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Biophilia and Social Work: Advancing Nature-based Health and Healing Perspectives in Social Work Practice and Education

Karun Kishor Karki[1], Hemantaraj Siwakoti[2], and Jeff Wood[3]

[1]School of Social Work, University of British Columbia, Canada
[2]Alberta Health Services, Alberta, Canada
[3]School of Social Work and Human Services, University of the Fraser Valley, Canada

Author Note

Karun Kishor Karki, Ph.D. https://orcid.org/0000-0002-8712-6831 is an Associate Professor in the School of Social Work at the University of British Columbia. His scholarly inquiries encompass socio-economic and civic integration of immigrants, refugees, and LGBTQ+ people in Canada and beyond.

Hemantaraj Siwakoti https://orcid.org/0009-0004-0329-8487 is a Mental health therapist. He works with Alberta Health Services, Alberta, Canada. His social work practice focuses on mental health with Indigenous peoples and racialized communities.

Jeff Wood https://orcid.org/0009-0001-9322-8279 is an Instructor with the School of Social Work and Human Services at the University of the Fraser Valley, BC. His specialization is in health care and mental health.

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Correspondence concerning this article should be addressed to Karun Kishor Karki, Associate Professor, School of Social Work, University of British Columbia, 2080 West Mall, and Vancouver, BC V6T 1Z2. E-mail: karun.karki@ubc.ca

Abstract

The human connection with Nature is rooted in a symbiotic relationship that fosters harmony and balance. Humans have an innate need to be in contact with Nature, relying on it for essential resources such as food, shelter, medicines, and overall well-being. In return, it is the responsibility of humans to become stewards and caretakers of Nature. This reciprocal relationship between living beings and the non-living environment is captured by the concept of biophilia. In social work, biophilia is emerging as a promising approach to mental health practice. This article aims to explore the significance of biophilic health and healing practices in mental and physical well-being. We established inclusion and exclusion criteria and systematically searched for articles in databases published between 2010–2022. Twenty-three articles met the inclusion criteria and were used for in-depth analysis. The findings highlight that nature-based health and healing practices effectively address a range of mental and physical health challenges. These approaches also promote equity and justice within healthcare systems, particularly benefiting Indigenous populations worldwide. Integrating Indigenous knowledge and practices—such as nature-based interventions, green therapy, and traditional healing methods—into social work education can better prepare students to collaborate with Indigenous communities and individuals from diverse ethnic and racial backgrounds across all areas of social work practice.

Keywords: biophilia, nature-based health and healing, green therapy, traditional health and healing approaches, social work practice

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The human relationship with Nature[1] is built upon a symbiotic interconnectedness. Nature-based interventions and practices are fundamental parts of the existing healthcare system. For example, most pharmacological productions contain the elements and compounds such as minerals, vitamins, chemicals, and alloys that are primarily nature's products. Nature-based health and healing practices have become increasingly recognized by the scientific community. Studies have concluded that human interaction with Nature has positive benefits, such as being in or around Nature makes us feel good, lowers stress levels, enhances learning, and improves recovery rates following illness (Hill, 2009, 2008; Wilson, 2002). For example, gardens around hospitals reduce patients' pain and stress during hospitalization while enhancing care providers' feelings of well-being from working in stressful situations. Regrettably, urbanization and industrialization have made it challenging to access green spaces, gardens, and farms. As a result, city dwellers are often deprived of contact with nature and nature-related activities. The western culture of urbanization and industrialization has both become a norm of civilized living and has contributed to the destruction of the biosphere and adversely impacted human connection to Nature. Moreover, the western biomedical model of healthcare has predominantly overshadowed the importance of nature-based health and healing practices (Hill, 2009).

Using the philosophical underpinnings of *biophilia*[2] (Fromm, 1964), we explore some important traditional Indigenous health and healing practices based

[1] We have used "Nature" with capital "N" to signify the "biosphere and abiotic matrices." This may also help avoid confusion with "nature" (with small "n"), which refers to "intrinsic quality of a certain creature and/or phenomenon" (Barbiero & Berto, 2021).

[2] *Biophilia* originates from two Greek words, Bio (life) and Phillia (love): meaning the love of life (Barbiero & Berto, 2021)

on and guided by the principles of Nature. We argue that there is a lack of acknowledgement and validation of traditional forms of knowledge, and while this knowledge originated from Indigenous peoples across the globe, these populations now experience disproportionate rates of adverse health outcomes due to the prioritization of westernized knowledge. For example, higher cases of chronic diseases, mental illnesses, suicide, and substance use are among the major areas with higher disparities (Dunn, 2020). We also contend that the ethnocentric perspective of the western healthcare system has led to the implementation of various assimilationist policies and systemic discriminatory practices that prevent the healthcare system from being inclusive and Nature friendly. Through an extensive review of existing literature, we explore the significance of Nature-based health and well-being practices which may contribute to the health and mental well-being of people. Such Nature-based practices may foster equity and justice in the healthcare system, specifically for Indigenous peoples across the globe. Social work education, training, and practice need to focus on the person-in-the-environment perspective at all levels of practice.

Biophilia: Nature-based Health and Healing Practices

The term *biophilia* was first coined by a psychologist, Erich Fromm, to describe the "psychological orientation of being attracted to all that is alive and vital" (Fromm, 1964). One of the fundamental traits of biophilia is an affiliation with Nature, meaning an "affection towards animals, plants, and all other living organisms due to the evolution of the human race" (Berto et al., 2018, p. 3). Over thousands of years, humans have created environments requiring physiological and psychological adaptability to natural settings. The attachment to Nature and natural settings has developed in human genetics as a result of this long evolutionary process. As a theory grounded in genetics, biophilia assumes that people living in contact with Nature think more creatively, are friendlier, more cooperative, and less sad (Besthorn & Saleebey, 2003; Gullone, 2000). Further, this theory explains why

people of different ages, genders, and cultural backgrounds worldwide have similar responses to specific biophilic environments and are impacted in similar ways. This consistency across various demographic and cultural variables with an overwhelming preference for natural scenes versus urban settings is known as the features of the savanna biome [originated in the savanna of East Africa] (Gullone, 2000). Throughout human evolution, green spaces, vegetation, and water were closely associated with the necessities of life (Ulrich, 1993, in Besthorn & Saleebey, 2003).

Building on the biophilia hypothesis, the aesthetic-affective theory (AAT) postulates that natural views elicit higher aesthetic preference and pleasantness than urban views (Stigsdotter et al., 2011). All these explanations indicate how biophilia is "innately cemented in our evolutionary history" (Berto et al., 2018, p. 3) and why a person experiencing stress can quickly get positive effects from contact with Nature. Due to this evolutionary attachment, Nature can block our negative thoughts and feelings by providing a sense of peace and reducing physiological and psychological problems (Ulrich, 1983, in Hartig et al., 2014). Yet, another theoretical assumption drawn on the biophilic hypothesis is the attention restoration theory (ART), which explains how nature restores our mental and physical well-being and optimizes our ability to work (Mimnaugh, 2018; Kaplan & Kaplan, 1989). According to Berman et al. (2012), ART identifies two types of attentional resources: directed (intentional mental focus on an activity) and involuntary (no effort required for an activity). Berman et al. (2012) mention that "interacting with nature activates involuntary attention modestly, allowing replenishment of directed attentional mechanisms" (p. 6). This means objects and events draw our attention either effortfully or effortlessly. Effortful attention makes our mind and body feel tired, whereas "effortless attention engaged by intrinsically interesting aspects of nature enables rest for a fatigued neurocognitive inhibitory mechanism engaged when willfully directing attention" (Kaplan & Kaplan, 1989, in Hartig et al., 2014,

p. 217). Nature's power to draw our effortless attention contributes to curing fatigue and restoring the ability to engage in effortful activities. This perceived level of restoration is determined by two aspects: the sense of connection to Nature and the biophilic quality of the environment (Ackerman, 2020; Berto et al., 2018). ART provides a theoretical explanation that natural environments have the restorative capacity to restore attention, improve performances, heal health problems, contribute to improving resistance and obtain recovery from stress (Ackerman, 2020; Mimnaugh, 2018). These biophilic, biophobic and restorative theories strongly support the role of Nature and Nature-based interventions in peoples' health, healing, and well-being. Traditional holistic approaches to health have a foundation in these theories. As such, these theories explain why Indigenous peoples experience disparities in the biomedical health system (causes) and offer nature-based healing and well-being approaches on the foundation of evolutionary and restorative theories (solutions) (Ackerman, 2020; Mimnaugh, 2018).

Studies discuss the impacts of Nature-based interventions on various psychiatric conditions. For example, Berman et al. (2012) explore the benefits of walking in Nature for individuals diagnosed with major depressive disorder. Pedersena et al. (2016) present several case examples from Norway on how care farms are efficiently used to involve communities in supporting those living with mental health issues. These patients are transferred from crowded hospitals located in urban centres to peaceful countryside care farms, making them low-cost rehabilitation centres and peaceful care farms. After studying the effects of the farm elements in a green care rehabilitation farm on cancer survivors, Johannessen et al. (2019) conclude that the interventions are holistic and highly therapeutic in managing cancer-related fatigue and pain. Counselling combined with the experience of the therapeutic spaces of nature, farms and animals contributes significantly to reducing the distressing reactions from their grief (Cacciatore et al., 2020).

A study by Kim et al. (2020) investigated the rates of depression among senior citizens with dementia and found that horticultural therapy was very effective in "reducing the burden of caregiving and improving their quality of life" (Kim et al., 2020, p. 305). Masterton et al.'s (2020) meta-analysis of forty-nine studies discusses the benefits of greenspace intervention in mental health and substance use concerns. Thirty-three articles show that clients feel calmer, and experience decreased anxiety and stress in Nature. Likewise, twenty-one studies show a decrease in mental fatigue and restoration of attention. Twenty-three show an increased awareness of the need for change and readiness to change. Chavaly et al. (2020) summarize several studies on human contact with nature and its impacts on those living with mental issues. The authors highlight the positive impact of environmental exposure on health and conceptualize various Nature-based interventions. These studies conclude that Nature-based interventions benefit several mental and physical health problems, such as high blood pressure, heightened cortisol levels, anxiety, stress, mood swings and dementia.

Danto et al. (2020) explore the significance of Nature in Indigenous peoples' health, healing, and well-being practices through engagement in land-based activities, such as gathering around the fire, observing Mother Nature, and learning wisdom from Nature (e.g., care of the little ones, circle of changes, reciprocity, and interdependence). The study identifies that Indigenous people's connection to land, spirituality and respect for their Mother Creator significantly contribute to their good health and well-being. In addition, the study shows that land-based activities assist in healing the impacts of disconnections from language, culture, spirituality, and Elders. The land is not just a physical resource but is connected holistically to personal and cultural identity, health and wellness, healing and recovery, and overall well-being. This is all presenting Indigenous ways of being and knowing i.e., Indigenous peoples' epistemology, axiology, and ontology. It also alludes to how health is defined and understood from an Indigenous

perspective. These studies conclude that Nature-based health and healing practices have positive effects on individuals suffering from various mental problems.

Biophilia and Indigenous Approaches to Health and Well-being

Indigenous approaches to health and well-being follow a holistic path that integrates spirituality, culture, traditions, relationships, a deep connection to Mother Nature, ceremonies, values, food, and lifestyle. Indigenous peoples' healing practices "go back to the time before the spread of western biomedicine" (RCAP, 1996, in Martin, 2009, p. 27). In the Indigenous approach, prevention is more important than healing interventions (Hill, 2008). Healing and well-being are both individual and societal responsibilities (Radu et al., 2014), which include recognizing, understanding, and facing health issues; knowing, trusting, and accepting the self; forgiving oneself and others; and staying focused on the four aspects of the self [physical, emotional, spiritual, and mental] (Hill, 2008). In addition to individuals and families, the whole community is involved in the healing process (Martin, 2012). As a societal responsibility, "fostering positive relationships is one of the principal goals of Indigenous healing" (Radu et al., 2014, p. 95). Studies have identified principles of the Indigenous health and healing approach (Hill, 2008; Mundel, 2008; Marsh et al., 2015). For example, the Medicine Wheel, also known as the Sun Dance Circle, represents an individual's mental, spiritual, emotional, and physical well-being; it is at the core of Indigenous healing practices (Mundel, 2008). Marsh et al. (2015) argue that the integrated structure of these traditional and modern health knowledge systems can be an efficient healing strategy in the holistic approach to achieving balance in health and well-being.

Indigenous practices to health and well-being include giving back or rebalancing through reciprocating for what was received from Nature. For example, performing rituals, ceremonies, and cultural activities is part of the giving back technique. A number of these ceremonies and rituals, including Sweatlodge,

Smudging, Sundance, Sunrise, Harvest and Midwinter, Pipe Ceremony, fasting, feasting and full moon, contribute to healing and well-being by providing peace of mind and reminding us of our place in this creation (universe). Similarly, respecting and following the wisdom of Elders as a source of knowledge and traditional teachings, connecting with family and community, and participating in these healing circles and cultural ceremonies equally contribute to the balance in health (Cote, 2016; Martin, 2012; Rahman et al. 2021). Along with these cultural and ceremonial practices, Indigenous peoples give importance to natural medicines, regard them as a gift of traditional science and prefer to use them.

Contrasting with the western biomedical approach to health care, which focuses on the diagnosis and treatment of sickness, the Indigenous concept of health and wellness goes beyond the mere presence or absence of illness and disease (Karki et al., 2024). Rather it is a balance of various aspects of health and well-being (mental, emotional, physical and spiritual). Indigenous health and healing approaches highlight the importance of holistic perspectives, preventative practices, collective responsibilities, and the significance of traditional values, principles, and beliefs that underlie them. Adopting this nature-based holistic approach in the healthcare system makes it approachable to these people, brings more positive outcomes from the interventions and provides justice to this population in healthcare.

Methodological Approach

We used library and academic databases such as JSTOR Journal, Social Work abstract (EBSCOhost), PsycINFO, and JSTOR Journal for a comprehensive selection of relevant literature. In addition, we obtained grey literature from Google Scholar to complement empirical literature. Databases were searched using the key terms: “biophilia” AND “holistic health” AND “green therapy” AND “traditional healing practices” AND “Indigenous health and healing practices.” These key terms were searched individually and in combination with “Nature-based healing.”

For this review, the inclusion criteria included the peer-reviewed journal articles published in English between 2010 and 2022. However, a few articles published before 2010 were chosen due to their significance and rich contribution to the topic. Some articles were selected following the snowball sampling method using the reference sections of the articles. During the preliminary search of the terms listed above, we identified 97 related articles. Upon initial review of the titles and abstracts, we eliminated articles that did not meet the foregoing pre-determined inclusion criteria. Articles that met the pre-determined inclusion criteria were included in the final pool. A total of 23 articles were included in the pool based on the pre-determined inclusion criteria and were reviewed and analyzed. We employed a thematic analysis approach to critically analyze the selected studies. In order to build context and ensure a robust discussion of our findings, we relied heavily on grey literature. In all, our analysis generated five major themes, which we present and discuss subsequently.

Discussion of Major Findings

In this section we discuss the major themes emerged in the analysis. This section also discusses the importance and relevance of biophilia and Nature-based health and healing practices in the social work field.

Conceptualization of Health, Healing, and Well-being

The first theme, "*Conceptualization of Health, Healing, and Well-being,*" emerged as one of the major themes, which refers to a holistic approach to Indigenous health and healing practices in conjunction with a western biomedical lens. This concept aptly aligns with what Hinchliffe (2018, in Cacciatore et al., 2020) states, "making health possible requires not just the investment in biomedical remedies, but also recognition of the relational, cultural and environmental or non-pharmacological factors that enable people to cope with life crisis and transitions" (p. 8). The conceptualization of health, healing, and well-being could also be understood through one's own cultural epistemology (how do we know that we

know what we know). In other words, the experiences of enculturation and acculturation are deeply embedded within our knowledge systems, values, and relationships with health, which tend to vary depending on cultural belief systems.

The World Health Organization (WHO) defines public health as "the science and art of preventing disease, prolonging life and promoting health through the organized efforts of society, organizations, public and private, communities and individuals" (WHO, 2021, para.1). In the western Eurocentric perspective, health and healing are often limited to either the presence or absence of disease based on a science-driven set of physiological criteria (Mundel, 2008). However, Waldram (2014, in Radu et al., 2014) suggests that the concept of healing is a continuous process to improve an individual's physical and/or mental situation. The healing process prepares an individual for commitment and responsibility for a healthy social life (Radu et al., 2014). Such explanations suggest that healing cannot be limited to just "curing" the illness as in the biomedical approach. Rather, it should "empower the individuals to make the right choices in life, bringing changes in their physical, behavioural, cognitive, emotional, social, spiritual, and existential functioning" (Radu et al., 2014, p. 91).

According to Hill (2008), healing should empower an individual to find "a reason for living, meaning in suffering and motivation to act for good health" (p.10). Healing is also presented as a multidimensional and holistic concept involving a range of perspectives and interventions, including "physical cures using herbal medicines and other remedies to promote psychological and spiritual well-being using ceremonies, counselling, and the accumulated wisdom of elders" (RCAP, 1996, in Hill, 2008, p. 9). The concept of healing moves "beyond hurt, pain, disease and dysfunction, to establish a new pattern of sustainable living and well-being" (Lane, Bopp, Bopp, & Norris, 2002, in Hill, 2008, p.24). This approach regards traditional medicines as an essential healing component, and the concept of traditional medicines expands to "the sum total of cultural knowledge, skills and

practices…, Indigenous to different cultures and are used in the maintenance of health as well as in the prevention, diagnosis, improvement and treatment of physical and mental illness" (WHO, 2001, in Hill, 2009, p. 27). In addition, the traditional healing concept regards a person as responsible for meeting the health problem and, therefore, responsible and capable of seeking appropriate solutions (Hill, 2009).

In addition to a wide range of these epistemological and axiological meanings, healing is also a pathway to recovery from intergenerational trauma for Indigenous peoples. The impacts of trauma can be felt across multiple levels, including individuals, families, communities, and the wider society. The colonization has left Indigenous peoples with multiple layers of intergenerational trauma, requiring an appropriate approach to healing these damages (Karki, 2016). Lavallee et al. (2010) argue that healing of trauma requires skilful, time-taking, holistic community-based interventions that aim to restore and balance physical, emotional, cultural, spiritual, and social well-being. As such, holistic healing can best be achieved through "practising spiritual and cultural traditions, passing healthy behaviour down to the next seven generations and including the Indigenous understanding of mental health and healing" (Lavallee et al., 2010, p. 279). Alfred (1999, in Hill, 2008) has the perspective that healing approaches for Indigenous peoples should be based on "the Indigenous culture and take traditional values, principles, and processes into consideration" (p. 27). Such a model of healing and well-being is holistic, basically preventive, multi-dimensional (mind, body, spirit, and emotion), collective and reciprocal (Martin, 2012). This encourages a person to take a more active and proactive approach to their own health instead of relying on western medicine and professionals to tell them what is wrong and fix it for them.

Western Vs Indigenous Approaches to Health, Healing and Well-being

The second major theme, "*Western Biomedical Vs Indigenous Approaches to Health, Healing and Well-being,"* discusses how the western biomedical knowledge system contrasts in its epistemological, ontological, and axiological aspects with the Indigenous traditional holistic knowledge system. First, western knowledge is "objective, born from a reductionist and linear understanding of time and hierarchies of knowledge" (Timler & Sandy, 2020, p. 4). As such, spiritual and cultural beliefs, traditions, and practices are not considered "scientific." Second, this positivist knowledge system believes in a single objective truth where anything outside this reasoning is considered inconclusive and inaccurate. This implies that only one perspective of viewing things and a single approach to solving the problem can be accepted. Yet, western biomedical health knowledge is clinical, data-driven, and shaped by conventional scientific approaches (Karki et al., 2024; Martin, 2012, in CMA, 2020). For example, an illness is caused by disease-causing microorganisms or the absence of essential hormones or vitamins in the body. As such, the system will diagnose an individual as either healthy or unhealthy (Mundel, 2008). Such a knowledge system has difficulty accepting multiple truths, holistic approaches and diversity in beliefs and values.

In contrast to this rigid concept of illness, based on a defined set of symptomatic criteria that must be present to qualify, nature-based interventions are considered therapeutic, preventive, and restorative of good health in some way. In this approach, a person doesn't have to wait until they are sick before they begin thinking about healing. Therapeutic landscapes with all four environmental dimensions (physical, social, and natural environmental dimensions have significant implications for achieving health and healing (Jiang, 2014). Many studies from diverse cultural groups have pointed out the benefits of nature in healing and well-being; however, different studies have given these nature-based therapeutic places and interventions other names, such as restorative landscapes and gardens (Bahamond, 2019; Pouya et al., 2016), care farms or horticultural therapy

(Cacciatore et al., 2020; Kim et al., 2020; Pedersena et al., 2016), onotherapy, nature-assisted therapy (Mimnaugh, 2018), ecological psychotherapy (Cote, 2016; Hartig et al. 2011), wilderness therapy (Chavaly & Naachimuthu, 2020).

A substantial amount of literature has shown how spending time with Nature, clinically or non-clinically, contributes to many health benefits, not limited to reducing anxiety, stress, aggression, traumatic experiences, pain, depression, forgetfulness, cognitive decline and addiction. In addition, interaction with Nature has been beneficial in improving the immune system, mood, confidence, self-esteem, memory, cognitive performance, relationships, motivation, and overall satisfaction with the quality of life (Bahamonde, 2019; Berto, 2014). Interestingly, the scientific method that promoted the concept of western biomedical knowledge is now being applied to researching nature-based therapies that have been tested via experiments on their applicability to different stress-related and mental issues (Hartig et al., 2014, Pande Khadka, & Karki, 2024). A common denominator across these studies is that activities in green spaces, gardening, and contact with Nature are efficient interventions to fight various physical and mental health issues.

Nature-based Interventions and Mental Well-being

The third major theme, "*Nature-based Interventions, Mental Health and Stress Management"* discusses Nature-based interventions or the use of restorative and therapeutic power of nature in healing physical and mental illness. Mental health is described as "the state of a person's psychological well-being, running on a continuum from positive mental health to poorer mental health" (Masterton et al., 2020, p. 1). The problem with this definition is that it limits our understanding of mental health as a concept that exists within the individual as opposed to describing it as a relationship with the environment around them. Several studies indicate significant benefits of natural and built green spaces and environments in ameliorating mental problems, such as depression, anxiety, dementia, trauma, and schizophrenia (Berman et al., 2012). In addition, Nature-based healing

interventions contribute to stress reduction, restoring the ability to do mental and physical work, tranquillizing the human mind, restoring wellness, and maintaining good health (Chavaly & Naachimuthu, 2020). Among other benefits of short-term exposure to Nature include - shortened hospital stay, balanced blood pressure, balanced cholesterol level, heart rate and blood sugar level; relaxation of muscles; positive emotions; improved overall mental health (Austin, 2006), improvement in mood; increased memory and cognitive performance (Berman et al., 2012), a stronger immune system; the reduced prevalence of chronic inflammatory diseases, improved self-esteem, mood improvement, perceived mental and physical health, physiological and psychological relaxation, (Chavaly & Naachimuthu, 2020), speedy recovery from health problems (Thompson, 2018), increased alpha waves in the brain, pain management, and reduced mortality (Besthorn & Saleebey, 2003).

Most studies used in this review discuss the recovery benefits of Nature-based interventions for people living with mental health issues. Contact with Nature has significant benefits for problems like mental fatigue, stress recovery, attention-deficit hyperactivity disorder and nature deficit disorder (Ackerman, 2020). Nature-based interventions suggest several benefits in building positive clusters of emotions, like friendliness, playfulness, elation, and affection, and removing negative emotions, like anxiety, fear, anger, and aggression (Besthorn & Saleebey, 2003). Studies also confirm that nature can cure many emotional disorders and increase adaptive intelligence, enabling a person to adapt better to a changing environment (Ackerman, 2020). A study by Kim et al. (2020) indicates that horticultural therapy helps reduce dementia caregivers' burden and severe depression, resulting in an improvement in their quality of life. Such results offer a new method "to support dementia caregivers by proving the applicability of horticultural therapy that implements the conventional psychotherapy intervention strategies" (p. 217). In short, despite their low cost and higher accessibility, Nature-

based resources and interventions offer proven alternative therapies to restore and improve people's mental and emotional health (Thompson, 2018).

Some studies also point out the visible manifestation of the restorative factors in the environment and the benefits of Nature-based interventions in mental health and stress-related problems. Berman et al. (2012) suggest a perceived restorativeness scale (PRS) for measuring the level of the four restorative factors in the environment (compatibility, fascination, being-away and extent). The evidence-based measurable outcomes indicate that Nature-based interventions are therapeutic and healing (Stigsdotter et al., 2011). In this regard, Berto (2014) mentions that an individual's self-report on physiological, behavioural and task performances could reflect the perceived outcomes and changes. Behavioural effects can also be observed in the changes in social behaviour, performance scores, level of aggression, violence, stress and tolerance.

A rapid increase in the number of people living with mental illnesses despite advancements in diagnosis and treatment technology suggests the need for changing intervention approaches to mental illnesses (Bohamande, 2019). This reality indicates that biomedical approaches to health have been successful in diagnosing and labelling individuals with these mental problems but less effective in understanding the nature of the problem and providing holistic intervention solutions. Since Nature-based interventions are holistically balanced and often focus on prevention, they can be implemented as efficient and cost-effective options in community-based interventions and health promotion initiatives. Indicating the need for change, Masterton et al. (2020) mention that Nature-based interventions have the "potential to be widely accessible for people within their communities and used alongside a variety of treatment plans" (p. 1). Similarly, studies have urged the need for ecopsychology and biophilia in the mental health professions (Bahamonde, 2019) because Nature-based interventions in the healthcare system can positively change the current reward (Chavaly & Naachimuthu, 2020).

Care Farms for Nature-based Healing and Rehabilitation

The fourth major theme, "*Care Farms as Nature-based Healing and Rehabilitation*" refers to an individual's holistic health and well-being through connection with Natural and farm elements and engagement in agricultural activities. Studies suggest that care farms carry a high level of therapeutic and restorative significance (Cacciatore et al., 2020). For example, Stigsdotter et al. (2011) explain the properties of the care farms in two approaches: the communication approach and the ecological approach. The communication approach believes that "the signals from nature spark creative processes that are important in the rehabilitation process, both through the cognitive system and through the fast emotional tone" (Grahn, 2008, in Stigsdotter et al., 2011, p. 319) because there is coordination between our neuro-physiological systems and the rest of our bodies. The ecological approach includes two concepts: diseased condition and the greening of psychotherapy. Detachment from nature puts us in a diseased condition, and reuniting with the natural environment cures us of the illness. The greening approach regards nature as a living co-educator, co-therapist, and catalyst of healing and well-being. In this approach, the healing intervention process follows the phases of "healing pedagogy, experiential learning, creativity, reflection, and applied knowledge" (p. 319). Our activities in care farms help to "reduce anxiety and pain, restore our sense of self, improve our perceptions of reality and promote tolerance and understanding" (Hansson 1996, in Stigsdotter et al., 2011, p. 319).

Studies also point out that farm activities promote physical and mental recovery, empowerment, therapy and recreation, skills development, social interaction, handicraft making, gardening and spending time with animals (Pedersena et al., 2016). For example, horticultural activities that support healing have four distinct values: "the physical dependence on plants (for survival), the aesthetic value of plants and animals, the nurturing value of plants and animals and the social interaction in the farm environment" (Kielhofner, 1997, in Stigsdotter et

al., 2011, p. 317). Johannessen et al. (2019) regard a care farm as a sanctuary with free space for social fellowship, energy-boosting activities, and inspiration for survivors of different events. One participant expressed the holistic experience on the farm as:

> To be a part of the group, chat together, garden in the greenhouse, it felt so good to be there. I looked forward to every Wednesday, but I am not able to entirely put my finger on what exactly it was that I was looking forward to, whether it was to grow tomatoes, the peace and quiet out there, or to speak with the others, I think it was the whole setting (Johannessen et al. 2019, p. 135).

A common thread across the studies is that natural components in the farm and the surrounding area have very high therapeutic and restorative potentials. For example, farm animals, greenhouses, and vegetable beds, surrounded by wild sheep grazing on rolling pastures and a babbling brook streaming gently down a hill against a backdrop of snow-capped mountains have been shown to have high therapeutic and healing properties for the recovery from mental and physical illnesses (Johannessen et al., 2019). Therapeutic properties are also hidden in the activities done in these green spaces, with the animals and the plants and social interactions among the participants, health professionals and farm people (Marsh et al., 2018).

Care farms are widely used as hubs for rehabilitating people from mental health centres, prisons and different walks of life needing support in health recovery as they transition to community life. The transition of people with mental illnesses from mental health centres to community care in such care farms is cost-efficient and a way of speedy recovery in the natural setting by adopting the holistic biopsychosocial approach to care (Pedersena et al., 2016). A Norwegian study supports this role when care farms are successfully used as cost-efficient rehabilitation places for recovery activities supporting these people in their

transition to working life in the community. Many European countries have succeeded in converting care arms into recovery centres with peaceful natural surroundings (Pedersena et al., 2016). Besides these rehabilitative and therapeutic roles, working on care farms can also generate income for those living with mental illness, thus, promoting a sense of achievement and contribution to society. In addition to the therapeutic benefits to all people, these findings indicate that health equity for diverse ethnic and racialized people in general and Indigenous peoples, in particular, can be promoted efficiently by prioritizing care farm interventions in the healthcare system as these activities offer them land-based holistic health and healing opportunities essential for the healing of intergenerational trauma and wounds from the colonial past.

Biophilia in Social Work Practice and Education

Nature-based or eco-social work is an emerging social work practice. This approach seeks the well-being of both the person and the natural environment (Besthorn & Saleebey, 2003; Norton, 2009). It is critically important to review and revise social work curricula in colleges and universities and implement the green agenda and approaches to health and healing. This is one of the ways to decolonize and Indigenize social work education and practice. In doing so, person-in-environment is an important perspective at all levels of social work practice (Norton, 2009; Rogge & Cox, 2001). A social worker's responsibilities are obvious in these circumstances: bring these nature-based traditional healing practices into the light of the day, adopt beneficial intervention approaches, advocate for the holistic and inclusive healthcare system, and let justice flourish. The knowledge about the role of Nature in human health helps social workers apply appropriate intervention strategies Besthorn & Saleebey, 2003). The conventional social work approaches are less guided by the characteristic features of the relationship between human beings and biophilia. The biophilia hypothesis and other nature-based

principles are highly significant and compatible with core social work values and guidelines.

Besthorn and Saleebey (2003) state, "Nature offers a vast accumulation of resources critical to how social work understands and responds to the physical, psychological, social, and spiritual development and well-being of the clients we serve" (p. 8). In the ecosystem, every member is interdependent. Understanding this interconnectedness is critically important to social work professionals, and particularly, engage themselves in green and preventive social work practices. Social workers should advocate for protecting nature's places from unplanned industrialization and urbanization. Social workers also need to support efforts to fight against species' extinction and educate people about the importance of Nature for the development of healthier communities. This is one of the best approaches to creating a bio-rich, diversified environment on the earth for its residents' better physical and mental well-being. For these reasons, social work curricula must incorporate Indigenous social work practices, including nature-based interventions, green therapy, and traditional health and healing approaches so that social work students can be better prepared to work in partnership with Indigenous peoples.

Conclusions

This paper concludes that human beings have a physiological and psychological need to be in contact with Nature. We are dependent on it for our overall well-being. We are also responsible for being caretakers of the land. This notion of reciprocity between living organisms and the abiotic environment has been explained as biophilia. As a theory grounded in genetics, biophilia explains why people across the globe have similar responses to biophilic environments. Traditional Indigenous health and healing practices are based on and guided by a biophilic relationship with Nature. This paper discussed the positive benefits of human interaction with Nature. Green spaces around hospitals have reduced patients' pain and stress while also enhancing care providers' feelings of well-

being. Nature-based interventions benefited several mental and physical health issues. Such Nature-based practices may foster equity and justice in the healthcare system, specifically for Indigenous peoples across the globe. Despite these findings, there has been a lack of acknowledgement and validation of Indigenous traditional forms of knowledge. The ethnocentric perspective of the western healthcare system has prevented the healthcare system from being inclusive and Nature friendly. While biomedical approaches to health have been successful in diagnosing and labelling individuals with mental problems, they have been less effective in understanding the nature of the problem and providing holistic intervention solutions. The literature shows that a holistic Indigenous approach to health and healing practices in conjunction with a western biomedical lens is possible. In terms of social work education and practice, the focus on the person-in-the-environment perspective must be incorporated into all levels of practice. The biophilia hypothesis and other nature-based principles are highly significant and compatible with core social work values and guidelines. Incorporating Indigenous knowledge, including nature-based interventions, green therapy, and traditional health and healing approaches to social work curricula would allow social work students to be better equipped to work in partnership with Indigenous peoples in all areas of practice, more significantly in physical and mental health, healing, and wellbeing.

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