LUNDS UNIVERSITET

Institutionen för Psykologi

Kandidatuppsats

Forest Therapy: Nature & Health

A qualitative study in Japan of nature-based interventions

Skogsterapi: Natur & Hälsa

En kvalitativ studie i Japan om naturbaserade interventioner

Catharina Stenmo
Kandidatuppsats VT 26
Handledare: Ingela Steij Stålbrand
Examinator: Magnus Lindén

Abstract

Forest bathing (Shinrin-Yoku) is an example of a nature-based intervention for health and wellbeing and is a well-researched practice. The therapeutic version of forest bathing, Shinrin-Ryoho, is not as studied. This project aimed to explore the phenomenon of forest bathing in Japan, arisen from the societal need of stress coping, supporting mental health and the needs of an aging population.

The goal was to deepen the knowledge of the principles and methods of nature-based interventions of forest bathing, therapeutic forest bathing, horticultural therapy and forest medicine by visiting the birthplace of these practices. The research design was a qualitative interview study with nine participants who work in the field and the data was analysed thematically. The research question was as follows:

How are nature-based interventions perceived as supportive for societal challenges such as mental health, coping with stress, and rehabilitation for the aging population in Japan?

The biopsychosocial-spiritual model of health and well-being is the holistic perspective of this study. The head themes that emerged in the data collection were: *Growing societal concerns, The Japanese way, The health impact of nature.* Even though forest bathing as a phenomenon originates from Japan, the conclusion of the study was that nature is generally hard to access, and that it is not an established health intervention in the Japanese society.

Keywords: forest bathing, forest therapy, stress, aging society

Sammanfattning

Skogsbad (Shinrin-Yoku) är ett exempel på en naturbaserad intervention för hälsa och välbefinnande och är en väl utforskad metod. Den terapeutiska versionen av skogsbad, Shinrin-Ryoho, är inte lika studerad. Detta projekt syftade till att undersöka fenomenet skogsbad i Japan, som uppstått ur det samhälleliga behovet av stresshantering, stödjandet av psykisk hälsa och behoven hos en åldrande befolkning.

Målet var att fördjupa kunskapen om principerna och metoderna för naturbaserade interventioner såsom skogsbad, terapeutiskt skogsbad, trädgårdsterapi och skogsmedicin genom att besöka födelseplatsen för dessa metoder. Forskningsdesignen var en kvalitativ intervjustudie med nio deltagare som arbetar inom området och data analyserades tematiskt. Forskningsfrågan var följande:

Hur uppfattas naturbaserade interventioner som stödjande för samhällsutmaningar som psykisk hälsa, stresshantering och rehabilitering för den åldrande befolkningen i Japan?

Den biopsykosocial-andliga modellen för hälsa och välbefinnande är det holistiska perspektivet för denna studie. De huvudteman som framkom i datainsamlingen var: *Växande oro i samhället, Det japanska sättet,* och *Naturens hälsopåverkan.* Även om skogsbad som fenomen härstammar från Japan, var studiens slutsats att naturen generellt sett är svåråtkomlig och att det inte är en etablerad hälsointervention i det japanska samhället.

Nyckelord: skogsbad, skogsterapi, stress, åldrande befolkning

Thanks!

To all of you that participated in my study, researchers and practitioners.

The study would not be achievable without your cooperation!

Thanks also to my beautiful family who supported me through this journey and my pursuit of knowledge in this subject!

Thank you, supervisor, Ingela Steij Stålbrand for making this project possible.

Thank you, Crafoord Foundation for the Travel Grant of 30 000 SEK that made it feasible for me to spend eight weeks in Japan in the spring of 2026.

Introduction

Environmental psychology places its' focus on what the environment does and, more importantly, can do for the human mind and the ability to cope with stressors (Kaplan, 1995). One of the central questions revolve around how natural environments can be used to capture and utilise psychological mechanisms to promote health and well-being (Ulrich, 1984). The environmental psychology of landscape architecture focuses on the impact of natural environments at the intersection of architecture and psychology (Engström et al., 2022).
Nature-based interventions promote health and well-being and in this study the focus is on forest bathing in Japan.

Forest bathing

We are preprogrammed to interact with the natural environment, it is effortless for our senses to connect with nature "humankind's close contact with nature over millions of years of evolution programmed our genes with a need to affiliate with the rest of the living world" (Kellert & Wilson, 1994 p. 444). This relationships with all that is nature, the love of life and nature is phrased in the Biophilia hypothesis (Kellert & Wilson, 1994).

Japan is one of the world's most densely populated countries but also a forest civilization where over two-thirds of the country is covered by forest (Li, 2018). Forest bathing or Shinrin-Yoku (Shinrin = Forest, Yoku = Bath) was introduced in the 1980's as a national health program. The aim was to counteract technology-related stress and overworking, while the Japanese Forestry Board wanted to promote forest management (Li, 2019; Siah et al., 2023). As Li puts it: "Our health and the health of the forest go hand in hand" (Li, 2018, p. 286). Qing Li was one of the first researchers to scientifically study forest bathing, which laid the foundation for the medical discipline of forest medicine (Li, 2019). Shinrin-Yoku, describes a present and sensual approach to nature where one becomes aware of bodily and emotional experiences (Li, 2018).

Research shows that forest bathing strengthens the immune system through increased activity of natural killer cells (Kotera et al., 2020), lowers levels of stress hormones (such as adrenaline, noradrenaline and cortisol) (Li, 2019), and contributes to lower blood pressure and calmer heart rhythm (Sudimac et al., 2022).

The parasympathetic nervous system is stimulated, which promotes emotional regulation (Kotera et al., 2020; Q. Li, 2019). In addition, well-being and mental health are improved in older people with high blood pressure (Li et al., 2025). Psychologically, forest bathing promotes working memory, provides mental recovery, elevates the mood and reduces anxiety, depression and rumination (Kotera et al., 2020; Sudimac et al., 2022), which has been shown, among other things, through POMS [1] measurements before and after participation (Li, 2018). Nature can also improve emotional wellbeing "the physical environment can serve as an active tool to regulate emotions" (Ríos-Rodríguez et al., 2024 p.03).

Shinrin-Yoku can be practiced individually or in groups, with or without a guide, for example through a slow walk where nature acts as a therapist (Balmumcu & Pekince, 2023). The more structured form Shinrin-Ryoho (forest therapy) is led by a therapist who combines mindfulness exercises, walking and meditation, especially adapted for people with illness or mental illness, even in the final stages of life (Balmumcu & Pekince, 2023). The Japanese Society of Forest Therapy has over 60 forests for Shinrin-Ryoho (Q. Li, 2019).

The Japanese context

Shintoism and Buddhism are roughly equal religions in Japan and fulfil different functions during the course of life, which is why it is common to practice both. Fewer than 2% claim to belong to Christianity (Britannica 2024). In both Shintoism and Buddhism, nature is sacred and trees, mountains, rocks and springs are considered places where kami, spiritual beings, live (Li, 2018). The forest has also been a place of aesthetic inspiration, from Zen Buddhist gardens to haiku poems and wooden architecture. Humans' relationship with the forest in Japan is characterized by balance and reciprocity, and festivals are organized when the cherry trees bloom (Li, 2018).

Japan is a patriarchal society characterized by a demanding work culture and gender stereotypical attitudes (Koda et al., 2022), where gender equality is an

[1] POMS – Profile Of Mode States, a questionnaire with a long or short version

exception and women have an inferior role in society (Britannica 2024). There is a lack of a strong civil society, which is consistent with the observation in the Inglehart-Welzel World Values Survey (2005-2023), and Japan practiced the death penalty as recently as 2021.

Unemployment is low, but almost half of Japanese people work part-time or hourly, with poorer conditions and limited access to welfare as a result (Britannica 2024). Suicide statistics are at the top of the list with neighbouring South Korea (Lee et al., 2021) and in the 1980's, attention was drawn to *Karoushi* - which means death from overwork, where teachers and healthcare professionals were overrepresented. In 2021, Japan had 17.4 deaths by suicide/ 100'(WHO 2026). There is a great stigma surrounding mental illness, psychiatric care is of low quality, and medication for depression is not included in the national health insurance system. However, Japan has the highest life expectancy in the world and very low infant mortality (Britannica 2024).

Stress - a public health problem worldwide

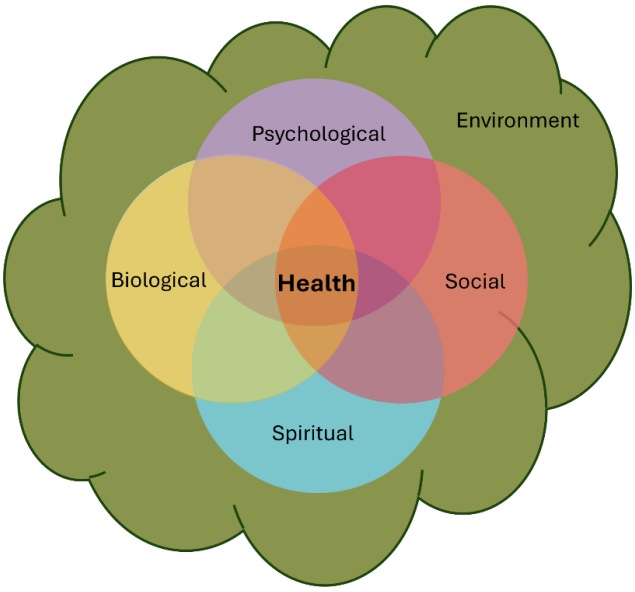
In recent decades, emotional stress has increased significantly worldwide and with it, a number of health problems such as cardiovascular diseases, Alzheimer's and various types of cancer (Piao et al., 2024). In 2020-2022, the world was hit by Covid-19 and mental ill health increased even more, not least among healthcare professionals (Iqbal & Abubakar, 2022).

To understand how stress can cause physical and mental ill health, we need to look at health from a biopsychosocial-spiritual perspective where biological, psychological, social and spiritual factors (Figure 1) interact (Rego & Nunes, 2019) with the surrounding environment. The model was originally made by the American psychiatrist Engel (1977) and was later expanded further by Sulmasy (2002) (Engel, 1977; Sulmasy, 2002). This holistic approach (Antonovsky, 1996) shows that we are complex beings and that different disease states cannot be understood solely from, for example, a biological perspective (Sarkohi & Andersson, 2024).

The biopsychosocial-spiritual model in restorative environments

Figure 1.

Biopsykosocial-spiritual model, Stenmo, 2026©



Examples of the components of the biopsychosocial-spiritual model:

Biological factors: genetics, brain function, nervous system, hormones,

Psychological factors: thoughts, behavioural patterns, emotions, coping strategies

Social factors: society, culture, belonging, context, family

Spiritual factors: existentialism, spirituality, meaningfulness, transcendence, religion

Environmental factors: Restorative environments that support the specific needs of the target group.

The focus in the biopsychosocial-spiritual model is on the salutogenic factors that maintain health (Antonovsky, 1996) and research has found that we humans have the highest quality of life in environments where our brains interpret the chance of survival as the greatest (SLU, 2026).

Aim and objective of the study

In the spring of 2026, I travelled to Japan. I wanted to see the environments where the worldwide phenomenon of forest bathing, Shinrin-Yoku, was born.

Has this densely populated country, where stress levels are high, managed to relieve their problems with nature-based interventions? And if so, how have they done it?

This study investigates the possibility of psychological stress managing through nature-based interventions. The aim is to explore nature-based interventions by engaging with researchers and practitioners in forest bathing and forest therapy in Japan to examine its principles and methods. Some attention is paid to the relevance of therapeutic forest bathing in end-of-life care, where nature-based methods can support mental recovery, emotional well-being and quality of life in the final stages

of life. The overall goal is to deepen the understanding of how nature-based interventions can support the holistic perspective provided by the biopsychosocial-spiritual model of health and well-being and meet societal needs. Especially for individuals with limited access to restorative environments.

Problem statement and research questions

Within Japan, nature-based interventions have been practiced since the 1980's, and Japan also have problems with mental illness, stress and an aging population. Japan is thus a rare combination of both having societal problems and potentially, having a solution to those same problems. This study, unlike other studies, interviewed leading experts within Japan and within the field of nature-based interventions to get an inside perspective of what works, and what doesn't. This represents a clear knowledge gap and was done in the light of a Western background in contrast with Japanese society.

According to the World Health Organization (WHO., 2020) there is a world-wide need to address spiritual health (Skevington et al., 2021) that is mostly talked about in the context of palliative care (Krägeloh et al., 2015). Although spiritual health is something that affects all aspects of human life, spending time in nature helps us to reconnect with our bodies and mind, away from technology and overall stressors of life. Despite the research showing that spending time in nature is good for health and wellbeing (Basu et al., 2019; Li et al., 2025; Nordin et al., 2024; Sahlin et al., 2015) it is rarely used in health care.

With the biopsychosocial-spiritual model providing a holistic perspective, this study has a specific focus on nature-based interventions in Japan and its' relevance for stress managing for health and wellbeing.

The research question is as follows:

How are nature-based interventions perceived as supportive for societal challenges such as mental health, coping with stress and rehabilitation for the aging population in Japan?

Method and implementation

Research design

The study used a qualitative research design and had an empirical approach (Elliott et al., 1999; Willig, 2020) to investigate the application and effects of nature-based interventions. Data collection consisted of semi-structured interviews with a phenomenological viewpoint (Kvale & Brinkmann, 2014), with researchers and practitioners active in the field. The interviews aimed to shed light on both theoretical and practical perspectives on different nature-based interventions. It was important to capture the "contextual phenomenon"(Kvale & Brinkmann, 2014 p.365) because the close connection between the research subject of society, health and nature-based interventions.

Informants – sample and recruitment

The networking in Japan was a slow process that continued through the summer and autumn of 2025. Ideas about who to contact derived from literature and the contact information - email addresses, came from scientific articles and books regarding forest bathing and forest therapy. These contacts then pointed me to other persons who also worked in the field so both a purposive sampling and later on, snowball sampling (DePoy & Gitlin, 2016). During the weeks in Japan, convenience sampling (DePoy & Gitlin, 2016) occurred, people asked to be a part of the study once they found out about the research aim and got to know me. The participants were chosen based on their work with nature-based interventions and some of them had insight about the palliative care in Japan, but most did not. There was an exclusion criterion of those who could not write in English.

Informants – Demographical description

P1	Researcher and Professor at a university, spent a lot of time in the forest as a child
P2	Project professor and nurse who works with cancer care and grief support
P3	Researcher and MD who works in a hospital, spent a lot of time in forests as a child

P4	Researcher and MD, works at a hospital, spend much time in nature
P5	Head nurse at a hospital with personal experience of palliative care
P6	PhD, Project researcher who works at a university, been to Sweden many times
P7	Researcher , Psychiatrist, Professor and MD who works at a university
P8	Home visit nurse who also works with research
P9	Practitioner of forest bathing with an international public health background

Data collection

The data collection with the nine interviews went on for eight weeks during the spring of 2026. Most of the interviews were already booked before departing from Sweden. Meetings with the informants were held at their workplace with few exceptions. In addition, there were some social meetings with research groups at cafés and at outdoors venues. The relational part, building trust and getting to know the participants, sharing things from the Swedish perspective, giving lectures about environmental psychology, was also important to get nuanced answers for my study. It was a part of the observations of the data collection.

Participant observation was used to obtain an in-depth, contextual understanding of practical application and dynamics (Willig, 2020). The observations were supplemented with photographic documentation that visually supported and deepened the empirical material. Field notes were used to record immediate impressions and reflections after each observation (DePoy & Gitlin, 2016) and constituted a central basis for the analysis and data processing.

Interviews

The interview guide (see appendix) were semi-structured which allowed for going in a slightly different direction with every interview depending on the interviewees special competence and interests (Kvale & Brinkmann, 2014). The interview guide was made using the aspects of the biopsychosocial-spiritual model of understanding health aspects as a holistic whole.

The interviews were, on average, one hour and fifteen minutes. Recordings

of the interviews were made with an app on the computer and with a mobile phone as a backup in case one device failed. The language was a barrier and therefore we used different translation apps to record and translate in real time. In one interview, the informant had a transcript already prepared of what she wanted to say, for me to read into the recording. In addition, we also used a translation app to further discuss the subjects.

One interview ended up leading to another, unplanned interview with another participant who joined via Zoom after the first interview had concluded. This second interview required a translator, the first interviewee embraced this role.

One person withdrew from the planned interview because of the anonymisation, the person wanted to be named and get credit. Later, the participant decided to give the answers in writing.

One of the informants did not want to discuss societal issues, just talk about the research.

Half of the informants wanted the questions in advance or know beforehand what subjects that would be discussed.

I was asked to make a small donation one time, that was the terms to which I agreed. As a part of the interview process, formalities such as business card exchanges and bringing gifts for the participants took place.

Analysis process

The data analyses were conducted in several steps influenced by Braun & Clarke "Phases of thematic analyses" (Braun & Clarke, 2006 p. 87) in a non-linear back-and-fourth way.

The initial familiarization with the data, listening to the recordings of the interviews, was a necessary step to remember the interview situations and what was said between the lines. When the interviews were listened to the transcripts were read and new notes were made along with a mind map as an overview of every interview. The codes that were of interest due to the research question became clear throughout this mind map drawing process. Citations connected to the codes in the mind map were also gathered.

In the next step, the codes throughout the dataset cluster began to form themes. From the beginning there were four head themes: S*ocietal challenges,*

Religion and superstition, The health impact of nature and *Elderly and palliative care in Japan.* A storyline was drawn to see how the different themes were connected in the result. Then the fourth theme: *Elderly and palliative care in Japan* became a subtheme of the first theme of *Societal challenges* because there was already a theme about the elderly in *Aging population – a slippery slope*, that connected to that. It also became visually clear that the theme of *Religion and superstition* was not in line with the research question, therefore a different name was given: *The Japanese way* which was a more accurate title. For the same reason, *Societal challenges was* also changed to *Growing societal concerns.* Subthemes from theme 1*, Lack of critical thinking – a potential societal flaw*, found a new place here. Another subtheme to theme 1, *Poor diversity – poor understanding*, also changed place to head theme 2, as a sub theme of *Lack of critical thinking – a potential societal flaw.* The research question guided through this step.

During the writing process of the result, listening and listening again at certain parts of the recordings was necessary to make clear citations and capture the essence of the content. The "defining and naming themes" part (Braun & Clarke, 2006), was an ongoing process during the writing of the results, of testing how they responded to the content and to the research question. Some subthemes merged, some were left out in the final steps. The definite result of the analysis can be seen in figure 2 in the results.

This was a data driven process, an inductive approach in which the empirical findings decided the outcome, not a beforehand hypothesis (Kvale & Brinkmann, 2014). The biopsychosocial-spiritual model was only used as the basis for the interview guide, and then in the analysis phase the inductive approach was crucial in interpreting and categorising the data.

Therefore, I needed to adjust the research question once the analysis was done to match what was found throughout the data set "qualitative research is open to the possibility that the research question may have to change during the research process" (Willig, 2020 p.27).

Language considerations

The language barriers were significant, different tools to communicate were used, mostly mobile apps. The app for recording on the computer was the

Ljudinspelaren and on the phone the app *Röstinspelare.* For communication, different apps were tried such as *Google Översätt*, *DeepL Translate and Talking Translator.* The transcripts were made by Lund University. No digital tool was used during the analysis due to the poor quality of the transcripts.

Reflexive considerations

It is vital to address my starting point in environmental psychology and prior knowledge in an effort to be reflexive and transparent. To have a reflexive standpoint in this particular study means to be aware of the differences in culture, values and religion and also that an interpretation was made along the way. However, interpreting is a way to understand (Willig, 2020) which was a fundamental necessity for this study.

Ethical considerations

Ethics was addressed by signing an informed consent before each interview, where the purpose, data management, voluntariness and anonymity were explained and emphasized, and that there was no consequence to interrupting the interview. The data collection did not affect the informants personally and was therefore not considered sensitive, however, we did address sensitive issues about societal challenges and norms. This was handled with flexibility, caution and with a possibly to be followed up afterwards. All in line with the ethics of "medical research involving human participants" (World Medical Association, 2026).

Results

The analysis of this study led to three head themes (figure 2.) and 11 subthemes and they all relate to the Japanese society, cultural expressions and the health impact of the relationship to nature.

Figure 2.

Head themes and subthemes

Theme 1: Growing societal concerns

- ***Aging population – A slippery slope***
  - *Elderly and Palliative care in Japan*
- ***Mental illness – Taboo subject***
- ***Stress – A multifaceted enemy***

Theme 2: The Japanese Way

- ***Religion or just Culture?***
- ***Bachi – The superstitious Japanese people***
- ***Lack of Critical Thinking – A potential societal flaw***
  - *Poor diversity – Poor understanding*

Theme 3: The Health Impact of Nature

- ***Horticultural Therapy – Free body, free mind***
- ***Shinrin Yoku – A complex Phenomenon***
- ***Forest Therapy – A deeper Understanding***

Theme 1 – Growing societal concerns

Aging population – A slippery slope

All the participants talked about the amount of elderly in the population increasing every year and that the overall population is decreasing due to that fewer children are born. The effect is a lack of people in the working ages which affects the Japanese economy. “Japanese society have a lack of work population, that means labour population is decreasing -that is a big problem, yes! “ (P7).

The fact is that fewer young people choose to have children because the cost of raising a child is significant and P2 also said that fewer choose to get married. Another participant, P1, said that young people “not hope for furture’s life”. They cannot see a way to be happy themselves or for them to bring happiness to a child.

About 50-60 years ago the Japanese society had extensive generational living arrangements but later when urbanization took place, the apartments were too small in the dense cities for housing the elderly (P7). The elderly helped out with childcare but nowadays many children spend more time with the childcare staff

than with their parents. According to P7, this is affecting the attachment between parent and child and with that other issues could arise such as poor mental health. Another way to solve the tending for the children is that the women stay at home. Traditionally this has been the case especially in the countryside which both men and women in this study stated as a problem for an equal society. P6 says that it is harder to be a woman in Japan because they need to take care of both the children, and the household. Many times they have work outside the home too.

With a higher average age in the society, the amount of people suffering from multiple long-term conditions also increases and with it, the need for healthcare. P3 said that with a growing population of elderly there is also an increasing number of people with dementia and a "highly important" need for prevention of this deadly disease.

Elderly and Palliative Care in Japan. There is a big difference in the quality and availability of palliative care in urban areas compared to rural areas (P2). In 2007 the government made a substantial effort to improve the palliative care, with "a set goal to educate 100 000 positions to be trained in basic palliative care – a goal that is not yet reached" (P2).

According to informant P5, the education should not only focus on the latest medical progress but also about the respect and dignity for the dying person in the last days of their lives. P5 tells me about a personal experience with a close relative who was not allowed to come home for a short visit in the end of her life and that "In Japan there is a strong cultural tendency to prioritize risk avoidance and to pursue the highest level of safety in clinical decision-making" (P5). P5 advocates for the need of "individual judgement rather than standardized principles… a safe environment leads to a calm state of mind" (P5) in this case.

Most palliative care in Japan is about cancer treatment but there is an ongoing shift to non-cancer palliative care, which still is not fully developed (P2). The UK is the predecessor and in Tokyo there is a Maggie's House since 2016, a place for "anyone that is affected by cancer" (P2). The architecture is beautiful which is a signum for all Maggie's houses, and there is also a community garden which the visitors can tend to together with family and staff, a way of doing something that is not about the sickness, but life.

Mental illness – Taboo subject

Psychological issues are often focused on medical treatment rather than through psychosocial support according to P9. “Many people manage their distress alone or through somatic expression” (P9). P2 says that there is a significant stigma around mental illness in Japan but it is slowly changing to more openness. P1 says the opposite, that mental illness has been shameful for a long-time and that there is no hope of that changing. With increased diagnostication there is more visibility of the mental issues in the society nowadays (P2). One of the participants (P7) says that 6-7 % of the Japanese population suffers from depression [2] and among the working ages (30-50 year) there are more men than women who are depressed. P7 explains that the depression is often two-faced, on the one hand there are the individual factors such as stress sensitivity, and on the other is the environment -the workplace working hours etcetera. According to P2, there is an increasing amount of people going on sick leave due to mental problems, especially if you work at a bigger company. P1 claims that the amount of mental illness is increasing due to the Japanese society “society system makes mental disabilities and mental illness “ he continues and says there is “so much pressure, have to do – have to obey” (P1).

Before, in the generational living accommodations, there was a lot of family support around but today the help comes from the workplace/social welfare offices and from counselling (P7).

P8 works with suicide prevention among younger people and sees a great need of support for this group. There are also initiatives supporting young people raising a family, in particular initiatives for young mothers to prevent mental illness during a stressful time in life, explains P7.

The arranged marriages in Japan have been more common than today but still exist and they have shifted more towards online platforms “computer marriages” (P1). The idea is the same, to match yourself with somebody suitable for marriage. Today the matches are mainly based on algorithms whereas before

[2] In Sweden 4 %, Folkhälsomyndigheten 2025

they were made according to what your family decided. P1 tells me that to be eligible for marriage, you cannot have any mental problems. That is viewed as a big dealbreaker and therefore you also do not talk about these issues in the society as a whole. You would not, for example, talk about your sister having depression or your mother suffering from dementia, that makes you "less attractive" (P1).

Hokkaido Island, in the north, is an example of a "good society for mental illness" (P1). They have a system for mental care and an open society to talk about mental issues and with a closeness to seaside and forests, they use nature to heal says P1, they are "walking in the nature". P1 goes on to say:

> In Urakawa town. How about your depression? Oh, Okay thank you, my depression it's going good! That kind of joke….they can talk (You can talk with your friends?) Yeah, yeah, Yes my depression is same condition so every day I want to die, so my depression is still fine, still going, that kind of joke, they can talk each other (Open up the discussion?) Yeah! (P1).

Stress – a multifaceted enemy

The stress in society mostly comes from having long workdays, heading home at 8 or 9 pm (P6) but also from human relationships claims P7 and P2. For the younger generation, social media contributes to stress according to P7 and P8 – the peer pressure and a need to always be reachable and amiable. Individual economic stress as part of the societal economic situation is also a factor (P6). Even for adults the social pressure is a reality, all expectations and the need to conform lead to supressed and displaced emotions (P9).

P4 talks about the work-related extreme stress that leads to the Japanese phenomenon *Karoshi*, death, and all the participants speak of stress in the society as a source of many problems and something that they either have worked with and/or experienced for themselves. P3 talks about the stressors connected to being sick, experiencing fear and having few choices as a great source of stress. Even if you

get medical help the stressors of the treatment, the choices made for you - what to eat, wear and all the examining; continues making you ill.

Another type of stress in Japan is the one caused by pride, not being taken seriously or not being admired enough, P1 says:

> I think pride for many tiny, tiny things, people can get fury easily, no you hit, no you hit me you should apologize, that kind of, so many people have almost no kind of (Easy to get angry?) Jaa! Most of people fear myself is not admired for correctly, the people, the society [don't] recognize me correctly, (You need to be admired?) Yaa!

P1 then tells me a story about being at a restaurant when a verbal fight occurred between the waiter and a guest about an incorrect meal order. The situation continued to escalate and everyone heard but they all pretended like everything was okay. P1 calls this an "indicator" in society, a sign that shows that something is wrong, a "social illness", small things that get blown out of proportion – people exploding over nothing which stand in stark contrast to the polite manners (P6), the bows and the "thank yous" common in Japan.

P1 has worked with children who have been diagnosed with PTSD due to parents not having been able to cope with the stressors of having small children. The informant explains that if you have been successful all your life, graduated from good schools getting high grades and are used to being respected and admired, you might have a hard time accepting that being a parent is not about you, it is about what the child needs. Many parents lack tools for being a parent when the children act up, they lose their temper and abuse the children. It is a widespread problem that children have to grow up in hospitals and institutions to get away from abuse according to P1.

> So, one case the mother graduated from a good University in Japan, she got a PhD too and she played the piano and she was born in so rich family, but so her baby, one day, her children her make lunch

> and her baby…she did not eat her soup and she got fury …" so in my life everyone can say that they enjoy my cooking, my soup" so she could not stand so she abused her…her baby…her daughter. She has not many patience to that kind of, she fight mistake, she had very few mistake in her life, graduated a good University, she can play and she is beautiful too! But her baby denied her cooking…very small reason but she could not understand that.

Theme 2 – The Japanese Way

Religion or just Culture?

The Japanese people are not religious says several of my informants "not much religious practise nowadays" (P7). They only visit shrines and temples on special life events and in the beginning of something new. New year's is a big celebration (P2) and they also visit shrines and temples when the cherries start to blossom in the spring (P7). P2 says "No religion but faith", that there is a notion in mind that God exists, a faith without religious expressions (P7). Yet, there are still some strong religious elements "many in the baseline, we have tendency to believe something" (P7). Shinto is the indigenous religion, and it states that everything has a spirit. There is for example a fire spirit, water spirit and a tree spirit, it is "the culture of 8 million Gods" (P2). There are shrines in the forests where you can ask the nature for permission by bowing two times, clapping twice and then bowing a final time, "to connect with a spiritual dimension" and to get "in contact with something larger" (P2). There is traditionally a strong belief in nature "many Gods of nature in Japan" (P7).

At some shrines you can toss a coin in a box and ring a bell for the sake of having your prayers heard. "Many Gods means we can express gratitude for everything" (P7) which promotes well-being according to P7. "The value of everything, we can feel it" (P7). In hospitals, elderly facilities and homes there are often mini shrines by the entrance also symbolising the ancestors (P2). "There is a spiritual side in the day-to-day life" (P2). P7 talks about the Japanese philosophy as influenced by this spirituality "Philosophy affects our connection to every living and every factor, factor in life".

Buddhism has few practitioners today in Japan (P2) and there are different branches of this faith in Japan (P6). Most of the Buddhists are from the older generation (P2), you can see the temples everywhere in the cities. They are well attended by many tourists but not necessarily religious Japanese people.

Bachi – The superstitious Japanese people

There is a strong belief in superstition in Japan, a feeling that you could wrong the Gods and bring unhappiness to yourselves and your family. They call it *Bachi* (P7).

> Bachi means…if you throw away your garbage in the shrine or in the temple, God will give you bad luck…so bachi we are afraid so we should, we have to respect God everywhere…if we make a nuclear plant we have to make a ceremony a praying to the Gods for making nuclear plant. One nuclear plant have big, big troubles "how come we have this much troubles?" One intelligent worker said "Boss, we forgot the praying ceremony before we make this nuclear plant" Please make a praying ceremony now and they did and after the troubles disappeared, they felt safety, calm and peaceful, we believe superstition bad luck…

Another story the informant told was about a young family that got a child with severe autism. Everybody around the family said that this was *Bachi*. Somehow, they made the Gods angry by being successful and rich and highly educated. The same happened to the informant, family and friends said that their firstborn could have a disability of some sort because they have had so much success in their life, fortunately -it was a healthy child (P7).

Lack of critical thinking – a potential societal flaw

The ability to think for yourself and be aware of different views and standpoints is a skill that is not learned in Japanese schools according to P1 "not Japanese education system" (P1). P1 says that the public is easily influenced by commercial and societal rules and says "Japanese people are so weak".

Among young students, P1 says that it is not common to feel that your life could be unique, that another choice could lead to a different outcome, "There is no individual thinking" (P1). This appears to be the case even for forest owners, you plant the same trees as your neighbours, which is not good for the biological diversity (P1).

> …there are many Cedar and Cyprus, 60% of this forest is Cedar in Japan. So, so many Cedars because people, okay he plant a Cedar I plant a Cedar …oh no we need, still now, no no more Cedar oh no that opinion we need Oh I plant cedar and I plant Cedar too…disappoint…only Cedar, only Cedar…

Even on the government level, according to P1, if Japan talks to the US then they agree with them and if they talk to Russia they agree with them too, despite the fact that they might be contradicting themselves. "Japanese government also loves that kind of nations, yes okay, I applaud, I agree, Japanese government – It's easy to obey" (P1). P7 says that "We estimate that US is number one in the world – all aspects!" even if that notion is slowly deconstructing, there is still great respect for the US culture within Japan (P7) and Western countries too.

Poor diversity – poor understanding. One of the participants addressed the issue of few immigrants in Japan leading to poor diversity and that the people are subsequently not used to different cultures. P7 says that this could be the cause of difficulties in accepting anything that is different but also says that they have to shift their perspective to cope with future immigration.

> European countries have increased the immigrants from many countries but in Japan, Japanese hmm, Japanese is very same same, same nation…we have no immigrants. We have not get used to many diversity not yet, but in these days many countries wants to go to Japan so we have to get use to the diversity of immigrants…that's a big problem (P7).

The informant P3 says that because of extensive travelling, understanding is gained, “perspective of life and my work”. P3 is gentler with people, seeing other cultures broadens the mind and you realise that “normal” is a wide concept – “Normal could be anything!” (P3). P1 talks about having been educated in the US and that travelling and meeting academics from other places probably made a differences than if he/she had only seen their own country.

Theme 3 – The Health Impact of Nature

Horticultural Therapy – Free body, free mind

Most of my informants work with different kinds of nature-based interventions and have a first-hand experience through studies of the health impact of spending time in nature. One of the participants said that some of the most important findings in the research was a sense of freedom that nature can bring “Nature gives them a free mind” (P3). That freedom is so rare in a healthcare setting where everything is decided for you, but the health benefit of that should not be underestimated. “Freedom is the most important thing for human beings, nature always agrees with you, no pressure, no stress, it welcome you!” (P3). Even if you lost some of your abilities and suffer from dementia, loss of memory, loss of function, ”mind goes down”, nature can bring back old memories and skills that you had early in your life (P3). You remember what a pea is and know how to cook it and can even learn others how to do it. Longtime memory still works and you feel less depressed which is common among this patient group, says P3. When you lose the sense of season, the smell of spring gives a clarity and “ah it’s spring” (P3). P3 says that you get the “freedom of choice” in this activity and an offering, not something you have to do and that freedom make the patient “turn to active”, gives a routine and a reason to get up in the morning. Being outdoors also has a positive effect on sleep, which brings health advantages (P3).

The acute care hospital in Japan is all about the “quick fix”, a maximum of two weeks are spent there, then you need to go to a rehabilitation hospital. It is uncommon with horticultural therapy in Japan, my informant (P3) is a pioneer in the field and rehabilitation outdoors for dementia patients is rare. In P3’s opinion

there needs to be more places for rehabilitation and horticulture therapy. “Unique but natural in my mind” the windows in the hospital and elderly facilities are faced toward the nature and not the city, a way of bringing the outdoors inside and attract and motivate the residents to go outside (P3). “Motivated mind and free is one of the most important for the people” (P3). Even balconies are used for horticultural activities, and they have several gardeners and volunteers working with gardening, a necessity for the upkeep of the green areas.

With inspiration from the US but with the idea from the patients, P3 built this hospital and elderly care facility 10 years ago. Back then no one believed in the idea to bring patience outside for rehabilitation, but today it is an attractive workplace. Land owning in Japan is expensive and most have no private garden. This applies to hospitals too, so the hospital is unique both in work model and in architecture.

Shinrin-Yoku – A Complex Phenomenon

In the very beginning (1982), before any research had been conducted, forest bathing was a pure advertisement of the forest (P1). They already had the onsen bathing (hot springs) and the seaside bathing, but the interest of the forest was low and many forests were abandoned. Then the Japanese Forest Agency came up with this idea of “forest bathing” and later they added the narrative of the health perspective as a part of the origin. So according to the informant P1, this is something of a post construction, the health benefits were not included at the start but was an add-on later when the research studies begun. As it happens to be, this also “fit the Japanese right now condition” (P1).

In 2004, research regarding the effect of forest bathing started with the participant P4, and the hypothesis was that “The stress levels will decrease in the forest”. The first participants in the studies were people who had issues with stress, and they got paid to be in the study (P4). In this study they used the POMS-scale to rate the participants feelings and moods before and after the forest bathing session. The focus of these early studies were the medical effects of spending time in nature, especially the effect of the immune function connected to the natural killer cells (P4). One of the informants is doing a study about the impact of nature on personal health by writing nature-prescriptions to “restore your brain” (P7). He tells me that

despite the fact that forest bathing originates from Japan, professionals that work with it are rare.

P8 talks about nature to manage stress, that "nature can be the network" instead of social media which brings peer pressure and the stress of always being available. That more nature in your life leads to more time to reflect, P8 saw a connection between that and a strong *Sense Of Coherence* [3] because it strengthens the manageability, comprehensibility and meaningfulness. P8 uses nature interventions in their work with suicide prevention among young people.

P4 balances clinical work with research, their most recent study is about the effect of smell. Their study was conducted indoors in a hotel room. According to P4, 30% of the effect of forest bathing is due to the smell of nature, pine trees in particular. With essential oils, it is possible to do indoors (P4). P1 was completely against this, claiming that you lose important aspects that are only found in nature, the seasonal changes for example, that no outdoor environment stays the same over time (P1).

P9 is one of the few who work with forest bathing in Japan, and the shift of perspective is one of the main effects according to this informant. P9 said:

> There is something about being among living systems that are ancient and indifferent to human productivity that restores a sense of proportion and belonging. This is quietly existential (P9).

Forest bathing gives a break from the pressure to perform, to be productive and conforming to the norms and puts you in contact with something larger, a "spiritual dimension" and "offers an antidote that doesn't require a diagnosis or prescription" (P9). "Reconnecting with nature is not a luxury -it is a fundamental human need" says the informant P9 who has the forest as their workplace.

---

[3] Sense of Coherence – Model from Antonovsky, 1991

Forest therapy – A Deeper Understanding

Forest therapy or Shinrin-Ryoho is a nature-based intervention for groups or individuals with targeted needs (P1). Nature does not care about mental illnesses and passes no judgements, it welcomes all (P1). It is more therapeutic, "more specific for each clients need" (P9), not only an intervention for the participant but also for the environment "Human health connected to the environmental health" (P9). Bringing something back to nature, not just using it as a resource – is the essence of forest therapy. This idea builds on the more profound insight that we are all but nature and in a deep independency, if the nature suffers, we suffer. P1 describes Shinrin-Ryoho as a "Communication with client and forest" (P1), that the practice helps the client get in touch with themselves and to overcome grief as well as act as a spiritual awakening. It strengthens self-esteem (P1). In P1's experience, there are great improvements in the mental condition of the participants and also interpersonal relations are better after their forest therapy. P1 mostly worked with young people with different disabilities and children with PTSD. Usually, it takes about three years to recover from post-traumatic stress disorder but in their program 24 children were rehabilitated after a year of forest therapy. One unexpected side effect of the program was that in the village close to the forest where they had the forest therapy, the view of people with disabilities changed, from being not wanted near the village to understanding and compassionate.

The forests chosen for this activity are often abandoned and dark. By making small changes in the forest, cutting down some trees in dense areas, the forest gets brighter and it is possible for the ground to have an herb layer of vegetation. The participant gains self-esteem by caring for the forest "I can make a difference" and thanks to this work, the forest will have more biological diversity (P1). P1's vision for the future is to rebuild the Japanese society with less demands, that "every hospital would work with forest therapy as an obvious part of the care", a vision that is shared with P3 "Combine nature therapy and medical care".

Discussion

Result discussion

The nature-based interventions I came across in this study were forest bathing (Shinrin-Yoku), forest therapy (Shinrin-Ryoho), forest medicine and horticultural therapy in a rehabilitation setting. The aim of this project, to engage with researchers and practitioners within the field of nature-based interventions, was met. However, not all of the participants had specific knowledge about the end-of-life care in Japan and not all wanted to discuss the societal challenges. Mental illness was sometimes a difficult subject to discuss. The research question in this project was:

How are nature-based interventions perceived as supportive for societal challenges such as mental health, coping with stress and rehabilitation for the aging population in Japan?

To answer this question, one must first understand the context of the Japanese society, something this project only touched the surface of.

The theme of *Poor diversity – Poor understanding,* was an important sub-theme to understand the Japanese society. Japan get a lot of tourists, but they are partly viewed as a problem in already overpopulated areas causing human impact on nature. Then again, tourists are also, of course, a source of income. However, accepting immigrants as equal citizens, with their differing cultures, is something else altogether from accepting tourists.

Japan also seems to be lacking integrity on both the individual and societal level, according to one of the informants. They agree with everybody and feel like "under-dogs" to Western societies. This affected the way the informants answered the questions, answering with avoidance and/or being unable to reflect and discuss. The politeness and "correct" answers, an unwillingness to criticise their own, influenced their answers constantly. They often answered "Yes" on questions, but then "No". When trying to verify the answers to make sure, they might initially say yes again. This was understood by me, after a while that, the first "Yes" meant "Yes I understand your question" and the second answer could be "No I don't agree". The "Yes" on the verifying question could either be a change of heart or "Yes" again that they understood the question.

This affected the study in that I made changes to my inquiries in line with qualitative research, asking simpler uncomplex questions but then it was difficult to examine what was under the surface. To examine psychological mechanisms under these circumstances was like being a detective and I have not reached the solution to this riddle yet.

I wanted to examine the impact of nature-based interventions, therapeutic forest bathing especially. One surprising finding in the study with regards to using nature-based interventions was that access to nature was limited. The result of my observations showed that it was not just the elderly and fragile in society that lacked nature contact, it was everybody! The nature was hard to reach because of the dense cities and the topography of the country with all the high mountains. Add to that, the climate; humid and hot in the summertime, much wind and rain during the winter. Wildlife is another factor with bears, wild hogs and mosquitos. Not to mention the earthquakes, tsunamis, volcanic eruptions and other natural disasters that Japanese people have in their daily lives. Of course, there are parks and nature areas in and near the cities, but with many visitors they need to be able to handle that pressure. Therefore, the natural settings are staffed and paths are hard surfaced, there are fences in the edges and sometimes parts of the forest closed due to lack of staff. The serene natural forests are hard to find. In the housing areas in the cities, it is uncommon to have a garden or greenery. The ground between the houses is made up of concrete, and it is so densely built that views from the windows to nature are rare; the windows are often dimmed and covered with shutters, otherwise your neighbours can look right inside.

Risk avoidance is another obstacle to using nature-based interventions, something that I talked about with my participants and also observed. There were signs everywhere forbidding you from doing certain actions even when there was seemingly no danger present. People often seem to respect these boundaries, but it also creates a fear of doing something wrong, an uncertainty to move outside into the nature. Maybe this risk avoidance phenomenon is due to all the natural disasters, to have some kind of control in a country that has real dangers that you cannot control.

The informants in this study did not have much knowledge about palliative care or end-of-life care, the elderly care is separate from this and this disconnection seems to mirror an overall lack of knowledge worldwide.

The theory of the biopsychosocial-spiritual model, is about having a holistic approach (Antonovsky, 1996) and viewing the person "as a whole" (Rego & Nunes, 2019 p.279) tending to all the human needs of physical, psychological, social and spiritual health (Rego & Nunes, 2019; Stenmo, 2022). In an environmental psychology context, this means that all these aspects of health could be addressed in a natural setting using the restorative features that are present in nature (Siah et al., 2023). Activating all our senses through the impact of nature is the essence of nature-based interventions (R. Kaplan & Kaplan, 2011). The result of this study shows that the understanding of the effect of nature is present in the informants' mind and result, but not available for most and not so spread to the common people in society that are of great need of stress relief. For example; the fact of the children suffering from PTSD due to abuse of stressed-out parents, the "social illness" with all the supressed anger that could affect the everyday life, going to a restaurant feeling mistreated and explode in anger. My own experience of being yelled at in a laundry room for just talking to another person in a normal tone in the middle of the day "Quiet!" the manager screamed. A man totally out of control at the airport just screaming and acting out on the transfer from the plane, for no obvious reason. This unprovoked anger contributed to the overall picture of the stress-levels in Japan, but of course it isn't in itself enough to draw any general conclusions.

Using nature to release stress and tension, to regulate feelings (Ríos-Rodríguez et al., 2024) is what nature-based interventions are for. Contact with nature can serve as a "key factor for wellbeing" (Ríos-Rodríguez et al., 2024 p.08).

Spending time in the forest is needed both in the Japanese society and in a Swedish context, the stressors may differ, but the solution could be similar.

Method discussion

This project strength is that I was able to conduct the interviews live in Japan and within the informant's lived reality (Kvale & Brinkmann, 2014). That contributed to contextual knowledge and a greater possibility to gain understanding

especially since the language barrier was significant. I wanted to examine the informants' experiences and opinions about their work with nature-based interventions and therefore a qualitative study was preferable.

When conducting cross-cultural research, unexpected things can occur that connect to the cultural context. Some questions were not understood even when translated "not all questions make sense in all cultures" (Willig, 2020 p. 31). I also met scepticism when framing some of my questions regarding the society, asking if *these really were my research topic*, which could be due to cultural differences "hypothetical questions…may be considered unworthy of attention" (Willig, 2020 p.31).

The weakness of this project was undoubtedly the language barrier. I would have needed to know Japanese myself or at least have a translator present at the interviews. That would, on the other hand, be very costly and difficult to arrange, not defensible for this level of work. Further on, to have a translator is not a guarantee for understanding and it also affects the power balance (Kvale & Brinkmann, 2014) in the interview room, risking of making the interviewee uncomfortable and hindering the direct contact and relation between the informant and me as the researcher.

Because of the language barriers, some things were rather implied than said out straight and could affect the credibility of the study (Kvale & Brinkmann, 2014; Willig, 2020). Sometimes we needed to circle around the subject at hand, before we could reach an understanding and even then, I sometimes struggled to interpret the underlying message using mobile apps that worked sometimes but also failed just as often.

In the analysis process when I listened to the interviews, I sometimes heard things that I did not during the interview, but also there are things I cannot hear clearly and understand. On one occasion, the interview was in noisy room which also contributed to the failure of understanding.

When not having a shared language with your informants, it is, in my experience, hard to have a deeper discussion and reach underlying meaning and it also takes more time and energy to carry through for both parties. The willingness to give up and just settle for less understanding was present. The "monopoly to

interpret the data" is also about advantage and "power symmetry*"* (Kvale & Brinkmann, 2014 p. 52). As a researcher, I am free to make assumptions and interpretations of what is being said during the interview. With a greater language barrier, this became a bigger problem than otherwise.

The time aspect of the interviews was also a limit for further explanations and clarifications. Sometimes the interview situation was slow due to the language differences, and I had informed before the interviews that it would take about one hour. Of respect for the participants time, we ended the interviews even if we had things left to discuss.

A group interview was planned but became an individual interview instead. The circumstances around that are unknown to me, but it could simply be that my interviewee was the only one in the staff that spoke English effortlessly.

One informant withdrew from the interview and as the ethic agreement says, that is without consequence for the participant even though it became a problem for me. The written interview answers affected the possibility to have a discussion and the answers seemed controlled in a way that is not possible during a live interview. Neither was it feasible to ask follow-up questions or request for explanations and clarifications.

Besides from using a translator, the study could have been conducted online from a distance but would have lacked the "attention to contextual data" (Willig, 2020 p. 101) and also, speaking online is, in my opinion, more challenging than a live conversation.

The subtheme of "Poor diversity – poor understanding" might have been a clearer theme if there were more interviews. Additional participants would lead to more verifications; this would have increased the credibility overall of the study, due to the difficulties in understanding each other.

The phenomenological approach was problematic because the study aimed for a deeper understanding of experiences, the informants "own perspective" (Kvale & Brinkmann, 2014 p.45) and reflections about health and wellbeing but for that, critical thinking and contemplating is necessary. More than once, a participant was googling during the interview to find out *the right answer*.

Reflexivity

Having a master's degree in environmental psychology from the Swedish University of Agricultural Sciences (SLU) meant that my prior knowledge of the subject of nature-based interventions was extensive. This "pre-existing relationship with the subject matter" (Willig, 2020 p.52) could have affected the interview situation and my analysis process in a positive way, but maybe also made me biased.

My position as a woman from a Western country did affect how I was treated by my informants, mostly favourable but also sometimes with caution. In my preparation for the journey, I talked to others that had been in Japan for research, and I also read about what rules and norms I could expect to avoid being offensive. I learnt that it was important to be ten minutes early for meetings and that I was to wear formal clothing and bring gifts and business cards. The gifts were something that the participants did not know about beforehand, so it was not an ethical issue.

I found out during my stay in Japan that Western people were treated with more respect than Asian people, that there was a notion about themselves as being lesser than Western people, a racist problem. The societal inequality between men and women did not affect me, being from a Western country outshone that.

During the interviews, it was clear that being reflective, and especially being critical of one's own society, was a sensitive topic and unusual here. I needed to move on and change the subject time and again.

Due to the language barriers, I often had to check if I had understood something. It was a delicate task just to clarify their answers and not put words in their mouths, but this might nevertheless have affected the outcome of the data with bias (DePoy & Gitlin, 2016; Kvale & Brinkmann, 2014; Willig, 2020) me filling out the blanks from my perspective, knowledge and cultural background.

In the analysis step, this was at the back of my mind: the possibility that I could have influenced what was said during the interviews, and therefore that the data could be somewhat biased.

Conclusion

There is a lot of research supporting that nature-based interventions are good for health and wellbeing. Stress as a worldwide phenomenon is in particular visible

in Japan, with a culture of extreme overwork and an aging population that add to the stress of the working population and high levels of depression. Despite the language barriers, the study found stigma surrounding mental health and not having an open discussion about it in society makes it worse. The believing of bad luck, *Bashi*, increases this distress. The willingness to conform and not feeling free to choose one's future, especially among young people, is something worth studying more.

Returning to my research question;

How are nature-based interventions perceived as supportive for societal challenges such as mental health, coping with stress and rehabilitation for the aging population in Japan?

Nature-based interventions are perceived by the participants to be supportive for health and well-being because of their experiences and research. They perceived several things such as: Improvements in mood and overall health in fragile groups of elderly and in work with disabled youths. Being in nature decreases the stress levels, the "natural network" away from peer pressure helps to cope with stress. It also restores the sense of proportion, belonging, helps with motivation and makes the person more active. Being outdoors has a positive effect on sleep and having a view over the garden prompts going outside. Working in a garden shifts the focus from sickness to life, nature is about life – not sickness. Having the opportunity to work in a garden gives a sense of having freedom of choice. Being able to participate in different interventions gives us a free mind. All this according to the informants in this study.

Although there are indeed lots of forests in Japan, they are hard to access and remote, and the dense cities is where most people live their lives. Forest bathing derives from Japan but is not used as a part of public health, at least not that I have seen. It is for those with the means to travel to remote areas or for those who are fortunate enough to be in a research study.

Nature can be used extensively as a resource for all ages; within the palliative care and for all who struggle with psychological stress related ill health.

References:

Antonovsky, A. (1996). The salutogenic model as a theory to guide health promotion 1 (Vol. 11, Issue 1). *University Press.* https://academic.oup.com/heapro/article-abstract/11/1/11/582748

Balmumcu, A., & Pekince, G. D. (2023). Effects of forest bath (Shinrin-yoku) and forest therapy (Shinrin-Ryoho) on women's health. *Psikiyatride Guncel Yaklasimlar-Current Approaches in Psychiatry*, *15*(1), 62–69.

Basu, A., Duvall, J., & Kaplan, R. (2019). Attention restoration theory: Exploring the role of soft fascination and mental bandwidth. *Environment and Behavior*, *51*, 1055–1081. https://doi.org/10.1177/0013916518774400

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. https://doi.org/10.1191/1478088706QP063OA

DePoy, E., & Gitlin, L. N. (2016). *Introduction to research* (5th ed.). Elsevier.

Elliott, R., Fischer, C. T., & Rennie, D. L. (1999). Evolving guidelines for publication of qualitative research studies in psychology and related fields. *British Journal of Clinical Psychology*, *38*(3), 215–229. https://doi.org/10.1348/014466599162782;WEBSITE:WEBSITE:BPSPSYCHUB

Engel, G. L. (1977). The need for a new medical model: A challenge for biomedicine. *Science*, *196*(4286), 129–136. https://doi.org/10.1126/SCIENCE.847460

Engström, Å., Juuso, P., Liljegren, M., & Lundmark. Alfredsson, L. (Eds.). (2022). *Vård, omsorg och rehabilitering utomhus -teori, praktik och nya perspektiv*. Studentlitteratur.

Iqbal, S. A., & Abubakar, I. R. (2022). Hospital outdoor spaces as respite areas for healthcare staff during the COVID-19 pandemic. *Health Environments Research & Design Journal*, *15*(4), 343–353. https://doi.org/10.1177/19375867221111530

Kaplan, R., & Kaplan, S. (2011). Well-being, reasonableness, and the natural environment. *Applied Psychology: Health and Well-Being*, *3*(3), 304–321. https://doi.org/10.1111/j.1758-0854.2011.01055.x

Kaplan, S. (1995). The restorative benefits of nature: Toward an intergrative

framework. *Journal of Environmental Psychology*, *15*(3), 169–182. https://doi.org/10.1016/0272-4944(95)90001-2

Kellert, S., & Wilson, E. . (1994). Review: The biophilia hypothesis. *The American Biology Teacher*, *56*(7). https://doi.org/10.2307/4449879

Koda, M., Harada, N., Egucgi, A., Nomura, S., & Ishida, Y. (2022). Reasons for suicide during the Covid-19 pandemic in Japan. *JAMA Network Open*, *31*, 1–15.

Krägeloh, C. U., Billington, D. R., Henning, M. A., & Chai, M. P. M. (2015). Spiritual quality of life and spiritual coping: evidence for a two-factor structure of the WHOQOL spirituality, religiousness, and personal beliefs module. *Health and Quality of Life Outcomes 2015 13:1*, *13*(1), 26-. https://doi.org/10.1186/s12955-015-0212-x

Kvale, S., & Brinkmann, S. (2014). *Den kvalitativa forskningsintervjun*. Studentlitteratur AB, Lund.

Lee, H., Park, H. K., Rhee, S. J., Kim, J., Kim, B., Lee, S. S., Ha.Kyooseob, Baik, C. J., & Ahn, Y. M. (2021). An integrated model for the relationship between socio-cultural factors, attitudes toward suicide, and intensify of suicidal ideation in Korea, Japanese, and American populations. *Journal of Affective Disorder*, *208*, 203–210.

Li, Q. (2018). *Shinrin-Yoku Bli friskare & lyckligare med natur- & skogsterapi*. ScandBook, MIMA.

Li, Q. (2019). Forest medicine: The secret power of Shinrin-yoku the art and science of Japanese forest bathing. *Vestnik Mezdunarodnoj Akademii Nauk*, *1*, 82–84.

Li, Q., Takayama, N., Katsumata, M., Takayama, H., Kimura, Y., Kumeda, S., Miura, T., Ichimiya, T., Tan, R., Shimomura, H., Tateno, A., Kitagawa, T., Aoyagi, Y., & Imai, M. (2025). Impacts of forest bathing (Shinrin-yoku) in female participants with depression/depressive tendencies. *Diseases 2025, Vol. 13, Page 100*, *13*(4), 100. https://doi.org/10.3390/DISEASES13040100

Nordin, S., Liljegren, M., Nilsson, M., Bengtsson, A., & Wijk, H. (2024). Outdoor stays—A basic human need except for older adults in residential care facilities? Researcher-practitioner interaction crosses zones and shows the way out. *Frontiers in Dementia*, *3*. https://doi.org/10.3389/frdem.2024.1470691

Piao, Z., Xie, J., & Managi, S. (2024). Continuous worsening of population emotional stress globally: universality and variations. *BMC Public Health*, *24*(3576), 1–14. https://doi.org/10.1186/s12889-024-20961-4

Rego, F., & Nunes, R. (2019). The interface between psychology and spirituality in palliative care. In *Journal of Health Psychology* (Vol. 24, Issue 3, pp. 279–287). SAGE Publications Ltd. https://doi.org/10.1177/1359105316664138

Ríos-Rodríguez, M. L., Rosales, C., Hernández, B., & Lorenzo, M. (2024). Benefits for emotional regulation of contact with nature: a systematic review. *Frontiers in Psychology*, *15*, 1402885. https://doi.org/10.3389/FPSYG.2024.1402885/TEXT

Sahlin, E., Ahlborg, G., Tenenbaum, A., & Grahn, P. (2015). Using nature-based rehabilitation to restart a stalled process of rehabilitation in individuals with stress-related mental illness. *International Journal of Environmental Research and Public Health*, *12*(2). https://doi.org/10.3390/ijerph120201928

Sarkohi, A., & Andersson, G. (2024). *Psykisk ohälsa, ett biopsykosocialt perspektiv* (1:2). Studentlitteratur.

Siah, C. J. R., Goh, Y. S., Lee, J., Poon, S. N., Yong, J. Q. Y. O., & Tam, W.-S. W. (2023). The effects of forest bathing on psychological well-being: A systematic review and meta-analysis. *Mental Health Nursing*, *32*, 1038–1054.

Skevington, S. M., Rowland, C., Panagioti, M., Bower, P., Krägeloh, C., Bower, · Peter, & Krägeloh, C. (2021). Enhancing the multi-dimensional assessment of quality of life: introducing the WHOQOL-Combi. *Quality of Life Research*, *30*(3), 891–903. https://doi.org/10.1007/s11136-020-02661-9

Stenmo, C. (2022). *Att leva tills vi dör*. Epsilons Arkiv För Studentarbeten. https://stud.epsilon.slu.se/17407/

Sudimac, S., Sale, V., & Kühn, S. (2022). How nature nurtures: Amygdala activity decreases as the result of a one-hour walk in nature. *Molecular Psychiatry*, *27*. https://doi.org/10.31234/OSF.IO/TUCY7

Sulmasy, D. P. (2002). A biopsychosocial-spiritual model for the care of patients at the end of life. *The Gerontologist*, *42*(suppl_3), 24–33. https://doi.org/10.1093/GERONT/42.SUPPL_3.24

Ulrich, R. (1984). View through a window may influence recovery from surgery.

Science, *224*(4647), 420–421. https://doi.org/10.1126/science.6143402

Willig, C. (2020). *Introducing qualitative research in psychology* (Third). Mc Graw Hill Eucation.

World Health Organization (2020). *Palliative care.* https://www.who.int/news-room/fact-sheets/detail/palliative-care [2026-07-31]

World Health Organization (2026). *The Global Health Observatory.* https://www.who.int/data/gho/data/indicators/indicator-details/GHO/crude-suicide-rates-(per-100-000-population) [2026-08-21]

World Medical Association (2026). *Medical research involving human participants*. https://www.wma.net/what-we-do/medical-ethics/declaration-of-helsinki/ [2026-07-30]

World Values Survey & European Values Study (nd). *Findings and Insights.* https://www.worldvaluessurvey.org/WVSContents.jsp?CMSID=findings [2026-07-30]

Appendix:

Semi-structured Interview guide

Core and tailored questions depending on the interviewee

Starting with the consent form, information and signing, okay to not answer a question that may be too sensitive

Different themes: Introduction -Who are you? Societal context, Shinrin-Yoku phenomenon, Palliative care in Japan, Closing questions

Introduction -Who are you?

Starting point -some light conversation to create a talkative social pleasant environment:

Tell me a bit about your personal background?

Professional background?

How did you start doing this work with nature-based interventions?

What is your driving force in your work?

Please describe your typical days' work!

What does your workplace look like?

Socially -working alone or in group?

What are the ways for you personally to stay healthy and well?,

What are your own beliefs and philosophy in life?,

What beliefs and core values have been important for you in your work?

Societal context:

How would you describe Japanese culture for a foreigner like me?

What would you say is the most characteristic of Japanese culture?,

What would you say are the biggest challenges of Japanese society?

How do you think the Japanese people view health challenges?

How do you think that the health and lifestyle of Japanese people is connected to the societal context?

How do you view the human value?

How is mental illness treated in society?

Is it talked about?

Stigma?

What care/help is available for those with mental illness/struggles?

How do you think that the Japanese culture relates to emotional and mental wellbeing?

How does it differ, in your opinion, from western way of life?

Stress - how is it handled?

What is experienced as stress - where do people feel stress from?

Work?,

From home?,

Social norms/ social media?

What role do philosophy, traditions, or existential values play in modern Japanese society?

Shinrin-Yoku phenomenon:

What societal needs has nature interventions/ Shinrin-Yoku arisen from?

How do you work with Shinrin-Yoku in your profession?

What practical approaches do you use/how does it work in practice?

What happens emotionally to the participant during a Shinrin-Yoku session?

What happens with your own physical and psychological wellbeing?

How do you think spending time in nature, doing forest bathing, effects peoples sense of meaning in life?

What do you think happens spiritually during a Shinrin-Yoku session?

Do you have any examples of other ways to achieve wellbeing and stress relief?

What is it with the Shinrin-Yoku intervention that makes it so powerful?

How is it with the ownership of Japanese forest

Does the government own all the forest?

Japanese Forestry Agency?

How do they make profit of the Shinrin-Yoku forests?

Is it a public health initiative -Shinrin-Yoku forests?

Palliative care in Japan:

How is the care for people at the end of their lives like here? (palliative care)

Are there hospices and how does it work?

How is the care for dying patients like in an emergency hospital in Japan?

- Caregiving aspects?
- Pain relief?
- Other treatment?
- Environmentally, restorative?
- Socially -room for family and friends?
- Spiritual needs?

What shortcomings do you see in the care of the dying?

Is there a discussion in Japanese society about euthanasia?

- Helping people to die?
- Suicide?

What are the needs of this fragile group, at the end of life, in your opinion?

How could spending time in nature (doing forest bathing) help with these needs?

We have an idea to make a tool for palliative patients so they can experience forest bathing session indoors with the same or similar stimuli as if they were outside in a forest -do you have any suggestions about how to do that?

Smell, hear, see, feel, taste ect

Closing questions:

What is the most important thing in your work/research/experience that you would like to highlight?

Is there something I haven't asked about that you would like to add?

If you think of something else you like to add or ask, please contact me on email!

Thank you so much! (giving presents and exchange business cards ☺)