

Results

Cite this article: Sterckx A, Van den Broeck K, Remmen R, and Keune H (2023). Self-care and nature in the private and professional practice of healthcare professionals in Belgium.

Research Directions: One Health, 1, e10, 1–14.
<https://doi.org/10.1017/one.2023.5>

Received: 9 December 2022

Revised: 21 February 2023

Accepted: 21 February 2023

Keywords:

mental health; self-care; relationship with nature; One Health; health care professionals; role model; implementation; professional practice

Author for correspondence:

Ann Sterckx,

Email: ann.sterckx@uantwerpen.be and

Hans Keune,

Email: hans.keune@uantwerpen.be

© The Author(s), 2023. Published by Cambridge University Press. This is an Open Access article, distributed under the terms of the Creative Commons Attribution licence (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted re-use, distribution and reproduction, provided the original article is properly cited.

Research
Directions



Self-care and nature in the private and professional practice of healthcare professionals in Belgium

Ann Sterckx¹ , Kris Van den Broeck², Roy Remmen³ and Hans Keune¹

¹Chair Care and the Natural Living Environment, Department of Primary and Interdisciplinary Care, Faculty of Medicine and Health Sciences, University of Antwerp, Antwerp, Belgium; ²Chair Public Mental Health, Department of Primary and Interdisciplinary Care, Faculty of Medicine and Health Sciences, University of Antwerp, Antwerp, Belgium and ³Department of Primary and Interdisciplinary Care, Faculty of Medicine and Health Sciences, University of Antwerp, Antwerp, Belgium

Abstract

Several scientific communities and international health organizations promoting an interdependent human-nature health perspective are calling upon healthcare professionals (HCP) to integrate this vision into their practice and become role models. However, rising cases of stress, burnout, and depression, among this group jeopardize this potential and their self-care. Therefore, we conducted an exploratory qualitative study focusing on how HCP relate to their self-care, their relationship with nature and its implementation into their professional practice. Semi-structured interviews with 16 HCP were executed, transcribed and imported into NVivo. Using the six-step framework, we conducted a thematic analysis, followed by two-step member-checking. Three main findings arose. First, participants employ various self-care strategies outside of work whenever possible. Second, their nature experiences can be drawn along a continuum ranging in level of intensity, attitude and reciprocity, which does not seem to be disclosed during consultation. Third, the reflexive interviews may have led to increased awareness and agency on the former topics, which we have termed 'nature-connected care awareness'. A preliminary framework to stimulate nature-connected care awareness could support HCP in becoming a role model.

1. Introduction

Several scientific communities (e.g., One Health, Ecopsychology) and international health organizations (e.g., World Organization of Family Doctors¹ [WONCA], Clinicians for Planetary Health², Climate Psychology Alliance³, WHO (WHO, 2021) are calling on the healthcare sector to rethink their relationship with nature. They advocate a vision of health in which the interrelationship between biological, human, social and environmental determinants is integrated (Bauer et al., 2006; WONCA, 2017; Prescott et al., 2022). Furthermore, WONCA (2017) suggests that since healthcare professionals (HCP) are seen as trusted and committed individuals, they can become role models through integrating an integrative health approach. For example, HCP can inspire other colleagues, patients or clients how the integrated, holistic and transdisciplinary One Health (OH) approach can be integrated in private and professional practice and how it can benefit the reciprocal human-nature health relationship. In addition, the IPCC 2022 Mitigation of Climate Change report suggests the need to engage in an inner transition process, such as through raising awareness, changing beliefs, values and agency regarding the human-nature relationship (Prescott et al., 2022).

A growing number of studies demonstrate the salutogenic effects of contact with nature on various dimensions of health in the general population (Ulrich et al., 1991; Kaplan, 1995; Mayer et al., 2009; Barton and Pretty, 2010; Hartig et al., 2011; Nisbet and Zelenski, 2013; Lumber et al., 2017; Martin et al., 2020). Additionally, studies have shown how a more relational attitude towards nature (often referred to as nature connectedness or reciprocal) can help in achieving both better self-care (SC) and higher well-being, as well as in improving care of the natural environment (Buzzell & Chalquist, 2009; Stigsdotter et al., 2011; Seymour, 2016), and adopting a sustainable lifestyle (Zylstra et al., 2014; Restall and Conrad, 2015; Zelenski et al., 2015; Mackay and Schmitt, 2019). However, the implementation of these scientific findings into healthcare practice is still rare (Frumkin et al., 2017; Summers and Vivian, 2018; Lauwers et al., 2020).

Furthermore, HCP themselves increasingly suffer from stress, burnout, and depression (Dyrbye et al., 2017; Lemaire and Wallace, 2017; Vandebroek et al., 2017; Jha et al., 2019), often accompanied by lack of efficient SC due to several factors. For example, a study by the British Medical Association has highlighted the problem of physicians being exposed

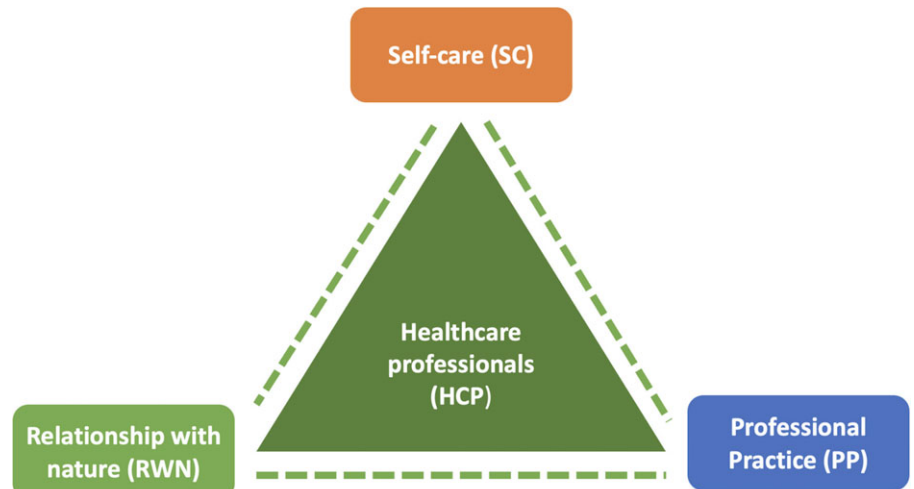


Figure 1. The research topics and its interrelationships.

to high levels of stress and risk of burnout (BMA, 2019). More recently, during the Covid-19 pandemic, mental health problems among HCP soared (Vanhaecht et al., 2020; Vizheh et al., 2020; Chirico et al., 2021; Søvold et al., 2021).

To date, previous studies have mainly focused on the concept of SC (Bressi and Vaden, 2017; Butler et al., 2019; Martínez et al., 2021), its conditions and barriers (Dattilio, 2015; Butler et al., 2019; Laposha and Smallfield, 2020), and the effectivity of SC strategies (e.g., mindfulness, exercise, healthy nutrition) in maintaining physical, mental and social health. However, to our knowledge, limited attention has been paid to how HCP relate to their SC, their relationship with nature and their professional practice. Gaining more knowledge in this area could provide guidelines that can be incorporated into the professional education and development of HCP and help them to become role models.

Therefore, this Belgium-based study investigates how primary HCP integrate SC and nature into their private and professional practice. Specifically, we examine how Belgian HCP relate to their SC, their relationship with nature and its implementation into their professional practice.

A high incidence of burnout and strained mental well-being during the Covid-19 pandemic are also evident among Belgian HCP (Vanhaecht et al., 2020; Deman et al., 2022). Yet, interestingly, in recent years there has been growing interest in integrating a OH approach into healthcare (Keune et al., 2017; Rüegg et al., 2018).

2. Aim of the study

With this study we aim to answer the following research question (Figure 1):

How do primary health care professionals (HCP) in Belgium relate to their self-care (SC), their relationship with nature (RWN) and its implementation into their professional practice (PP), and what are their interrelationships?

3. Methods

Due to the novelty of the topic, an exploratory qualitative research design was chosen. Hereby we investigated the interrelationship between (1) SC and RWN, (2) SC and PP, (3) RWN and PP, and (4) the overall pattern which might mediate these interrelationships (see Figure 1). We examined each of the topics before turning to the possible interrelationships.

Participants were primary HCP in Belgium. To facilitate the recruitment during this Covid-19 period, we combined purposive sampling with snowballing recruiting techniques (Morgan, 2008). The main selection criterion was whether the HCP already integrated their RWN into their PP. AS initiated two personal connections differing on this selection criterion. Next, to surpass possible bias and lack of diversity, and to differentiate in the recruitment, each participant was asked to suggest two persons differing on this selection criterion. Recruitment continued until we experienced saturation during analyses.

After written informed consent, semi-structured interviews entitled ‘Self-care of primary healthcare professionals’ were conducted, based on a topic list created by AS (Supplementary Material). Data collection took place between March 2020 and March 2021. Due to the ongoing Covid-19 pandemic, the interviews were held and recorded using Zoom. In each interview, AS first referred to their previous email conversation. Next, to make participants feel at ease, AS posed questions about themselves and their work situation. To avoid social desirability bias, the aspect of RWN was not introduced at the beginning of the interview. Moving back and forth between SC, RWN and PP, AS initiated a topic which was not raised spontaneously, ensuring all were explored.

Data analysis was inspired by thematic analysis (Charmaz, 2009). To derive themes, a six-step framework (Braun and Clarke, 2012) was used (Figure 2). AS first became familiar with the data by personally transcribing the interviews. Next, the interviews were imported into NVivo and anonymized. AS then analyzed them in three steps. Firstly, inductive analysis was performed by coding the transcripts line by line (Charmaz, 2009). A constant comparative method during analysis of each interview was used (Charmaz, 2014). Secondly, deductive analysis was performed, followed by the third step, namely abductive analysis (Charmaz, 2009), in which new patterns may emerge. After four interviews, AS held a consultation with two other researchers (KVDB and an external researcher), after which the topic list was adapted where necessary. The same approach was applied with the following interviews until saturation was reached. Thirdly, AS searched for themes by merging patterns. Then, themes were merged under the topics SC, RWN and PP in function of the research questions, after which the themes were named. Finally, AS wrote the research report.

A two-step member-checking of the findings was conducted by email. In the first step, participants were given the option to add

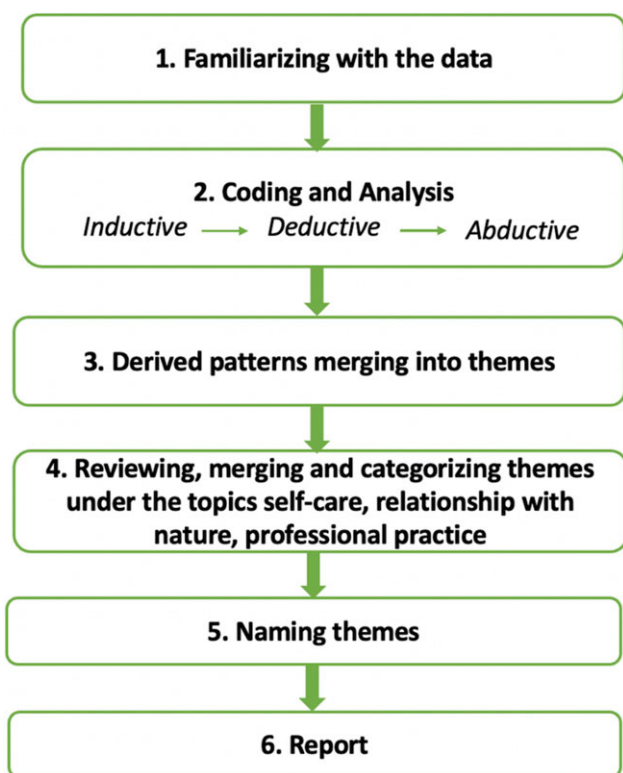


Figure 2. Data analysis based on the six-step framework (Braun and Clarke, 2012).

information to the transcript they received. In the second step, each participant received a summary of the results (see Supplementary Material). Questions were asked about the topics with their respective themes, and answers were offered as multiple-choice, so they could check which patterns they recognized. We also asked how participants were affected by the interview and the member-checking, with the latter being integrated into the final analyses. In addition, an external validity check was performed by giving several presentations to HCP and medical students about the preliminary findings. Cross-referencing the findings in the literature was also executed and new literature sources were searched to further clarify the findings.

Ethical approval for this study had been given by the Ethical Committee Universal Hospital Antwerp with the number EC/PM/AL/2020.060.

4. Findings

4.1. Participants

A total of 19 HCP were contacted, of which 16 participated (Table 1). As we experienced saturation in the analyses, recruitment was stopped at this stage. In the first step of the member-checking, only two persons asked for a small refinement in the transcript. In total, 14 of the 16 participants took part in the second member-checking step.

This study included nine general practitioners, six psychologists and one special education generalist providing psychological counseling. Three GPs combined their practice with teaching at university. Eight HCP were identified as HCP already integrating the relationship with nature into their PP. The codes, used for anonymization, do not reflect the order of interviewing.

Table 1. Distribution of participants

CODE	Age	Gender	Kind of practice	Integrating relationship with nature into professional practice?
GP1	50	V	Private	Yes
GP2	30	M	Group	No
GP3	50	M	Group	Yes
GP4	50	V	Group	No
GP5	51	V	Group	Yes
GP6	40	M	Private	No
GP7	50	M	Group	Yes
GP8	33	V	Group	No
GP9	38	V	Group	Yes
PSY1	27	V	Private	No
PSY2	43	M	Private & hospital	Yes
PSY3	60	M	Private & hospital	No
PSY4	50	V	Private	Yes
PSY5	38	V	Private & hospital	Yes
PSY6	38	V	Private	No
PSY7	33	V	Private	No

4.2. How do primary healthcare professionals in Belgium relate to the topics of self-care, their relationship to nature and its implementation into professional practice, and what are their interrelationships?

Before discussing the interrelationships, the topics of SC, the RWN and its implementation into PP will be addressed individually.

4.2.1. Self-care

Exploring the topic of SC led us to identify three key aspects. First, to stay close to the participants' language and understanding of SC, we developed a general definition based on their input. Second, we determined several SC strategies. Third, we introduced the term 'self-care paradox' to refer to SC being hampered by ineffective personal strategies that impair the goal of SC (e.g., relaxation, recovery).

We invited the participants to describe in their own words what SC means to them and how they experienced it. Summarizing their answers, we defined SC as:

Self-care is a developmental issue in which one can grow, supported by creating time and space for oneself, reflecting and taking care of one's basic needs, physical, mental and social health, preserving several types of balance and a certain stability in life, and activities that bring inner peace, rest and relaxation.

When asked how they take care of themselves, most participants seemed to enjoy **multiple SC strategies**, of which **taking time and creating space for yourself** was most common. As mentioned by one participant it means: *'taking time for yourself and for your needs, to relax, or shift your thoughts or step out of the rush of everyday life'* (GP8). Next, **taking care of physical and mental health** were often mentioned together. Examples were a healthy diet and physical activity (yoga, walking, running, fitness,

going into nature, mindfulness) or seeing a counselor or psychologist when needed. In contrast, **maintaining social relationships** seemed to be of a different order. Some participants mentioned how caring for one's partner, family relationship, or friendships could support SC: 'Self-care is also taking time for the relationship with your partner'. (PSY6). One explanation could be that social relationships are more important to some people than to others: 'I am also a family man. I have found that this is important to me. And that I often find time to go to my grandma or my parents'. (GP2). The most challenging strategy was '**maintaining balance**' between: workload and resilience, work and relaxation, give and take, caring for others and caring for oneself, and finally, feeling good at work and at home. SC has also been understood to focus on what energizes and the important things in life: 'Managing yourself more so that you can be stable in life, investing your time in the things that you find important in life, and investing little time in the things that you don't find important' (PSY2). Other participants mentioned doing enjoyable activities, and 'recharging your battery': 'It's about your balance between real load and load capacity and that you know what gives you energy. That means you ensure enough breaks during a busy day, so that you can charge your battery for a while'. (PSY5). Lastly, SC has also been viewed as **boundary setting**; the ability to feel and set boundaries for oneself, by listening to one's needs: 'And most importantly, I think, also listen to yourself, set your boundaries, make sure that there is occasionally time for self-care' (GP8). In addition, it is about encouraging self-control to stop whenever your boundary is crossed: 'Listening to your needs, and recognizing your boundaries in time to not cross them'. (PSY1).

Lack of energy, mental and physical space, and time have been cited as **barriers to SC**. An attempt is made to change something about the situation, but in retrospect it does not seem to have the desired effect: 'But then I lack the ability to do that. There are always more important things: computer work, patients, family, shopping and the like, and that happens often, far too often'. (GP1). As a result, the person tends to feel more depressed rather than energetic. In other words, in such a case the individual lacks the self-control to use effective SC strategies. Consequently, self-control does not seem to change the situation at a point where SC is really needed. In this study we will refer to this phenomenon as the '**self-care paradox**'.

4.2.2 Relationship with nature

In the interviews we used the word 'nature', by which we mean 'any element of the biophysical system, which includes flora, fauna, and geological landforms occurring across a range of scales and degrees of human presence. "Nature" can therefore be understood as the biophysical environment as it exists without humans, bearing in mind that "nature" is largely a social-cultural construction and its conceptualization varies between different contexts and is inevitably influenced by such contexts' (Zylstra et al., 2014). All participants talked about nature in this sense. In their descriptions, multiple types of landscapes, such as forests, parks, mountains, the garden, the sea, and coastal areas were mentioned. Natural elements, such as birds, plants, grass, flowers and trees were also mentioned.

The exploration about the participants' RWN brought five main findings to light. First, **visits to nature seemed to occur mainly during private time**, that is, on weekends and holidays. On workdays, experiencing nature seemed to be more fragmented and not integrated into everyday life: 'When we travel, that's when we go out into nature, I can enjoy that immensely. But I don't do

that enough in everyday life'. (PSY1). Second, **several qualities and intensities of interactions with nature were mentioned**. For example, nature often seems to be perceived primarily as a context in which we can be active, relax, or experience wonder: 'Walking and hiking I do a lot. It does help me to be outside, to see nature, which is always good to relax'. (PSY5). Although further probing was necessary, deeper emotional experiences towards nature were mentioned. Some even spoke of spiritual and existential experiences: 'I can really enjoy watching seedlings appear. You have beauty, you are so close to life, you see that growing, that tells us so much about life and that is so translatable to who we are as human beings'. (PSY4). An overview of the different mentioned kinds of interaction with nature, ordered in function of qualification and level of intensity, are illustrated in Table 2.

Third, given the findings above, **the overall RWN can be explained along a continuum** (Figure 3). First, there is a level of intensity, namely going from nature contact (shallow) to nature connectedness (deep) (Ives et al., 2017; Richardson et al., 2020). Second, a person's attitude towards nature can range from instrumental to relational (Jax et al., 2018). Finally, the level of direction can range from a unidirectional to a reciprocal relationship, in which the interactions are not only beneficial for humans, but also for nature (e.g., 'giving back to nature').

Fourth, as with the SC topic, **several conditions for experiencing nature** were mentioned. Some participants mentioned the need to be alone: 'Then I like to be alone to empty it all out a bit. Here behind us the forest, the fields. Quiet, away from cars and stuff as fast as possible. That's what I do, peace, just silence'. (GP2). For others it is important to be in the **company of like-minded people**: 'Unless I feel that's someone who can be fully present in nature . . . And then I don't have to be alone, it's about the presence of someone who dares to admit these same things'. (GP1). Admiring or wondering at nature **requires a certain openness or maturity**: 'People must be ready for that (opening up to nature), and that's not always so easy. You must go for a walk and be able to notice that there are beautiful flowers'. (GP5). Some participants mentioned that to experience a deep connection with nature, it is necessary to be **physically present in nature**: 'It's only when you are really standing there that you're experiencing that'. (GP4). Finally, **feeling safe** was also a condition, understood here as the feeling that others would not find it strange if you have a certain experience in nature or, for example, leaning against a tree: 'But when it's really about self-care, the healing potential, I think it's best if I go alone. I might need a high degree of security for opening up. When I go for a walk here in the woods in the neighborhood, it's always crowded, and maybe that doesn't give me enough that safe feeling'. (GP1).

Finally, **several of nature's health benefits** were mentioned, although most participants did not connect it straightly with SC. A **feeling of happiness** was a shared feeling by most participants: 'I get a lot of satisfaction when I'm in nature, you come out of that very happy. It's a kind of endorphin cure that I get, probably also because of working out, and because failure is actually not possible there'. (PSY3). Another participant talked about the **healing power** of nature, for example during recovering from illness: 'In the sense of, time after time, when I go into nature, I experience how it heals. (. . .) In 2012, I had a burnout, and being in nature really was my salvation'. (GP1). Also mentioned was the healing power in the context of grief: 'I had just graduated, my father died of cancer and that was a shock to me. I remember that I went many times to the sea. I got comforted and tranquil by that mass of water

Table 2. Overview of the intensities and qualities of interaction with nature

<p>1. DOING ACTIVITIES Nature is perceived as a context in which activities can be done, such as going for a walk, getting fresh air, discovering, exploring, exercising and adventuring.</p>	<p><i>'I like to go for a walk. Where I live is still green, or there are other forests or greener places where I can go'. (PSY7)</i> <i>'Every Wednesday evening, I visit my parents, and then we always go for a walk, a bit outside. It is a very beautiful trail'. (GP2)</i></p>
<p>2. WONDERING AND ENJOYING BEAUTY Wondering, being touched by, and enjoying the beauty of nature. Experiencing feelings of gratitude. Most of the time, sensory experiences lead to these feelings, such as hearing the leaves of a tree, smelling the flower, hearing the birds, looking at a river, paying attention to the small things and for growing things. Feelings towards nature were also expressed as 'amazing' or 'nature is powerful'.</p>	<p><i>'Purely aesthetically, I can also really enjoy being outside, watching the sun rise, sunset, see spring blooming. Anyway, that's very important to me'. (GP5)</i> <i>'I don't have a big garden, but I can enjoy it very much, for example, when it's dark, or the first flowers in spring, it's fantastic, that sprouting life is so beautiful'. (PSY5)</i></p>
<p>3. LEARNING FROM NATURE Nature is perceived as a learning context and as a teacher for personal life issues. We notice two different learning patterns: The first pattern involves learning about the physical natural environment and enjoying that knowledge; informing and learning happens through observation of natural elements. For example, by focusing on a specific natural element and then expanding that knowledge to the bigger picture, you learn about ecological cycles and how everything is connected. In addition, consulting biological and scientific literature can be helpful. In this category, the participant stays with the ecological explanation of how an ecosystem functions and evolves. The second learning pattern is the metaphorical experience of nature. For example, looking at the same ecological cycles can give us information about where we stand in life. In this light, nature is experienced as a mirror, as a reflection of our inner thoughts and feelings.</p>	<p>Pattern 1: <i>'And then, until recently I didn't know that there, for example, I saw on a certain tree, that there were animals that had been digging. So, there are wild boars out there and they're looking for truffles. So, now I found out that it is indeed a truffle region. This is starting to interest me now. What is a truffle? And so on, and so on'. (PSY3)</i> <i>'It's like the blossoms that bloom. "Too bad, the garden was so nice, but the blossoms are starting to disappear." Three large plum trees that looked beautiful. But if the blossoms stayed, there would be no fruit. And I have nothing to say about that. I can't tell the tree, please leave your blossoms for two more weeks, and then give me your plums two weeks later. Well, that isn't how it works'. (GP1)</i> Pattern 2: <i>'When you realize that society or your own life is completely turned upside down, rather chaos, that you still feel this calmness of the seasons and the changes, that they always come back, this rhythm in it'. (PSY5)</i> <i>'And I think that's what I mean, control mechanisms or mechanisms of change, or whatever you want to call it, versus acceptance. And then to see its beauty, not just the negative of acceptance that leads to sadness, but also gratitude. When you look at nature, she shows it to us constantly. A leaf falling from a tree, yes . . . ' (GP1)</i></p>
<p>4. THE HEALING POWER OF NATURE Going into nature has a healing effect on pain or stress. The combination of silence and the nature experience comforts in times of grief and helps to clear the mind. It helps to see certain worries or difficult moments in life from a different perspective.</p>	<p><i>'In the sense that whenever I go into nature, I keep rediscovering how good it is, how it heals. (. . .) In 2012, I had a burnout, and that (being in nature) was really my salvation. Being able to be there often and since then I've been going there for a few days on my own'. (GP1).</i> <i>'I had just graduated, my father died of cancer and that was quite a shock to me, and I remember going to the sea many times, well, many times in my perception. And I was comforted and calmed by this mass of water, of the power of the water going on and off'. (PSY4)</i></p>
<p>5. LETTING IN NATURE Being in nature is experienced as something to 'let in'. It suggests openness to what is to come, what is perceived and experienced.</p>	<p><i>'I choose to walk without earphones in nature, to enable to let nature come inside' (GP2)</i> <i>'Then I also pay more attention to being aware and being sensory and letting that come in'. (PSY4)</i></p>
<p>6. BEING PART OF NATURE Experiencing a deeper RWN as 'being connected, connection to nature, being part of nature, oneness with nature'. Emerging in the heart, it is an emotional experience, often evoked by sensory experiences, and comes with feelings of safety, gratitude, being moved, silence and peace, responsibility to take care of nature, and feelings of acceptance.</p>	<p><i>'And to be quietly present in nature and to be impressed by the whistling of birds and by the scent of a flower is, for me, to be connected with nature, is to feel part of a whole to which I am incredibly connected with. It makes me emotional, that I am incredibly connected to nature and that I also have an incredible respect for it'. (GP7)</i> <i>'Yes, I feel very strongly about how we are part of nature, how that is the condition for our lives. Because I am also aware of something, very deeply aware, of such a heavy impact that humans have on those balances and on that ecosystem. And from there you feel responsible, where you can, to fix that a little bit. Because we are, our context is, because we are part of that balance'. (GP9)</i></p>
<p>7. EXISTENTIAL EXPERIENCE Experiencing existential feelings, such as feeling small, being in awe of the greatness of nature, or just 'being'.</p>	<p><i>'Nature is always there, too. It doesn't think, doesn't overanalyze, it is just there, just being, that is existential'. (GP2)</i> <i>'Nature is, you see that now also with the corona virus, that is, yes, we are very small, in relation to nature, nature is very powerful, something like this. If I make a path and I don't maintain it, then that will be taken over by nature in no time, for example. It's a continuous relationship you have, so I'm not going to say a fight. The trees too, for example, I am very interested in trees, simply because of that. It's a different world'. (PSY3)</i></p>

and the tides'. (PSY4). Going into nature might also lead to a **feeling of inner peace**: 'Nature is really a place where I look for peace and quietness. That's a lot more soothing. Looking at things in wonder, that's where I can best clear my mind'. (GP8). Finally, it

helps to **relativize or see things from another perspective**: 'Yes, vacation, having a break, it's not all that important when you're sitting here [in nature]. It helps you to put things in perspective'. (GP5).



Figure 3. Continuum of the relationship with nature explained by its level of intensity, attitude and direction.

4.2.3. Implementation into professional practice
Implementation of self-care into professional practice. The implementation of SC concerns two levels. The first concerns the degree of SC while working, the second concerns addressing the topic of SC during the consultation.

When AS asked ‘how do you perform SC in your PP?’, AS received answers that concerned their patients or clients rather than themselves. This may be due to a linguistic misunderstanding or another underlying pattern. Therefore, AS asked the question more explicitly. Those who seemed more aware of the need for SC while at work referred to the SC strategies they had learned during their professional education, such as time management, organizational strategies (e.g., having a well-functioning secretary or outsourcing of the telephone system) and self-reflection.

During consultations most HCP address the topic of SC, each using their own method. Generally, they will first ask their patients or clients how the person performs SC. Additionally, they do **self-disclosure about their own SC strategies**, based on what has proven to be successful for them: ‘I always tell the patient that this is what works for me; I also sought and found that out through trial and error, and that that’s exactly the process they’re in now’. (PSY4). Next, it appears that the **HCP use distinctive roles to address the topic of SC** during their consultations (Table 3). Inspired by the Social Role Theory in social sciences (Biddle, 2013), we define ‘role’ in this study as ‘a coherent set of patterns of behavior or use of certain communication skills, expected of the HCP when addressing a specific topic during the consultation’. For example, the topic of SC might be discussed using **an educational role** in which the patient or client is taught why it is important to take care of oneself: ‘I teach them, together, to see what they should invest more in, and what they should invest less in’. (PSY2). Another example is the **role of awakening**, in which the patient or client may be confronted with his patterns or other perspectives: ‘If that’s

really important for you, medication alone is not going to solve it, you also need to make an effort’. (GP2).

Interestingly, more roles were crossed in the member-checking than were mentioned during the interview. From a scientific and methodological point of view, it may be that the roles offered stimulated a certain amount of wishful thinking. On the other hand, one might assume that reflecting on personal themes using multiple methods (e.g., interview, questionnaire, sharing best practices), could lead to raising the participants’ self-awareness.

Implementation of the relationship with nature into professional practice. While the participants show some richness in their RWN, we found that it is rarely implemented into their PP with the same depth. Also, it is not often offered as a complementary healthcare option. Nevertheless, after probing, some examples of the inclusion of the RWN in PP were mentioned and confirmed in the member-check, which we discuss below.

Some participants introduce **plants, pictures of nature, and nature magazines in their office**. Using **nature stories or metaphors** to inspire their patients or clients was also an example. This helps to clarify something in a different way. Also, one participant said he uses them when it is not possible to go out into nature: ‘I work a lot with hypnotherapy. A very rewarding source for me are nature stories. When you are in a trance, you can experience that. So, in that sense the client automatically gets the experience of nature’. (PSY2). Some participants **prescribe non-formalized nature prescriptions**. For example, suggesting the patient or client **goes for a walk**, as green exercise (Barton & Pretty, 2010), is most common, while not always indicating this should be in nature. However, three participants explicitly stated their preference that the walk should be in nature: ‘I say that hundreds of times they should go more into nature, into the woods. I always say, look, you can take ten medicines here, there’s one medicine that’s the best,

Table 3. Use of roles when addressing the topic of self-care during the consultation

Use of roles when addressing self-care during the consultation	Quotes
<p>MAPPING There is a variety of psychological methods primarily used by psychologists to discuss SC. For example, the introduction of emotion regulation, the reflection on obstructive thoughts and behavioral patterns, and the invitation to the client to make a mind map of 'who am I as a person' are used. Finally, helping the client to reflect by discussing his blind spots was mentioned as well. The GPs will ask more reflective questions.</p>	<p>'And then I start thinking very consciously with that person of: "what do you do to take care of yourself?" I will always ask: If you feel bad, or have a hard day: how do you take care of yourself? What do you do for yourself to feel good or to comfort yourself or find solace? That's about emotion regulation, isn't it?' (PSY7)</p> <p>'What I often frequently do is let them make a mind map about "who am I as a person?" It is easy to get stuck in life. Daily life is busy, we have a lot to do and then you lose a little bit of yourself as well. So then to really go back to basics and then, "what are my hobbies, what are my interests? What's my favorite color? What kind of smells do I like and soothing? What's my favorite kind of day in terms of weather?." All these things, to bring them up and then we really got a visual, yes, we'll say that and from that, and then try to look at okay, how much of, what interests us, are our passions and what makes us happy and what do we enjoy, how much of that is present in our lives? And how can we integrate that a little more, so that we do things for ourselves, but also do things that are necessary?' (PSY6)</p>
<p>STIMULATING Asking for successful experiences and behavioral patterns concerning SC.</p>	<p>'I often ask what they already like to do or what they want, for example, what they did earlier to relax, because often they have exercised it in the time before they had children, or even before they started a certain job. And then very often something comes out of that'. (GP8)</p> <p>'Yes, so I think in general it's easier if there's a germ, if you feel there was already interest, you can stimulate that'. (PSY5)</p>
<p>EDUCATING An educational approach, in which they teach something to their audience.</p>	<p>I tell them that they should take better care of themselves. Yes, I explain that. I mention that with a lot of people like this: 'I notice that you are taking care of a lot, but not for yourself'. (GP8)</p> <p>I teach them, together, to see what they should invest more in, and what they should invest less in. (PSY2)</p>
<p>ADVISING Staying close to the world of the patient or client, sometimes advice is given. The intent is to speak out on something that is already present, or through reflection camouflaged in advice.</p>	<p>'Yes, I now have someone in front of me who really liked to paint, who hasn't done that in years, or people who like to do photography and that you then say: okay, now you are going to take care to have two hours off this week and do that. And then you see that people discover from "ha, look" and then if they follow that up, then they can schedule that a little more and make sure that they do it'. (GP8)</p> <p>'I give the advice to look differently from a different angle. What does that mean if we do not take care of ourselves, once viewed from that angle and not so much from a duty point of view?' (PSY4)</p>
<p>RESEARCHING Taking the stance of a researcher, by asking mainly 'how' questions and doing research together.</p>	<p>'I don't consider it as advice. I think that's how I look for meaning with people. What inspires you, what calms you down? And because they keep thinking about that, we sometimes make the switch to: "OK, how can you translate that into concrete steps?"' (PSY5)</p> <p>'Yes, like this you do research together about the essence of life' (PSY6)</p>
<p>STORYTELLING Using stories, examples of other patients or clients.</p>	<p>'When I talk to the patient in front of me, I very often use other people's stories to argue. Because that brings them to their world, that's how I make things clear. And so, I get that from everywhere, those stories, from things they tell me, that they go through. That's how I think I help other people to come to their own'. (GP5)</p> <p>'For me a very rewarding source are the use of nature stories'. (PSY2)</p>
<p>CRAFTING Helping to install new habits.</p>	<p>'Like a lot of exercise, eating habits, we really installed that here at home. For example, that you eat a lot of fruits and vegetables, anytime. Yes, some things you install, so that happens automatically afterwards. I can convey that to patients, which is not something you "have to." But it is something you install to create a framework, of which you will feel easily better'. (GP9)</p> <p>'For instance, how do you get to work? And how far is that? And can't you just do that on foot, actually? So looking that they can just do it daily basis'. (GP8)</p>
<p>INSPIRING Use of methods of reframing SC, to inspire or encourage their patient or client. The participant does this by explaining what SC might stand for, what it is or by appreciating the small things their patient or client mentions.</p>	<p>'I try to inspire people.' How would it be if your body feels really healthy?, I try to approach that a little bit in a different way instead of 'you have to buy cholesterol poor butter and stuff'. (GP9)</p> <p>'That you let people come up with what gives them strength, and that you have to work with what people bring. But yes, sometimes they say, "all I can do is going for a walk for half an hour." Ok, I can use that, I can say then: "that in itself is very valuable". (PSY5)</p>

(Continued)

Table 3. (Continued)

Use of roles when addressing self-care during the consultation	Quotes
<p>AWAKENING Gently confronting the patients or clients with new perspectives or inviting them to broaden their horizon.</p>	<p><i>'And dare to say it, to make people aware of their responsibility. I like to say it like this: "look you're sitting here with your request for help, so you're sitting here with a problem" "you can't sleep," so that means it's important to you, what does that mean for you?' I try to talk about that, and I ask: 'what does that mean for your self-care? And to what extent are you familiar with this?' (GP2)</i></p> <p><i>'I look at people's behavior and I really try to motivate people to literally broaden their horizons by going outside'. (PSY5)</i></p>

that's going for a walk'. (GP5). Two participants sometimes refer their patients or clients to another HCP working in nature (e.g., nature coach or ecotherapists): 'When I notice that their self-care is very strongly linked to nature, I tend to send them to a nature coach. (. . .). Or people who are very reluctant towards psychologists . . . it is much less threatening than going to a (traditional) therapist'. (GP8). Finally, three participants take their patient or client into nature for several reasons. It can be easier to talk as it creates inner space: 'It is stepping out of the dialogue, and going into nature. It is sometimes even more profound, or something can easier be said in nature while walking, than right in front of each other'. (PSY2). Or when oxygen is needed during the conversation, or the patient or client needs to be activated when depressed: 'Once I worked with a patient with a trauma. I worked with her constantly in nature, and that has meant an incredible breakthrough in her development'. (GP1). For GPs at least, they need to organize their practice in such a way that this is possible.

4.2.4. Interrelationships between the topics

Several patterns arose when considering the interrelationships between the topics. First, attention is paid to both SC and RWN mainly during private time, and is hardly present during PP. Second, certain conditions must be met to make them both possible. At the same time the SC-paradox could also affect the RWN, as going into nature seems not to be an option when the conditions are not met. Consequently, given the combination of the SC-conditions, the SC-paradox (see 4.2.1) and the RWN-conditions (see 4.2.2), a certain complexity seems to arise in the interrelationship between SC and RWN which could jeopardize going out into nature. An interesting example of this complexity was clearly demonstrated during the Covid-19 pandemic. The condition of being alone was not met, and so nature visits decreased during this period: 'Where my mom's country house is, in the forest, there is a beautiful walk from Natuurpunt, where usually you are alone, but now you have to queue. Because of that we just don't go there anymore'. (GP8). Finally, although some participants bring nature into their PP (see above), the depth of their own RWN is not disclosed during consultations. In contrast the invitation to visit nature is mainly limited to walks.

This study resulted in an overall pattern that we termed 'nature-connected care awareness' (NCCA), which may mediate the interrelationships discussed above. Participants mentioned that the interview and the second member-check step led to increased awareness and agency. For example, in the second step of the member-check, 11 of 14 participants replied to the question 'What did you personally gain from the interview and the report?' that they experienced it positively. 'Strengthening awareness' (PSY4), 'being inspired' (PSY5), 'encouraging me to . . .' (GP1), 'helping to reflect' (GP2), described this experience more in detail. There also seemed to be a greater understanding of the interrelationships between SC, RWN and its possible implementation into

PP: 'I really liked the questionnaire about the ways in which nature can be used in healthcare (and self-care). To see it explicitly mentioned, makes you think about it more consciously. I feel inspired and will make more use of it'. (PSY5). In addition, some participants seemed to be stimulated into agency: 'It encourages me to get out into nature more, to involve nature more in both my self-care and in caring for others!!! Nice reminder!' (GP1).

Overall, this study suggests that NCCA, evoked by the participants' reflexivity, could be an interesting facilitator in including an integrated, holistic and transdisciplinary health approach, such as OH, in PP with potential to become a role model.

5. Discussion

This exploratory qualitative study has shed light on how Belgian primary health care professionals (HCP) relate to the topics of self-care (SC), their relationship to nature (RWN) and its implementation into professional practice (PP). Also, we now have a greater understanding of how these topics and their interrelationships may be mediated by raising awareness, before coming to agency. After discussing the key findings, we discuss the implications for PP.

Firstly, the HCP appear to employ several SC strategies, mainly applied during private practice. However, whenever certain conditions are not met, several HCP fall into a SC-paradox, turning to ineffective SC strategies (for details see 4.2). Furthermore, at work, SC seems to be overlooked. Several studies have identified this discrepancy between private and professional practice (Bressi and Vaden, 2017). However, those who manage to be aware of their SC during work mainly mentioned strategies such as time management, organizational strategies, and self-reflection. Studies have shown that being aware of and self-monitoring one's needs play a role in effective SC (Posluns and Gall, 2020).

In discussing the topic of SC during the consultation, the HCP use various roles (examples are given in 4.2.3). In doing so, the HCP may use self-disclosure (SD) about what works for them. However, in this study we found only a few examples of RWN in SD.

Secondly, according to the findings in this study, RWN encompasses a continuum ranging from contact with nature (shallow experience) to connectedness with nature (deep experience), from an instrumental to a relational attitude towards nature, and from a unidirectional to a reciprocal relationship with nature. Within this continuum, one can experience various intensities and qualities of interactions with nature. Along the same lines, Lumber et al. (2017) and Ives et al. (2017) found several ways to interact with and experience nature. Like Richardson et al. (2020), we distinguish between contact with nature and connectedness with nature, which differ in emotional depth and type of relationship. The first assumes that nature is still something external to us, in which nature is perceived as a commodity that can be used, while the second is more relational, in which one might feel part of nature (Mayer et al., 2009; Nisbet and Zelenski, 2013; Tam, 2013;

Capaldi et al., 2014). In the case of the latter a more reciprocal, interdependent relationship with nature is present. From an ecopsychological point of view reciprocity means the relationship is characterized by an attitude of giving back to nature and making lifestyle choices which are beneficial to humans and nature at the same time.

When implementing RWN into PP, a discrepancy between private and professional practice arises here as well. Despite the various interactions and experiences with nature mentioned by the HCP, unlike the other SC strategies, they seem not to be disclosed during the consultation. Instead, **nature-oriented invitations generally appear to be limited to nature walks** rather than invitations to develop a deeper RWN. Discussing these distinct components of RWN with the HCP could provide insight and support in moving towards integrating for example a OH approach in both private and professional practice. Additionally, **using a specific role** as used with the SC topic could be a **helpful tool to engage RWN during the consultation**. These kind of roles, concretized by communication and coaching skills, are also used in psychotherapy and coaching. It could be an opportunity to include them in the HCP education curriculum when it comes to address specifically the RWN during the consultation.

Finally, the reflexive interviews and the member-check in this study have led to the **participants' raised awareness and agency regarding their SC, RWN and its implementation into PP**. We have termed this '**nature-connected care awareness**' (NCCA). We hypothesize that NCCA could be a facilitator in integrating, for example, the integrated, holistic and transdisciplinary OH approach into the PP, whilst becoming a role model. For example, GPs, based on their NCCA and knowledge of scientific evidence, could invite their patient to spend time in nature daily and explain how developing a reciprocal relationship with nature can improve well-being and care for nature, as found in OH and ecopsychology. An interesting example was mentioned by a GP in her thesis (Mortier De Borger et al., 2022) of how she communicated with her patients: *'Going into nature decreases stress hormones, and increases your energy level. For example, you go into nature for half an hour a day and for a total of two hours per week. You can walk, sit on a bench, read, chat, eat lunch, and more. In addition, you can enhance the health effects if you actively pay attention to the natural environment, such as listening to rustling leaves, bird calls, watching cloud formations, enjoying rays of the sun, or raindrops'*. Furthermore, as a role model, HCP can give examples (self-disclosure) of how their RWN contributes to their health and care of nature and how these dimensions are intertwined. Similarly, when working in a healthcare organization, HCP, based on their NCCA, could operationalize a OH approach by considering (reciprocal) nature-based health interventions for their patients or clients, if appropriate. However, the quality of the design and implementation of such nature-based health interventions depend on quite some different actors. For example, when designing and implementing such an intervention, it would be advisable, as promoted by the OH approach, that HCP collaborate with other professional sectors (e.g., landscape architects, sustainability, human resources) and work transdisciplinary by involving multiple levels of the organization, stakeholders, and even patients or clients (Sterckx et al., 2021). Another aspect is that, hypothetically, NCCA and the operationalization of a OH approach in PP may support a so-called 'instrumental and relational type of reciprocity' in the human-nature health relationship. First, instrumental reciprocity arises from creating a biodiverse natural environment beneficial for human health, while at the same time,

biodiversity supports the restoration of ecosystems. Second, HCP can stimulate a relational type of reciprocity when guiding their patients or clients in developing their RWN (e.g., nature connectedness), which could lead to healthy and ecological lifestyle choices and behaviors. For these reasons, we suggest that it would be useful to incorporate NCCA into the education curriculum of HCP, facilitating the inclusion of an integrated, holistic and transdisciplinary OH approach in PP.

5.1. Implications for professional practice

5.1.1. The self-care paradox

In our study we identified the so-called SC-paradox. In this case, adequate self-control, which has been mentioned in previous studies as a critical mediator in SC (Martínez et al., 2021), seems to fail. The same applies to PP, where SC often takes a back seat while working.

Similarly, when it comes to RWN, the SC-paradox arises as well. If we consider developing the RWN as a possible SC strategy, a failure in self-control and a certain complexity might also occur when going into nature. In this case, many conditions or enablers have to be considered before a decision to go into nature may follow. For example, a person who would like to take care of themselves by going into nature would have to simultaneously consider the conditions or enablers mediating SC and RWN. In that sense, we might assume conflicts between both may arise.

A previous study, focussing on self-control and exercise, emphasized the importance of having a long-term goal to maintain self-control. Self-control is understood here as *'the mental capacity of an individual to alter, modify, change or override their impulses, desires, and habitual responses'* (Boat and Cooper, 2019). In addition, a bi-directional relationship might emerge, in which regular training could even instill self-control (Boat and Cooper, 2019). The same could apply to the RWN. For example, a long-term goal (e.g., improving mental health) combined with regularly engaging with nature that opens the opportunity to deepen the RWN, could initially help overcome the SC-paradox. We expressly encourage the development of nature connectedness, beyond just walking in nature, as previous studies indicated that the latter would not deepen the person's RWN (Lumber et al., 2017; Richardson et al., 2020). Likewise, we speculate whether deepening the RWN might promote a bi-directional relationship between self-control and RWN, thus overcoming the SC-paradox.

5.1.2 Self-disclosure and use of several roles: An opportunity for implementing the relationship with nature in the professional practice and in being a role model?

Our study showed that self-disclosure (SD) of the HCP during the consultation might occur, merely related to what works for them regarding SC. In contrast, personal interactions with nature and how it benefits them were generally not disclosed during the consultation. Although the value of the use of SD in a therapeutic or medical setting is a discussed and controversial theme in healthcare literature (Knox and Hill, 2003; Arroll and Allen, 2015; Mann, 2018) and most HCP are trained not to self-disclose (Arroll and Allen, 2015), studies show that SD is used by HCP under certain conditions (Arroll and Allen, 2015; Mann, 2018). SD can be broadly defined as 'therapist statements that reveal something personal about the therapist' (Hill et al., 2018). Despite the lack of consensus of its use, SD might be a helpful intervention when used in a skillful way, supported by guidelines, and trained in professional education (Knox and Hill, 2003; Mann, 2018).

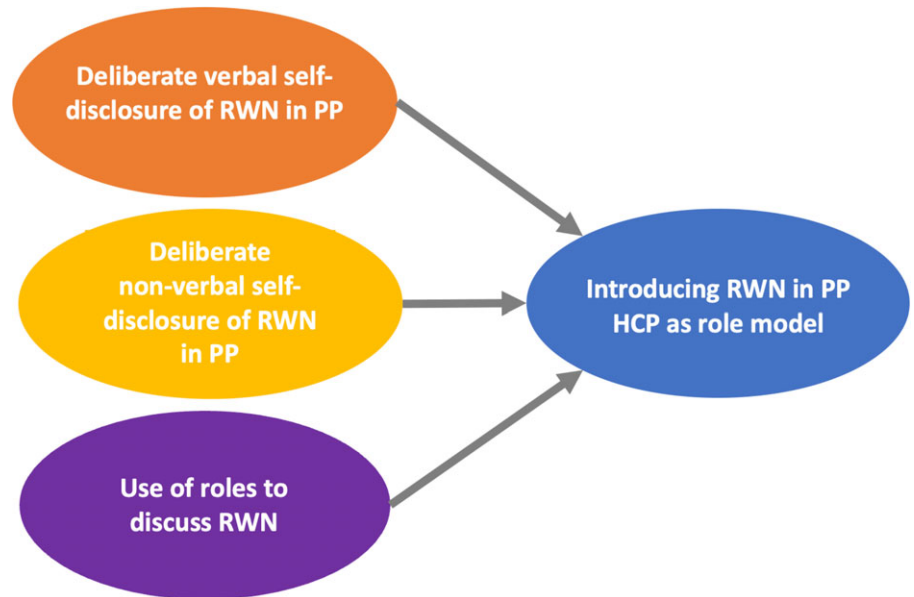


Figure 4. Introducing the relationship with nature (RWN) into professional practice (PP) and being a role model, by using self-disclosure and roles.

Furthermore, previous studies have differentiated between verbal and non-verbal SD (Dean, 2010; Hill et al., 2018; Graham et al., 2019). In this study, it became clear that the verbal SD (Hill et al., 2018) about his RWN experience and its benefits tend to be absent. Instead, HCP limit their nature-oriented suggestions to ‘a walk (in nature)’. Besides HCP having been trained not to self-disclose during consultation, another explanation could be that they try to maintain a split between personal and professional selves for SC-purposes (Søvdal et al., 2021). SD requires HCP to be vulnerable and maintain their affective boundaries. Relating to nature might be experienced as a very personal and emotional matter, making its discussion difficult. Furthermore, the growing attention of the scientific and professional world to the nature-human-health nexus in recent years could indicate that this topic had previously been given little credibility. This fragmentation could be of concern since SD is an important pattern in being a role model (Knox and Hill, 2003). Taking all this into account, the use of deliberate SD with careful thought in which HCP decide what exactly to disclose (Mann, 2018) could be an opportunity to share his broader personal RWN experiences during the consultation. Combined with using several roles, as generally done for other SC strategies, HCP may engage in deep conversations with their patients or clients to explore a broader realm of nature experience, and inspire where necessary (Figure 4). For instance, using the role of ‘educating’, HCP could self-disclose how certain intensities and qualities of their RWN benefit themselves and why this is important in life and work. Then, for example, they could switch to the role of ‘researching’ and explore with their patient or client which kind of interactions with nature would be attractive. Furthermore, non-verbal SD, such as putting plants, nature pictures or magazines in the consultation room may also help HCP to act as a role model for their patients or clients.

Therefore, we suggest that the mere use of SD might offer an opportunity for being a role model for their patients or clients (Figure 4).

However, while pointing out that SD could be seen as an opportunity to introduce RWN to patients or clients, and thus used as an intervention (Graham et al., 2019), the conditions for its correct use (Knox and Hill, 2003; Arroll and Allen, 2015; Hill et al., 2018; Mann, 2018) should be considered, such as the SD-type,

the decision when not to disclose (Danzer, 2018) and its possible consequences. Therefore, we recommend that deliberate SD combined with the use of roles could be considered as a skill to be thoroughly trained during the professional education, when it comes to introducing the RWN into PP.

5.1.3. Fostering nature-connected care awareness as leverage in integrating nature into PP?

Cultivating a deeper RWN, such as nature-connectedness or a reciprocal relationship with nature, can lead to a greater well-being and living a meaningful life while caring for nature (Buzzell & Chalquist, 2009; Zylstra et al., 2014; Martin and Czellar, 2016; Richardson et al., 2020). Our study showed that the implementation of RWN into PP is not a shared practice. First, the discrepancy between personal RWN and its implementation into PP could stand in the way of becoming a role model, as discussed above. Another explanation might lie in the possibility that HCP are simply unaware about the benefits of having a conversation with their patients or clients on RWN or about the possibility and the knowledge on how to prescribe nature. For instance, in this study, it turned out that according to the participants the reflexive conversations about the topics of SC, RWN and PP, led to increased awareness, inspiration and agency. Additionally, several participants mentioned that they are interested in the other participants’ views on SC and RWN as a way to mirror themselves and gain self-knowledge and inspiration as they struggle with these topics. Combined with the findings discussed above, we propose the following preliminary framework to raise NCCA, for facilitating the process of introducing RWN into PP and in becoming a role model (Figure 5). For example, to stimulate NCCA, reflexive conversations could be held about each topic. The barriers or enablers should also be discussed and how they might influence SC and RWN. Furthermore, becoming a role model can be conveyed through the use of verbal and non-verbal self-disclosure combined with the roles on addressing SC and RWN in PP. Additionally, although hypothetically, we could assume that raised NCCA could contribute to the more conscious employment of SC strategies and of RWN, and of how self-disclosure and roles can be used in introducing RWN into PP. However, more research is needed to confirm these bi-directional mechanisms. Interestingly, HCP could have the

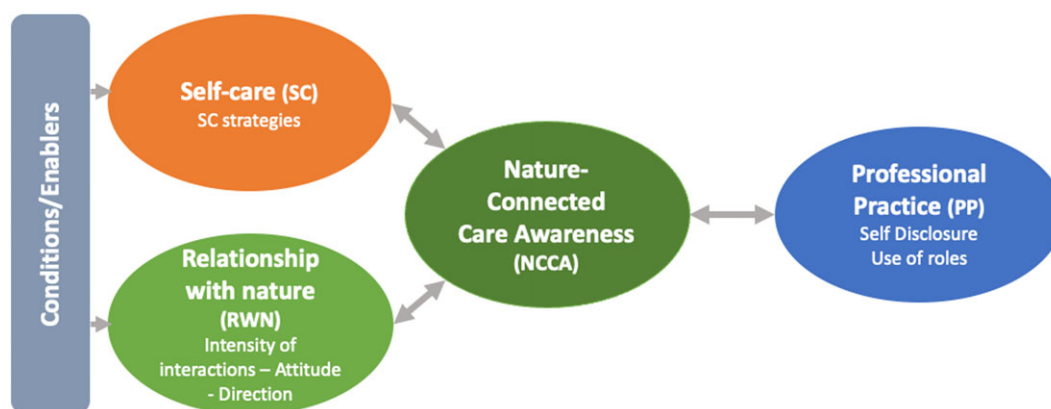


Figure 5. Framework for healthcare professionals to raise Nature Connected Care Awareness.

same conversation with their patients or clients and encourage SD, opening a space for deep conversation about RWN (Davidson, 2019) and helping in raising their NCCA.

The same could be true for integrating a OH approach into PP, which has been criticized for seeming to marginalize the perspectives of social sciences (e.g., psychology) (Roger et al., 2016). Also, it could teach HCP how to communicate with their patients or clients about nature-connected care (NCC) so that it is better understood by both parties (Lapinski et al., 2015). As such, professional education curricula could consider integrating NCC and invite and teach HCP to do the same in their PP.

5.1.4. The changing role of the health care professional

Finally, given the findings in this study and the call on HCP to integrate NCC into their private and professional practice, this study could invite reflection on the critical societal and ethical issue related to the extending role and professional identity of HCP: What precisely does it mean to be one of these HCP today? Based on the findings and reflections in this study, the professional identity of HCP no longer appears to be limited to being caregivers for humans. Nowadays HCP seem invited to expand their professional identity with the following four components.

First, HCP could perceive SC as imperative (Barnett and Cooper, 2009; Wright, 2020) and an act of professionalism (Bressi and Vaden, 2017; Wright, 2020), and thus integrate it into their professional identity (Barnett and Cooper, 2009). Personal and professional self should no longer be viewed as two separate aspects of self but as one whole (Bressi and Vaden, 2017), serving the human-nature relationship.

Second, as a role model, the HCP could propose their patients or clients to develop RWN as a complementary health intervention. The Orem's framework (Martínez et al., 2021) in which the HCP, becoming an SC-agent practicing SC strategies, could help their patients or clients to do SC. Likewise, the HCP could become a 'NCCA-agent', using for example verbal and non-verbal self-disclosure and several roles to inspire their patients or clients while acting as a role model.

Third, due to their kind of work, HCP are confronted with ethical dilemmas. In this light, NCC could be perceived and included as an ethical dilemma in PP. For instance, in ecopsychology the person is perceived as part of nature, and thus the human-nature-health relationship is interdependent. In this light, new themes such as the RWN, climate change and ecological lifestyle could become part of reflexive conversations of HCP, which

they could have between colleagues and with their patients or clients. In addition, sharing best practices between HCP could be helpful towards developing knowledge and agency. Therefore, communities of practice including collaborative reflective inquiry (Wesley and Buysse, 2001) would be an interesting medium for HCP to raise their NCCA and to learn how to expand their professional roles.

Finally, HCP could practice reflexivity (Cunliffe, 2016; Allen et al., 2019) to raise their NCCA, which might facilitate the integration of for example a OH approach. In addition, by developing a deeper, relational and reciprocal RWN and feeling part of nature, HCP could perceive their patient or client as a situated ecological and psychological being whose health depends on nature's health and vice versa. Moreover, doing so could respond to the suggestion of the IPCC 2022 Mitigation of Climate Change report to enter an inner transition process, for instance, through raising awareness, changing beliefs, values and agency regarding the human-nature-health relationship (Prescott et al., 2022). Professional education of HCP and public health associations could play a role in this transition and consider using our recommendations.

5.1.5. Strengths and limitations

This explorative study led to a preliminary framework to support HCP in fostering NCCA as a possible mediator of the interrelationships between SC, RWN and their implementation into PP (see Figure 4) and becoming a role model. However, further research to refine its findings and make them transferable on a broader scale is necessary. Nonetheless, the identified themes with their subsequent patterns are grounded in the data and were validated during the two-step member-checking.

Nevertheless, this study has several limitations.

First, the fact that the HCP self-selected to participate makes the study susceptible to selection and response bias regarding the topic of SC, particularly since the study was held during the Covid-19 pandemic when SC was at stake in the healthcare sector. In addition, at the end of the interview, AS asked the participants who of their colleagues she could contact and with the specification: 'colleagues who have and have not yet integrated their relationship with nature into professional practice'. Consequently, these references are based on the participant's perception of someone's RWN and are possibly biased. Thus, we infer that some participants have a positive relationship with nature in addition to the pandemic-related heightened interest in SC. Nevertheless, this approach resulted in a heterogeneous group of participants.

This information is useful for comparison with similar studies that may be undertaken in other countries.

Second, due to a small sample, we have not compared the outcomes between the GPs and psychologists on the research questions. For example, in Belgium, a psychologist has generally a time slot of 45 min per client, which gives them the opportunity to go into nature with the client, when nature is nearby. In contrast, a GP typically works in 15–20 min time slots and this specifically asks for changes in his time management if he wants to go out into nature. Integrating nature in a GP's profession requires far more effort for practical reasons alone. So, given this difference, system change, for example in the way GPs are paid and the length of time slots, should also be adapted. This shows that integrating nature into PP is a much more complex issue than just raising NCCA. Still, using self-disclosure and several roles in approaching SC and RWN in their PP could help HCP in becoming a role model and promote NCCA in their patients or clients. Other approaches and skills, not mentioned in this study (e.g., mindfulness), could also be explored further.

Third, AS is the principal investigator in this study. She is an ecopsychologist, Belgian representative of the International Ecopsychology Society⁴ and owns a school to train facilitators to reconnect people with nature. Therefore, due to AS' familiarity with the topics, bias cannot be ruled out when coding, interpreting and sharing the findings. However, AS adopted in this study a reflexive attitude (Berger, 2015; Cunliffe, 2016). She practiced self-reflection on the quality of questions and reactions after each interview. Supervision and discussions with colleagues from similar and different backgrounds, using the two-step member-checking, and holding external validation checks with healthcare professional students have countered possible biases as much as possible.

5.1.6. Further research recommendations

SC and the RWN being both complex concepts, further research is needed. There are still many unanswered questions about their interrelationship and how it can be integrated into PP.

First, while there are studies on the identified discrepancies between private and professional practice in relation to SC, these could be further explored for RWN. For example, it would be interesting to learn how the SC-paradox might counteract RWN. Next, to become a role model, we propose further research on seeing oneself as a tool in PP by integrating SC and RWN into the professional identity of HCP. Regarding the integration of RWN into PP, further research could inform us about how and when the use of SD and roles are best applied, and the impact they have on the lives and work of their patients or clients. To our knowledge, there is no research on the use of SD and roles in relation to RWN by HCP. Deepening these insights could also contribute to a better understanding of the value of developing NCCA and how it could help to become a role model while integrating, for example, a OH approach into PP. In addition, it could lead to the development of guidelines to support HCP and public health organizations and inform the professional education of HCP. Finally, conducting a survey with a larger sample of HCP and comparing differences between GPs and psychologists, age, gender, and type of practice (e.g., private, public, group) might be interesting for future research.

Data availability statement. The data that support the findings of this study are available on request from the corresponding author, AS. The data are not publicly available due to privacy and ethical.

Acknowledgements. The authors express gratitude to all participants in this study during the difficult period of Covid-19 pandemic. We thank Susan George, language coach (Linguapolis), for proofreading this paper.

Author contributions. AS conducted the research and wrote the original draft of the manuscript. KVDB, HK and RR critically reviewed the manuscript. All authors have read and approved the final version of the manuscript.

Financial support. The University of Antwerp, Chair Care and the Natural Living Environment, which is funded by the Province of Antwerp, supported this work.

Conflict of interest. The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Ethical statement. The studies involving human participants were reviewed and approved by the Ethical Committee Universal Hospital Antwerp EC/PM/AL/2020.060. The participants provided their written informed consent to participate in this study and for the publication of any potentially identifiable images or data included in this article.

Supplementary material. To view supplementary material for this article, please visit <https://doi.org/10.1017/one.2023.5>

Notes

- 1 <https://www.woncaeurope.org/>
- 2 <https://www.planetaryhealthalliance.org/clinicians-for-planetary-health>
- 3 <https://www.climatepsychologyalliance.org/>
- 4 <https://www.ies.bio>

Connection reference

Keune H (2022) How can we operationalize the promotion and evaluation of nature related 'green' health care within a One Health perspective? *Research Directions: One Health* 1, E3. <https://doi:10.1017/one.2022.8>

References

- Allen S, Cunliffe AL and Easterby-Smith M (2019) Understanding sustainability through the lens of ecocentric radical-reflexivity: implications for management education. *Journal of Business Ethics* 154, 781–795.
- Arroll B and Allen E-CF (2015) To self-disclose or not self-disclose? A systematic review of clinical self-disclosure in primary care. *British Journal of General Practice* 65, e609–e616.
- Barnett JE and Cooper N (2009) Creating a culture of self-care. *Clinical Psychology: Science and Practice* 16, 16–20.
- Barton J and Pretty J (2010) What is the best dose of nature and green exercise for improving mental health? A multi-study analysis. *Environmental Science & Technology* 44, 3947–3955.
- Bauer G, Davies JK, Pelikan J, Euhpid Theory Working Group and The Euhpid Consortium (2006) The EUHPID Health Development Model for the classification of public health indicators. *Health Promotion International* 21, 153–159.
- Berger R (2015) Now I see it, now I don't: Researcher's position and reflexivity in qualitative research. *Qualitative Research* 15, 219–234.
- Biddle BJ (2013) *Role Theory: Expectations, Identities, and Behaviors*. Academic Press.
- BMA (2019) Caring for the mental health of the medical workforce. *Preuzeto* 10.
- Boat R and Cooper SB (2019) Self-control and exercise: A review of the bi-directional relationship. *Brain Plasticity* 5, 97–104.
- Braun V and Clarke V (2012) *Thematic Analysis*. American Psychological Association.
- Bressi SK and Vaden ER (2017) Reconsidering self care. *Clinical Social Work Journal* 45, 33–38.

- Butler LD, Mercer KA, McClain-Meeder K, Horne DM and Dudley M** (2019) Six domains of self-care: Attending to the whole person. *Journal of Human Behavior in the Social Environment* **29**, 107.
- Buzzell L and Chalquist C** (2009) *Ecotherapy: Healing with Nature in Mind*. San Francisco: Sierra Club Books.
- Capaldi CA, Dopko RL and Zelenski JM** (2014) The relationship between nature connectedness and happiness: a meta-analysis. *Frontiers in Psychology* **5**.
- Charmaz K** (2009) Shifting the grounds. In *Developing Grounded Theory: The Second Generation*, Routledge: 127–154.
- Charmaz K** (2014). *Constructing Grounded Theory*, Los Angeles: Sage.
- Chirico F, Nucera G and Magnavita N** (2021) Protecting the mental health of healthcare workers during the COVID-19 emergency. *BJPsych International* **18**, E1.
- Cunliffe AL** (2016) “On Becoming a Critically Reflexive Practitioner” Redux: What Does It Mean to Be Reflexive? *Journal of Management Education* **40**, 740–746.
- Danzer GS** (2018). *Therapist Self-Disclosure: An Evidence-Based Guide for Practitioners*. Routledge.
- Dattilio FM** (2015) The self-care of psychologists and mental health professionals: A review and practitioner guide. *Australian Psychologist* **50**, 393–399.
- Davidson S** (2019). Self-disclosure as a therapeutic tool: Ethical and practical considerations. In *Professional Issues in Clinical Psychology*, Routledge: 103–110.
- Dean BL** (2010). *Therapist Self-Disclosure: Heterosexuals’ Perceptions of Sexual Minority Therapists*. University of Minnesota.
- Deman F, Seys D, Cools O, De witte A, Claes S, Van den Broeck K, De Paepe N, Lowet K and Vanhaecht K** (2022) Gepercipieerd psychisch welzijn en steunfiguren bij artsen tijdens de eerste golf van de COVID-19-pandemie. *Tijdschrift voor Geneeskunde en Gezondheidszorg (TvGG)*.
- Dyrbye LN, Shanafelt TD, Sinsky CA, Cipriano PF, Bhatt J, Ommaya A, West CP and Meyers D** (2017) Burnout among health care professionals: A call to explore and address this underrecognized threat to safe, high-quality care. *NAM Perspectives*.
- Frumkin H, Bratman GN, Breslow SJ, Cochran B, Kahn Jr PH, Lawler JJ, Levin PS, Tandon PS, Varanasi U, Wolf KL and Wood SA** (2017) Nature Contact and Human Health: A Research Agenda. *Environmental Health Perspectives* **125**, 1–18.
- Graham S and Weinman J** (2019). Health Care Professional–Patient Communication. In *Cambridge Handbook of Psychology, Health and Medicine*. C. D. Llewellyn, C. McManus, J. Weinman, et al. Cambridge: Cambridge University Press: 379–382.
- Hartig T, van den Berg AE, Hagerhall CM, Tomalak M, Bauer N, Hansmann R, Ojala A, Syngollitou E, Carrus G, van Herzele A, Bell S, Podesta MTC and Waaseth G** (2011). Health Benefits of Nature Experience: Psychological, Social and Cultural Processes. *Forests, Trees and Human Health*. K. Nilsson, M. Sangster, C. Gallis, et al. Dordrecht: Springer Netherlands: 127–168.
- Hill CE, Knox S and Pinto-Coelho KG** (2018) Therapist self-disclosure and immediacy: A qualitative meta-analysis. *Psychotherapy (Chic)* **55**, 445–460.
- Ives CD, Giusti M, Fischer J, Abson DJ, Klaniecki K, Dorninger C, Laudan J, Barthel S, Abernethy P, Martín-López B, Raymond CM, Kendal D and von Wehrden H** (2017) Human–nature connection: a multidisciplinary review. *Current Opinion in Environmental Sustainability* **26–27**, 106–113.
- Jax K, Calestani M, Chan KMA, Eser U, Keune H, Muraca B, O’Brien L, Potthast T, Voget-Kleschin L and Wittmer H** (2018) Caring for nature matters: a relational approach for understanding nature’s contributions to human well-being. *Current Opinion in Environmental Sustainability* **35**, 22–29.
- Jha AK, Iliff A, Chaoui AA, Defossez S, Bombaugh M and Miller Y** (2019) A crisis in health care: a call to action on physician burnout. Waltham, MA: Massachusetts Medical Society MHaHA, Harvard TH Chan School of Public Health, and Harvard Global Health Institute.
- Kaplan S** (1995) The restorative benefits of nature: Toward an integrative framework. *Journal of Environmental Psychology* **15**, 169–182.
- Keune H, Flandroy L, Thys S, De Regge N, Mori M, Antoine-Moussiaux N, Vanhove MPM, Rebolledo J, Van Gucht S, Deblauwe I, Hiemstra W, Häsler B, Binot A, Savic S, Ruegg SR, De Vries S, Garnier J and van den Berg T** (2017) The need for European OneHealth/EcoHealth networks. *Archives of Public Health* **75**, 64.
- Knox S and Hill CE** (2003) Therapist self-disclosure: Research-based suggestions for practitioners. *Journal of Clinical Psychology* **59**, 529–539.
- Lapinski MK, Funk JA and Moccia LT** (2015) Recommendations for the role of social science research in One Health. *Social Science & Medicine* **129**, 51–60.
- Lapsha I and Smallfield S** (2020) Examining the occupational therapy definition of self-care: A scoping review. *Occupational Therapy in Health Care* **34**, 99–115.
- Lauwers L, Bastiaens H, Remmen R and Keune H** (2020) Nature’s contributions to human health: A missing link to primary health care? A scoping review of international overview reports and scientific evidence. *Frontiers in Public Health* **8**, 52.
- Lemaire JB and Wallace JE** (2017) Burnout among doctors. *BMJ* **358**, j3360.
- Lumber R, Richardson M and Sheffield D** (2017) Beyond knowing nature: Contact, emotion, compassion, meaning, and beauty are pathways to nature connection. *PLoS One* **12**, e0177186.
- Mackay CML and Schmitt MT** (2019) Do people who feel connected to nature do more to protect it? A meta-analysis. *Journal of Environmental Psychology* **65**, 101323.
- Mann B** (2018) Doctor self-disclosure in the consultation. *Journal of Primary Health Care* **10**, 106–109.
- Martin C and Czellar S** (2016) The extended Inclusion of Nature in Self scale. *Journal of Environmental Psychology* **47**, 181–194.
- Martin L, White MP, Hunt A, Richardson M, Pahl S and Burt J** (2020) Nature contact, nature connectedness and associations with health, wellbeing and pro-environmental behaviours. *Journal of Environmental Psychology* **68**, 101389.
- Martínez N, Connelly CD, Pérez A and Calero P** (2021) Self-care: A concept analysis. *International Journal of Nursing Sciences* **8**, 418–425.
- Mayer FS, Frantz CM, Bruhlman-Senecal E and Dolliver K** (2009) Why is nature beneficial?: The role of connectedness to nature. *Environment and Behavior* **41**, 607–643.
- Morgan DL** (2008). *The SAGE Encyclopedia of Qualitative Research Methods*. Thousand Oaks: SAGE Publications, Inc.: 816–817.
- Mortier De Borger L, Keune H and Peremans L** (2022) Natuur als therapie: hoe reageren patiënten op een ‘groen voorschrift’? *Huisarts nu: maandblad van de Wetenschappelijke Vereniging van Vlaamse Huisartsen.-Brussel* **51**, 192–195.
- Nisbet E and Zelenski J** (2013) The NR-6: a new brief measure of nature relatedness. *Frontiers in Psychology* **4**.
- Postluns K and Gall TL** (2020) Dear mental health practitioners, take care of yourselves: A Literature review on self-care. *International Journal for the Advancement of Counselling* **42**(1): 1–20.
- Prescott SL, Logan AC, Bristow J, Rozzi R, Moodie R, Redvers N, Hahtela T, Warber S, Poland B, Hancock T and Berman B** (2022) Exiting the Anthropocene: Achieving personal and planetary health in the 21st century. *Allergy*.
- Restall B and Conrad E** (2015) A literature review of connectedness to nature and its potential for environmental management. *Journal of Environmental Management* **159**, 264–278.
- Richardson M, Dobson J, Abson D, Lumber R, Hunt A, Young R and Moorhouse B** (2020) Applying the pathways to nature connectedness at a societal scale: A leverage points perspective. *Ecosystems and People* **16**, 387–401.
- Richardson M, Dobson J, Abson DJ, Lumber R, Hunt A, Young R and Moorhouse B** (2020) Applying the pathways to nature connectedness at a societal scale: a leverage points perspective. *Ecosystems and People* **16**, 387–401.
- Roger F, Caron A, Morand S, Pedrono M, de Garine-Wichatitsky M, Chevalier V, Tran A, Gaidet N, Figuié M, de Visscher M-N and Binot A** (2016) One Health and EcoHealth: the same wine in different bottles? *Infection Ecology & Epidemiology* **6**, 30978.
- Rüegg SR, Häsler B and Zinsstag J** (2018) *Integrated Approaches to Health: A Handbook for the Evaluation of One Health*. Wageningen Academic Publishers.
- Seymour V** (2016) The human-nature relationship and its impact on health: A critical review. *Front Public Health* **4**, 260.

- Sovold LE, Naslund JA, Kousoulis AA, Saxena S, Qoronfleh MW, Grobler C and Münter L** (2021) Prioritizing the mental health and well-being of health-care workers: An urgent global public health priority. *Frontiers in Public Health* **9**.
- Sovold LE, Naslund JA, Kousoulis AA, Saxena S, Qoronfleh MW, Grobler C and Münter L** (2021) Prioritizing the mental health and well-being of health-care workers: An urgent global public health priority. *Frontiers in Public Health* **9**.
- Sterckx A, Van den Broeck K, Remmen R, Dekeirel K, Hermans H, Hesters C, Daeseleire T, Broes V, Barton J, Gladwell V, Dandy S, Connors M, Lammel A and Keune H** (2021) Operationalization of one health burnout prevention and recovery: participatory action research-design of nature-based health promotion interventions for employees. *Frontiers in Public Health* **9**.
- Stigsdotter UK, Palsdottir AM, Burls A, Chermaz A, Ferrini F and Grahn P** (2011). Nature-Based therapeutic interventions. In *Forests, Trees and Human Health*. K. Nilsson, M. Sangster, C. Gallis, et al. Dordrecht, Springer Netherlands: 309-342.
- Summers JK and Vivian DN** (2018) Ecotherapy – A forgotten ecosystem service: A review. *Frontiers in Psychology* **9**, 1389.
- Tam K-P** (2013) Concepts and measures related to connection to nature: Similarities and differences. *Journal of Environmental Psychology* **34**, 64–78.
- Ulrich RS, Simons RF, Losito BD, Fiorito E, Miles MA and Zelson M** (1991) Stress recovery during exposure to natural and urban environments. *Journal of Environmental Psychology* **11**, 201–230.
- Vandenbroeck S, Van Gerven E, De Witte H, Vanhaecht K and Godderis L** (2017) Burnout in Belgian physicians and nurses. *Occupational Medicine* **67**, 546–554.
- Vanhaecht K, Seys D, Bruyneel L, Cox B, Kaesemans G, Cloet M, Van Den Broeck K, Cools O, De Witte A, Lowet K, Hellings J, Bilsen J, Lemmens G and Claes S** (2020) COVID-19 is having a destructive impact on health-care workers' mental well-being. *International Journal for Quality in Health Care* **33**.
- Vizheh M, Qorbani M, Arzaghi SM, Muhidin S, Javanmard Z and Esmacili M** (2020) The mental health of healthcare workers in the COVID-19 pandemic: A systematic review. *Journal of Diabetes and Metabolic Disorders* **19**, 1967–1978.
- Wesley PW and Buysse V** (2001) Communities of practice: Expanding professional roles to promote reflection and shared inquiry. *Topics in Early Childhood Special Education* **21**, 114–123.
- WHO** (2021). *Nature, Biodiversity and Health: An Overview of Interconnections*. World Health Organization.
- WONCA** (2017). *Planetary Health & Primary Care – 67th Session of the WHO Regional Committee for Europe*. World Organization of Family Doctors.
- Wright EM** (2020) The ethical imperative of self-care: A call to action. *Journal of Midwifery & Women's Health* **65**, 733–736.
- Zelenski JM, Dopko RL and Capaldi CA** (2015) Cooperation is in our nature: Nature exposure may promote cooperative and environmentally sustainable behavior. *Journal of Environmental Psychology* **42**, 24–31.
- Zylstra MJ, Knight AT, Esler KJ and Le Grange LLL** (2014) Connectedness as a Core Conservation Concern: An Interdisciplinary Review of Theory and a Call for Practice. *Springer Science Reviews* **2**, 119–143.