaves unresolved how much benefit comes from vegetation and scenery, physical movement, reduced traffic and noise, a break from demands, or expectations about an outing.

The evidence base reviewed here combines small experiments, correlational syntheses, and a large population survey. Small experiments offer more control but limited precision and follow-up. Surveys capture ordinary life but remain vulnerable to confounding and reverse causation. Participants generally know which setting they experience, so expectations can influence reports. Findings from healthy adults, adults with depression, older adults, and people with long COVID cannot be assumed to apply equally across groups.

An implementation implication, rather than a tested finding of this review, is that nature-based wellness should offer options that fit different abilities and circumstances. A seated garden visit, a gentle outdoor outing, and a longer walk should be considered distinct experiences until comparisons establish their effects. Future research should test accessible formats, diverse populations, repeated exposure, and longer-term outcomes, including loneliness and meaningful connection.

Conclusion

Nature can offer a setting for emotional restoration, with selected studies supporting improvements in stress-related responses, rumination, cognition, and positive emotion. Feeling connected to nature may also relate to meaning and psychological well-being. The most defensible conclusion is that outdoor nature contact can be a supportive part of everyday life, while its effects depend on the outcome, the person, and the experience. The research leaves room for ordinary enjoyment without turning time outdoors into another performance target.

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