

5.0 Introduction

The physical environment and mental well-being

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KEY MESSAGES

1. A well-designed urban space enables a sense of community, social inclusion and mobility, increasing mental well-being, reducing stress and allowing for significant savings in healthcare.
2. Climate change, biodiversity loss and environmental disturbances are increasingly affecting people's mental well-being. Climate concerns can be alleviated by taking action and responsibility on a personal level and thus contributing to climate and environment initiatives.
3. Direct contact with nature, in urban spaces as well as in the countryside, supports mental health and increases well-being.

INTRODUCTION

Homes, schools, kindergartens, offices, parks, bicycle paths, footpaths and town squares are spaces that people move through and where they spend time daily. As part of the living environment, they have a significant impact on human health, including mental health. Maintaining, protecting and planning a health-promoting living environment is fundamental to public health. This cross-sectoral approach to health should be recognised as one of the basic principles for preparing the national budget. Estonian society pays a high price for ignoring this principle, as

human health is the country's most valuable asset, both financially and morally.

The introduction to the chapter discussing the physical environment examines people's mental well-being as it is influenced by the natural, urban and other artificial environments. People's mental health and well-being depend on the health of the physical environment. Architecture and spatial planning play a big role, as they shape our behaviour patterns and the spaces where we travel or spend time.

Climate change is the biggest factor affecting population health in the 21st century

Research on the impact of climate change on people's physical and mental health has received considerable attention in recent years, as evidenced by the emergence of climate psychology as a new branch of psychology. Environmental psychologists have studied the links between mental health and climate change in a comparison of dozens of countries (Ogunbode et al. 2022). The conclusion is unequivocal: climate change has a significant impact on mental health. The impact can manifest itself in psychological exhaustion or anxiety caused by the short-term or long-term effects of climate change, experienced directly or through the media, and the social and economic changes resulting from climate change. Climate anxiety is a negative emotional response to a vaguely perceived threat posed by climate change. Climate anxiety must be distinguished from concepts such as climate concern or caring about climate change, because the latter are based on a real threat, are empowering, and need not involve mental health problems. The United Nations Human Development Report (HDR 2022) and recent reports by the World Health Organization (WHO) have also pointed out that rapid climate change is accompanied by increasing risks to mental health and psychosocial well-being, triggering emotional distress, anxiety, depression, grief and suicidal behaviour in people.

The survey findings presented in this chapter (see Annist et al.) explain how climate change is perceived on a subjective level in Estonia. While the surveys do not seek to determine the associations between mental well-being and climate change, they point to climate change as an important phenomenon shaping

human relationships and behavioural practices. In Estonia, the number of people who experience climate concern is increasing. Unlike climate anxiety, climate concern is not a passive state of panic that ends up causing apathy; instead, it leads people to address their concerns by acquiring knowledge about climate change and looking for ways to act. Sharing concerns with others and taking action together is a common way to address climate concern. People may feel powerless and burnt out and have a higher risk of developing mental health problems when they fail to find a way to share and channel their concerns. A similar phenomenon is described in scientists studying climate change. They are constantly working with environmental data and are faced with negative information, which they interpret and mediate to the public. As a result, they experience burnout and grief (Conroy 2019).

Most people care about the environmental condition of the planet, and Estonian people, especially the younger generations, see themselves as environmentally conscious. However, awareness does not necessarily imply action. Awareness, fear and anxiety can instead lead to denial or downplaying of the problem. For example, symbols of social status – our cars, homes and clothes – rely on polluting industries that are often located overseas. Dealing with climate change inevitably leads to a conflict of values: caring for the environment requires giving up some personal material well-being, which can cause mental distress. To avoid this, people may opt for apathy, because a proactive attitude would require

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changing behavioural habits and experiencing inconvenience in everyday life.

Social norms and role models play an important part in coming to terms with climate change. People tend to perceive threats arising from climate change as more immediate if they are convinced by climate-change-related statements from people with significant social status or if they feel social pressure to adapt to and mitigate climate change on a personal level. Likewise, people tend to be more concerned about climate change if their family and friends care about it.

In the first article of the chapter, [Annist et al.](#) say that climate concern can be alleviated by taking climate change and environmental damage seriously and offering solutions. Denying the problem and responding with apathy has several social consequences: the number of climate-concerned and climate-anxious people will increase, and the climate crisis will take on ever-larger, tangible dimensions that affect health and financial well-being.

Environmental pollution causes annoyance and affects mental health

The consequences of human activities that have negative effects on the climate and environment affect people's mental well-being. In the second article of the chapter, [Orru et al.](#) use examples from air and noise pollution studies to discuss how environmental disturbances cause mental health to deteriorate. Air pollution is the most important environmental risk to our health. The ambient air quality in Estonia is generally good. Problems occur in cities where there are many sources of pollution and many people exposed to them. A recent report on the health impact of ambient air in Estonia ([Orru et al. 2022](#)) focuses on air pollution from coarse particles and fine particles, which have the

greatest impact on mental health. Although particle counts in the air have decreased in Estonia over the past decade, there is no reason for complacency. Due to changing traffic intensity, the air quality in the centres of Estonia's major cities varies according to the time of the day. The fact that many schools, kindergartens and hobby schools are located in the city centre is a cause for concern. In the city centres of Tallinn and Tartu, they are immediately surrounded by parking spaces for the public or for the employees of these facilities. The vehicles pollute the spaces where the children play and move around, and have a negative health effect. In many European countries (e.g. the Netherlands and the United Kingdom), parking is prohibited near childcare facilities. The vehicles that parents drive to childcare facilities, waiting for their children while the engine idles, are a major source of pollution for outdoor air, soil and the indoor air of nearby childcare facilities. The effect of indoor air quality on mental health has not yet been studied in relation to specific sources of pollution, and thus it is unknown. Numerous case studies from other countries suggest a connection, but there are not enough international studies to draw fundamental conclusions. As early as 2011, the WHO described noise as a serious source of pollution with negative health effects ([WHO 2011](#)), but noise pollution as a possible cause of mental health problems has not been sufficiently studied ([Guha 2022](#)). One of the reasons for this is the insidious nature of noise – we tend not to notice traffic noise because we are accustomed to it as a constant background. Noise is also

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SILENCE AS A NATURAL RESOURCE

In silence you are with yourself. When you are in silence, you are alone with yourself, in your own company. [...] Coming back to silence as a natural resource, the protection of this resource should be taken very seriously. [...] It is a value that people very often recognise only when it is no longer there. It is similar to health, which, they say, is the most precious possession of someone who is ill.

SOURCE: Fred Jüssi, *Olemise mõnu*, Õõülikooli Raamatukogu, 2022, pp. 99–101

perceived as less of a threat than, for example, traffic accidents. Children are more sensitive to all sources of pollution than adults, and they are also more vulnerable to noise, which can impair their cognitive abilities, among other things (Gill 2021). It is difficult for adults to adequately assess noise pollution from the point of view of children.

The impact of environmental pollution on mental health is also discussed in agriculture. For example, the mental health effects of glyphosate are being actively researched (Ong-Artborirak et al. 2022; Soares et al. 2021). Glyphosate-containing herbicides are widely used in agriculture as a weedkiller or applied immediately before harvesting to speed up the drying of grain crops and ensure consistent yields. In Estonia, glyphosate is also used to limit the growth of vegetation around infrastructure (e.g. roads, railways and outdoor areas). Surveys of agricultural soils and surface and groundwater in Estonia show that more and more glyphosate and its decomposi-

tion products are found in nature (Helm et al. 2020). When glyphosate enters the intestine, it can lead to changes in the microbiome, which in turn can induce anxiety and depression (Barnett et al. 2022). A recent audit by the National Audit Office (2018) indicated that the levels of plant protection products in groundwater are increasing. Nitrate content in groundwater has also increased. Using nitrate-contaminated water can cause symptoms of depression (Theron 2022).

How the built living environment affects mental well-being

The third article in this chapter (Sooväli-Sepping et al.) takes a closer look at the impact of the built living environment on people's mental well-being. The ways in which spatial planning, mobility and architecture affect mental well-being deserve to be explored in depth. In Estonia, they have so far only been discussed at a conversational level, and there is no good practice in the public sector for assessing the impact of new infrastructure, buildings or spatial plans on people's mental health and well-being. There is also little research in this field in Estonia, but good examples that exist in Europe could serve

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as a model and could easily be applied in Estonia.

The places where people spend the most time affect their health the most. Most people spend the majority of their lives indoors. Either out of ignorance or carelessness, today's built environment and interior spaces are often not designed to support mental health. This is mainly because of a general lack of understanding of how the built environment affects mental well-being. There are no clear guidelines for the construction market on which built environments to promote in order to support people's mental well-being. [Hoisington et al. \(2019\)](#) point out that engineering requirements are set for indoor temperature, light and air. Temperature is a subjectively perceived parameter with an indirect influence on mental well-being. Insufficient indoor daylight can increase the likelihood of depression by up to 60%. Well-thought-out lighting solutions, on the other hand, improve both physical and mental health indicators.

There are many solutions to improve people's mental well-being and performance when designing the built environment. The architecture and interior design of semi-public buildings (kindergartens, schools and workplaces) can support mental health with stimulating and relaxing solutions such as green walls or quiet spaces to spend some time alone. Bringing vegetation into the work environment or public space, using wood in the interior, placing images of nature

on the walls, setting up resting areas on roof terraces, creating spaces where people can rustle through autumn leaves or listen to the sound of trees and birdsong, or building digital simulations of nature – all of these have a calming effect. Solutions and good practices like these found in Estonia and elsewhere could be brought together in an interactive electronic catalogue updated by interior designers and freely accessible to heads of schools, libraries and other institutions.

According to the European Social Survey, people in Estonia experience social isolation much more than people in Western Europe. As in other European countries, many people in Estonia live in single-person households, especially in the cities. This change in living patterns sets different expectations for the quality of public space, which should facilitate social interaction. Social interaction can mean simply walking past another person, chance encounters, tending to a patch in a community garden and so on. Perceived social cohesion has a distinctly positive effect on mental health. To put it simply, people need other people around them.

The built environment, which includes both public spaces and interior spaces, affects people's lifestyle and behaviour patterns much more than legislation and public debates acknowledge. A fundamental problem with Estonia's urban living environment is car-centric planning. [Gill \(2021\)](#) points out that mental health disorders in children are often caused by a bad urban environment. Increased traffic affects children in particular, limiting their opportunities to spend time outside on their own. Planning car-centric areas, which means creating more and more parking spaces around houses and building new roads, reduces children's freedom to play and move independently and restricts them to indoor activities. Stadiums, ball courts and tree groves have gradually disappeared from old residential areas. Much more attention needs to be paid to playgrounds

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for children and young people of various ages, as well as for older people, in Estonian cities and small settlements alike. Local governments should treat this kind of activity space as a strategic goal when shaping the living environment and guiding people's health behaviour. In their current form, public votes on 'inclusive budgets' and efforts by volunteers (e.g. Liikuma Kutsuv Kool, an NGO that promotes physical activity in schools) are insufficient to guide people's health behaviour. Many good examples of activity spaces suitable for the Estonian climate are found in Europe and the Nordic countries. Experts and researchers in Estonia and elsewhere can make an important contribution to both the design and placement of these activity spaces in the urban environment.

Physical activity is a lifestyle choice that supports mental well-being. Walking allows people to meet each other spontaneously, take in the street life and see what the weather is like. [David Sim \(2021\)](#), an advocate of people-centred urban planning, points out several charms of walking – it provides sensory experiences, contact with the surrounding environment and the opportunity for social interaction. A bicycle also enables freedom of movement. A good bicycle infrastructure is a prerequisite for children to be able to move independently. The latest European health studies confirm that cycling is the most beneficial form of movement for human health: it allows you to move quickly from one point to another, burns calories and creates a

sense of well-being. In cities in Estonia and elsewhere in Europe, half of all car journeys are up to five kilometres long. Replacing these journeys with cycling would have great health benefits. For five months of the year, the weather in Estonia might not favour cycling, but the remaining seven months are suitable for it, as is shown in neighbouring Finland.

Closeness to nature supports mental well-being

In the early days of modern medicine, psychiatric hospitals were built in natural settings, away from the noise of the city. Natural daylight in the wards and doctors' offices, the opportunity to enjoy sunshine, fresh air and views of nature and to go out into nature – all these factors were believed to have a therapeutic effect ([Battisto and Wilhelm 2020](#)). Contemporary expert discussion on the architecture of hospitals, homes for older people, rehabilitation centres and other healthcare facilities also treats the idea of closeness to nature and naturalness as central, from the location of the building to the landscaping around it, the building materials and the interior design ([Kraus et al. 2020](#)). The natural environment does not only have a healing effect on people suffering from illness; healthy people also need it. Being in a natural environment stimulates, preserves and strengthens mental health and helps people cope with stress ([Bosch et al. 2018](#)). People should not have to specifically travel or drive to nature to benefit

The cleaner and more natural our living environment, the stronger the mental resilience of society.

and derive well-being from its soothing qualities. The more nature there is in the city – in the streets, squares, bus stops and around apartment buildings – the healthier people are.

Urbanisation has eliminated some of the green spaces in Estonian cities and has thus reduced people's opportunities to spend time in nature. This has led to an interruption in cultural continuity in terms of our habits and values. An interruption like this can lead to, for example, a preoccupation with keeping one's body and surroundings clean: fear of getting one's hands dirty or breaking into a sweat, apprehension about getting stains on one's clothes, squeamishness about picking fallen leaves off the car or disgust about flying insects. Contact with nature has been replaced by technology in recent decades. Instead of spending time outdoors, children under the age of eight spend more than 2 hours a day on digital devices; adolescents are on them 7.5 hours a day, while adults are on them more than 10 hours a day (Bosch and Bird 2018). This technology-intensive urbanised lifestyle has a negative impact on physical and mental health and, more broadly, on our grasp of why we need the natural environment and how it benefits our health.

The car-centric and nature-deficient urban space in Estonian cities speaks to our technocratic approach to the environment, which prioritises the engineering solutions of urban infrastructure underground and above ground. People's physical, social and emotional needs are ignored, because managing natural environments in the urban space is seen as an economic cost. Nature can be used to improve the urban space. Nature-based solutions, to use technical language, are ways of adapting to climate change and make up a sub-field of engineering based on landscape architecture. Such solutions have also been implemented in Estonian urban environments. So far, there is little awareness of their impact on human well-being. But nature-based

solutions, such as natural water bodies and urban wetlands, have clear added value for a people's mental well-being, as well as performing other useful functions, such as collecting rainwater and floodwater. More nature-based solutions could be used in urban spaces and they could be bolder, because these solutions have a positive health impact, help climate-proof urban spaces and improve spatial aesthetics.

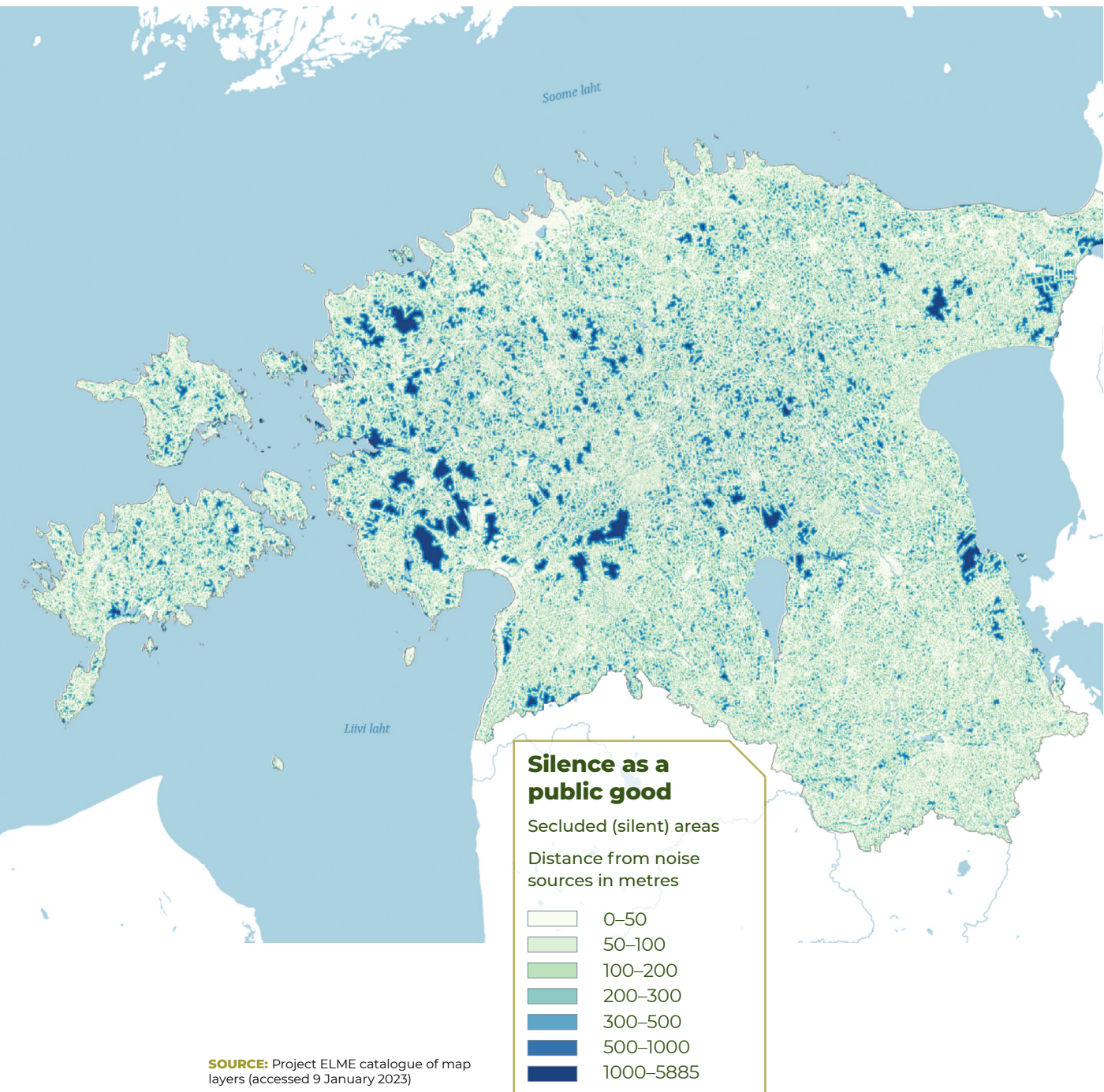
Urban green spaces give people more opportunities to be in a cleaner environment and breathe cleaner air. Green spaces are places for physical activity and sports, spending time alone and meeting friends. They have a mental-health-restoring effect, lowering cortisol levels and raising oxygen levels in the blood and making us feel relaxed and satisfied. We might assume that people go to spend their leisure time in green spaces. Big data also confirms that the population's contact with natural areas throughout Estonia is good (Orru et al. 2022). However, studies have shown that this assumption would be misleading (Plüschke-Altöf and Sooväli-Sepping 2022). There are many obstacles that prevent people from using green spaces. For example, people may be unable to make walking in green areas part of their daily routine at various stages in their life. In Estonia, urban green spaces are not as accessible as they should be; access can be limited for older people, children and young people, as well as for mothers with prams. The green spaces in Estonia's major cities have decreased, primarily due to construction. There are also many

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blue spaces in Estonia, which, like green areas, help restore mental health. People's relationship and contact with blue spaces has not been systematically studied or planned in Estonia. In conclusion, people in Estonia have ample opportu-

nities to enjoy silence and seclusion in natural areas, away from human-made environments. Figure 5.0.1 shows the locations of these landscapes of silence and their distance from sources of noise pollution.

Figure 5.0.1. Estonia's landscapes of silence, or places where people can go to recharge and listen to silence, are unique in Europe



NATURAL AREAS OFFERING PEACE AND QUIET

A 2020 project to map and evaluate ecosystem services in Estonia based on big data analysis defines seclusion as an opportunity to enjoy silence and peace without encountering other people. The most secluded places in Estonia – those farthest from human-made infrastructure – are the islets in the Väinameri (e.g. Kõverlaid, about 6 km from the nearest infrastructure); on the mainland, the only places offering more than 2 km of seclusion are located in wetlands (e.g. the Nätsi-Võlla Bog, about 3.5 km from the nearest infrastructure). The counties of Pärnumaa, Läänemaa and Ida-Virumaa have the largest number of secluded places. However, places that provide peace and quiet are changing rapidly. As extensive clear-felling affects noise absorption, the 2020 map may no longer correspond to today's reality.

SUMMARY

The physical environment affects mental well-being more than is recognised in Estonia. People's well-being depends on access to natural environments in their everyday lives. International projects and research findings from recent years unequivocally show that we need more nature in our cities and that natural environments must be easily accessible to everyone. Moreover, the latest scientific results show that daily mobility, either by foot, public transport or bicycle, is key to a healthy population, including mental well-being.

Shaping a living environment that supports mental health requires spatial planning based on health effects and consciously designing a living environment that improves the quality of life. How do we get there? At the municipal level, we need to improve local governments' awareness and strategic cooperation. There are plenty of good examples and models in other European countries. Additional air pollution monitoring is needed, and urban space planning

should address problems with air quality and traffic noise in Estonian urban environments.

Environmental pollution affects mental well-being and health. Assessing the health effects of nitrates and glyphosates is currently a complex issue. There are few studies on the mental health effects of plant protection products, and these issues are not being addressed in Estonia. As pesticides are known to affect the human microbiome, which in turn has mental health effects, the scientific debate should be followed closely.

Environmental pollution has a strong impact on the climate. Climate change has socio-psychological consequences; it is important that we recognise them and work to reduce concerns at the societal level. As humans, we depend on the environment in which we live. The cleaner and more natural our living environment, the stronger the mental resilience of society. ●

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