research plan

figure 1

prevention today keeps the doctor away!

health creation beyond the institutional approach

Alexander Feilmair

research plan

prevention today keeps the doctor away!

health creation beyond the institutional approach

AR3AD110 Designing for Health and Care | Graduation Studio
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„We don‘t stop playing because we grow old,
we grow old because we stop playing.“ (Ely, 2022, 0:07-0:16)

George Bernard Shaw, playwright and political activist

„The human body does not wear out with use.
On the contrary, it wears down when it is not used.“ (Alexander et al., 1977)

Christopher Alexander, architect and architectural theorist

„Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity “ (WHO, 1948)

World Health Organisation (WHO)

„ (...) we’re seeing a preference among patients and families for a calming place to recover, not just a ‘machine’ to deliver care.“ (Schnall, 2023)

Brenna Costello, medical planner

index

I. introduction

1.1 context

In times of an aging population worldwide, the related issue of care is an increasing topic in our society. If one looks at the current forecasts of population development in the Netherlands, the proportion of people aged 65+ will increase from 3.6 million in 2022 to 4.8 million in 2040 (CBS, 2022) and consequently will represent almost one-quarter of the population (currently around 20%). Due to this demographic shift, without a rethink in the healthcare system, we are at risk of meeting an imbalance between the care needed and the available care!

A large proportion of elderly people in the Netherlands live alone, which may also result in the fact that one out of three elderly sometimes feel lonely and every tenth frequently feels lonely (CBS, 2020). The feeling of loneliness is seen as a contributing factor to creating depression symptoms (Lee et al., 2021), which results often in a lack of motivation to be physically and socially active and so the downward spiral of frailty development is progressing, threatening the established autonomy.

Besides the mental influencing factors, independence is often further impaired by unfortunate circumstances such as a fall or illness, which in many cases results in hospitalization, a relatively „hostile environment" for many people. The hospital itself is often perceived as a machine (Schnall, 2023) whose focus should be on healing people, but people often take a secondary role and efficiency takes center stage. This can be seen as a "psychologically hard design" (Ulrich, 1991), which in turn can lead to a deterioration in the health of the individuals, as shown in a study, where more than one-third of discharged elderly experienced a decline in executing fundamental activities of daily life (i.e., dressing, toilet use, bathing, transfer from bed or chair, and eating without external support, etc.) (Covinsky et al., 2003). Considering these factors, it seems that the hospital is not the ideal place to recover – especially for older people.

If one considers the costs arising from geriatric care, a significant increase can be expected in the coming years. Between 2019 and 2022 alone, expenditures have increased from around one billion to over 1.2 billion Euros (Zorginstituut Nederland, 2022).

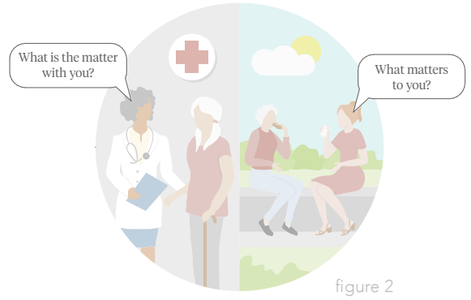


figure 2

1.2 problem statement & aim

Considering the current demographic changes and the shortage of health personnel, the health sector is heading towards a self-created catastrophe unless we rethink current approaches! As part of the "2015 Social Support Act", "Aging in Place" was promoted, leading to increased popularity. *But are people getting enough education on how to stay physically and mentally fit to maintain their long-term independence?*

As such, our shared societal aim should be towards implementing preventive methods for elderly people from declining physical and mental conditions, keeping them active in society, and by doing so renewing in them a purpose in life. This process of raising awareness of individual health, but also of an entire community, could be summarized in the term *health creation*. Through this, not only does the care sector get relieved, but at the same time it also avoids long-term and cost-intensive treatments for individuals, as well as for the entire health system. The goal should be to maintain the ability to engage in fundamental self-care tasks of daily life (Covinsky et al., 2003), but also to be able to participate socially in a community. These activities are essential to the independence of the individuals and the focus should be on maintaining or revitalizing these aspects.

However, if a hospital-related stay does occur, the length of stay in such an institution should be kept as short as possible and the patient should be transferred to a „health-promoting" environment as quickly as possible, which is often not the case in existing rehabilitation facilities!

Would it therefore not be preferable if there was an environment in which one could be treated apart from the institutional approach, where one could playfully find one's way back into daily life and at the same time be given new methods to prevent further decline? A place not only to recover but also a place for awareness and education for *aging with dignity and independence*! Such a spatial setting should not only be a place to come to after hospitalization but should also be a point of contact for (older) people who want to get information to prevent such a course of events in the first place!

These considerations led to the following *research question* and additional sub-questions:

1.3 research question

How can health-promoting architecture support elderly people, including those who need additional care after hospitalization, to remain both physically and mentally active and socially integrated?

sub-questions

- What spatial and design elements are needed to overcome the institutional character and make the health-promoting environment welcoming to the public?
- What are the potentials of preventive care away from a hospital setting and instead in a „health-promoting environment“?
- How can architecture promote social interaction and thus increase the awareness and integration of the elderly in our society?

1.4 design hypothesis

Through the findings of this research, the individual components, that are necessary to increase (elderly) people's awareness of their health, should be identified and combined to form a future-oriented approach in *health-promoting architecture*.

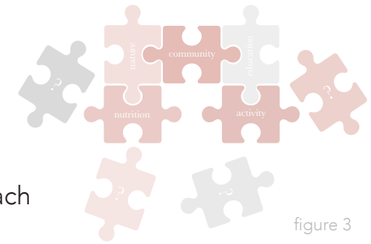


figure 3

My vision for this health-promoting environment is to generate a spatial setting available for people to visit, with a focus on the growing elderly population, to learn about health-promoting methods playfully without the feeling of entering an institutional setting. In this context, I would also like to point out the importance of recovery after hospitalization and how preventive measures can be suggested to people in community-like surroundings to prevent a further decline – beyond the traditional clinical approach.

II. theoretical framework

2.1 health-promoting environment

"*Preventing instead of healing*". The focus of our society should be to encourage people to stay healthy and active instead of seeking medical help when this could have been avoided by early interventions. Architecture could intervene in this direction as an important actor and support key elements in prevention through new spatial programs and design elements. This may include flexible spaces that promote movement or areas that promote communication and community formation. *The following examples have carried out investigations and experiments in this direction and could serve as support for my research:*

Between 1926 and 1950 the *Pioneer Health Center* in South London, initiated in the course of the **Peckham Experiment** of Dr. George Scott Williamson and Dr. Innes Hope Pearse, focused on giving people the opportunity to gain a solid insight into their own health and by doing so achieving a self-awareness to maintain and promote it (Alexander et al., 1977, p. 254). Despite promising results, the center was closed due to the outbreak of the Second World War and was subsequently reopened post-war but was permanently closed in 1950 due to cost savings in the healthcare sector (Lewis & Brookes, 1983). Based on this example, you can see that attempts have already been made in the past to make people aware of the importance of human health. Through "informal" health examinations that could be carried out alongside activities, the inhibition threshold for such examinations was reduced and noticed more frequently (Alexander et al., 1977, p. 254).
With regard to my research, I will focus on the aim of alleviating the inhibition threshold of medical check-ups by integrating it into a non-institutional setting where people could spend their leisure time as well.

Roger S. Ulrich in particular attaches an important role to the significance of the built environment for people's psyche and well-being. His research has shown how space and its spatial relationships, such as views and accessibility to nature, influence people's moods and thus encourage them to move physically in their surroundings and positively affect the healing process (Ulrich, 1991).
For my research, I will tie in with Ulrich's approaches and investigate how nature can intervene as a passive (views into nature) and active (interacting within nature) actor in health prevention and recovery.

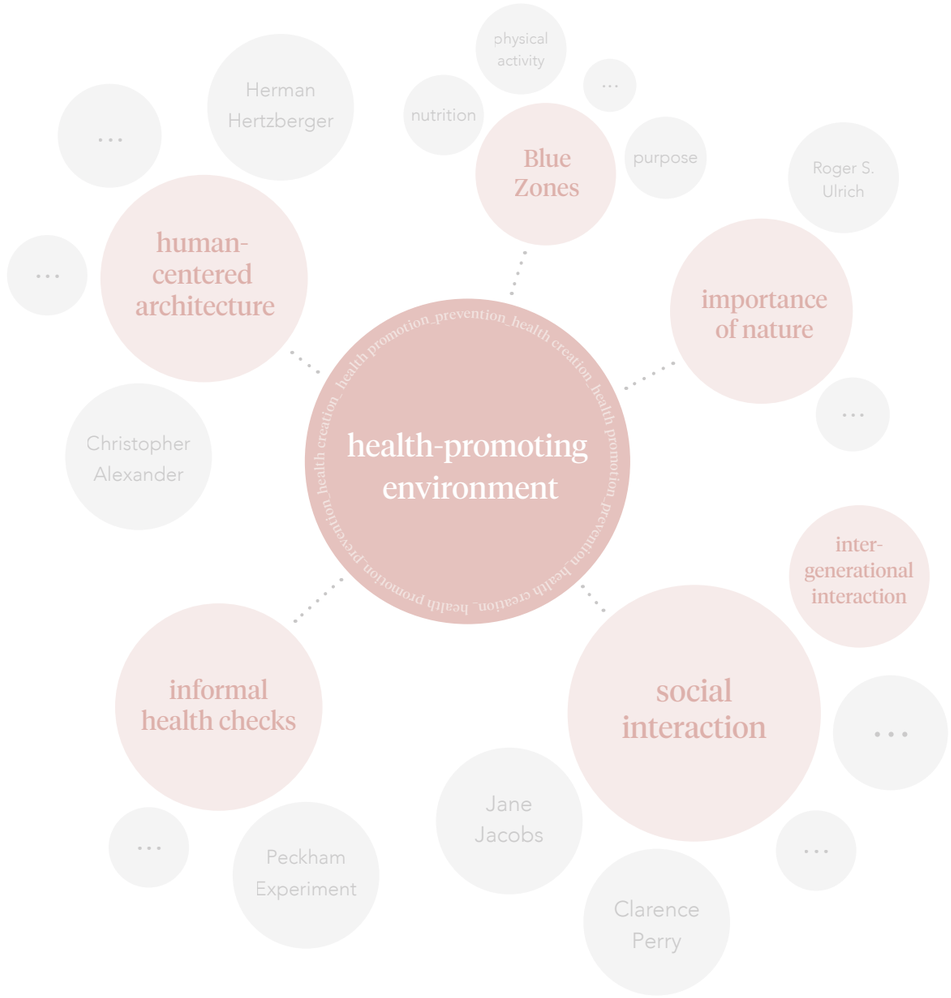
Besides the influences of regular health inspections and the psychological influence of the environment, people's lifestyle has a significant impact on people's long-term health – perhaps often underestimated! The so-called **Blue Zones** are five areas around the world where an above-average longevity of the population was identified. In the course of the study of these regions, nine indicators, dubbed the Power 9, were identified that correspond to all five and are evidence of this phenomenon (Buettner & Skemp, 2016).
With regard to the architectural implementation, I will focus on four of the nine "rules": physical activity, the creation of purpose, the feeling of belonging, and the importance of nutrition.

Hospitals and medical facilities nowadays are often perceived as machines (Schnall, 2023), which causes the human being, who should actually be the main focus, to appear rather out of place due to the efficient processes and sterile environment! In a place designed to support people's healing or to encourage people in movement and social interactions, the architecture should be designed with people as users in mind. The thoughts and approaches of **Christopher Alexander** and **Herman Hertzberger**, who can be regarded as pioneers in the field of human-centered architecture, could point the way in this direction.
For my research, the principles of Herzberger and Alexander such as user-centered design, flexibility and adaptability, interaction-promoting design, and contextual sensitivity („*genius loci*") are of great interest and importance.

Involvement in a social network is of great importance for the well-being and quality of life of many people. **Social interaction** becomes more important in old age, as a lack of interaction increases the chances of developing depression symptoms (Lee et al., 2021) whereby the motivation to be physically active is decreasing which can lead to a higher mortality (House et al., 1988). The surrounding neighborhood is therefore of primary importance in facilitating such social interactions.
Clarence Perry, architect and educational theorist, pointed in this direction already at the beginning of the 20th century. With his "Neighbourhood Unit", Perry wanted to highlight the importance of the local community and what the environment must contain to make it safe and healthy for residents and more human-centered (LeGates & Stout, 2015, p. 563).
Jane Jacob, activist and writer, pointed out the importance of the built and social surroundings as well in her statement „A neighborhood is not only an association of buildings but also a network of social relationships, an environment where the feelings and the sympathy can flourish" (Reid, 2020).
In terms of my research, I will mainly focus on the importance of the neighborhood as an opportunity for social exchange and how to expand and support existing institutions through implementing health-promoting elements.

A probably important influencing factor, in addition to contact with people of the same age, is the interaction with people of different age groups – the so-called **intergenerational interaction**. Currently, there is a growing body of research, which points out how this kind of relationship could improve the well-being of elderly people. In 2019, a social experiment in Australia, in which elderly people interacted with preschool children over several weeks, resulted in reduced depression levels and frailty, and the participants reported improved physical strength, confidence, appetite, and overall mood (Cooper-Douglas, 2023).
For my study, I will focus primarily on the importance of intergenerational interaction with young children (likely ages 3 to 6), but possibly also, in light of Delft as a student city, on the overlap with people under the age of 26.

2.2 theoretical framework scheme



III. methodology

3.1 research scope

The study will focus primarily on **elderly people (aged 60+)** who are still able to manage their daily lives independently to the greatest possible extent. Here, I am referring to the *fundamental self-care tasks* of daily life that can be done without external help. Since the study will also address the importance of recovery after hospitalization, it will include elderly people who are likely to be able to cope with everyday life independently, e.g. after a fall or hip fracture.
Elderly who are already dependent on extensive care, and those who are no longer able to manage without external help post-hospitalization (e.g. leg amputation, etc.) will not fall within the scope of the research purposes.

3.2 research methodology

In order to obtain the necessary knowledge to formulate design guidelines, a variety of research methods are used, including interviews, surveys, ethnographic observations, literature studies, documentaries, and the analysis of relevant case studies.

interviews (qualitative data)

In order to understand the needs of the target group, it is essential to obtain this information first-hand. During the fieldwork week in a Dutch nursing home, I will come into contact with people from my target group and have the opportunity to interview them. In terms of the one-week stay, I am hoping for about 10-15 in-depth interviews that will give me a better understanding of the circumstances and the needs of the people. The residents will be asked about their daily life routines and their activities to keep them fit. In this regard, residents are asked, how often they leave their housing unit or the building and what drives them to do so. Furthermore, the residents will be asked which spaces are missing or which spaces they value the most in this facility. The interviews aim to reveal what motivates people to move around in their living environment and what prevents them from doing so. Furthermore, I hope to gain insights into appreciated or required facilities and activities that people like to do or would like to do.
(The detailed questions can be found in the appendix)

In addition to surveying nursing home residents, people in Delft are also interviewed to figure out what people undertake to keep fit and what they miss in the neighborhood. This will probably be done through street interviews and visits to local community centers.

survey (quantitative data)

Besides interviewing the nursing home residents, and generally people from the target group, the tool of the "*Geriatric Depression Scale*" (GDS), which can be found in the appendix, is applied to identify the depression level of the participants, as this contains an indicator of decreased desire for physical activity and social interaction (Lee et al., 2021).
This survey will be handed out to the nursing home residents during the fieldwork week and I am hoping for around 30-40 participants.

ethnographic observation

Due to the fact that the language barrier often presents itself as an obstacle to communication, further visual observations of people are carried out to analyze and understand the movements of the target group within their existing living environment and generally in their daily lives. In the course of the field week, the nursing home residents are observed on which routes they use inside, but also outside the building, where they spend most of their time, or where frequently used gathering places among the residents are located. This could provide conclusions about preferred areas in their living environment and why these are likely to be used more than others.
The findings of this observation are documented in the form of sketches, movement diagrams, headcounts, and notes.

literature studies

The literature investigation will primarily focus on the three categories of *psychology/medicine*, *lifestyle habits*, and *human-centered design approaches*. Prevailing theories and examples from the theoretical framework, such as…

- "*View Through a Window May Influence Recovery from Surgery*" by R. S. Ulrich
- "*Blue Zones - Lessons for Living Longer from the People Who've Lived the Longest*" by D. Buettner
- "*A Pattern Language*" by C. Alexander et al.
- …

…, as well as literature relevant to the topic, will be studied and analyzed, and in which way the often theoretical and practical approaches can be translated into an architectural language.

documentaries

In addition to literary works, there are also documentaries and films that could serve as support for the research. One example of this is the documentary series "Old People's Home for 4 Year Olds" which tries to point out the influence and chances of intergenerational connections between a group of older retirement home residents and pre-school children.

case studies

With regard to new spatial programs and new functional connections, it is of great importance to analyze the typologies of existing programs. For this reason, examples that are based on the theoretical framework such as community (health) centers like the former *Pioneer Health Center* in London, (elderly) daycare centers such as the *John Morden Centre* in the UK, or spatial settings like the generation-café *Vollpension* in Vienna, that deal with the topic of health promotion and social integration, and try to lead in a new direction, will be investigated.

3.3 desired research finding

Based on the applied research methods and the obtained qualitative (interviews) and quantitative (surveys) data, I hope to gain a deeper understanding and the needs of the target group to create a more human-centered environment that supports them in maintaining and/or improving their health condition.
From these findings, I will create visual design guidelines that ensure a solid base for the translation into an architecture that is health-promotive and supportive for (elderly) people!

3.4 research methodology scheme

WHY?

issue

Due to a demographic shift, without a rethink in the healthcare system, we are at risk of meeting an imbalance between the care needed and the available care! The focus of our society should be to encourage people to stay healthy and active instead of seeking medical help when this could have been avoided by early interventions – the approach should be *preventing instead of healing*!

hypothesis

The goal of this research project is the definition of design guidelines for a health-promoting setting, available for people to visit, with a focus on the growing elderly population, to learn about preventive health methods playfully beyond the institutional approach, as well as the importance of recovery after hospitalization in a community-like surroundings to prevent a further decline.

WHAT?

How can health-promoting architecture support elderly people, including those who need additional care after hospitalization, to remain both physically and mentally active and socially integrated?

What spatial and design elements are needed to overcome the institutional character and make the health-promoting environment welcoming to the public?	What are the potentials of preventive care away from a hospital setting and instead in a „health-promoting environment“?	How can architecture promote social interaction and thus increase the awareness and integration of the elderly in our society?

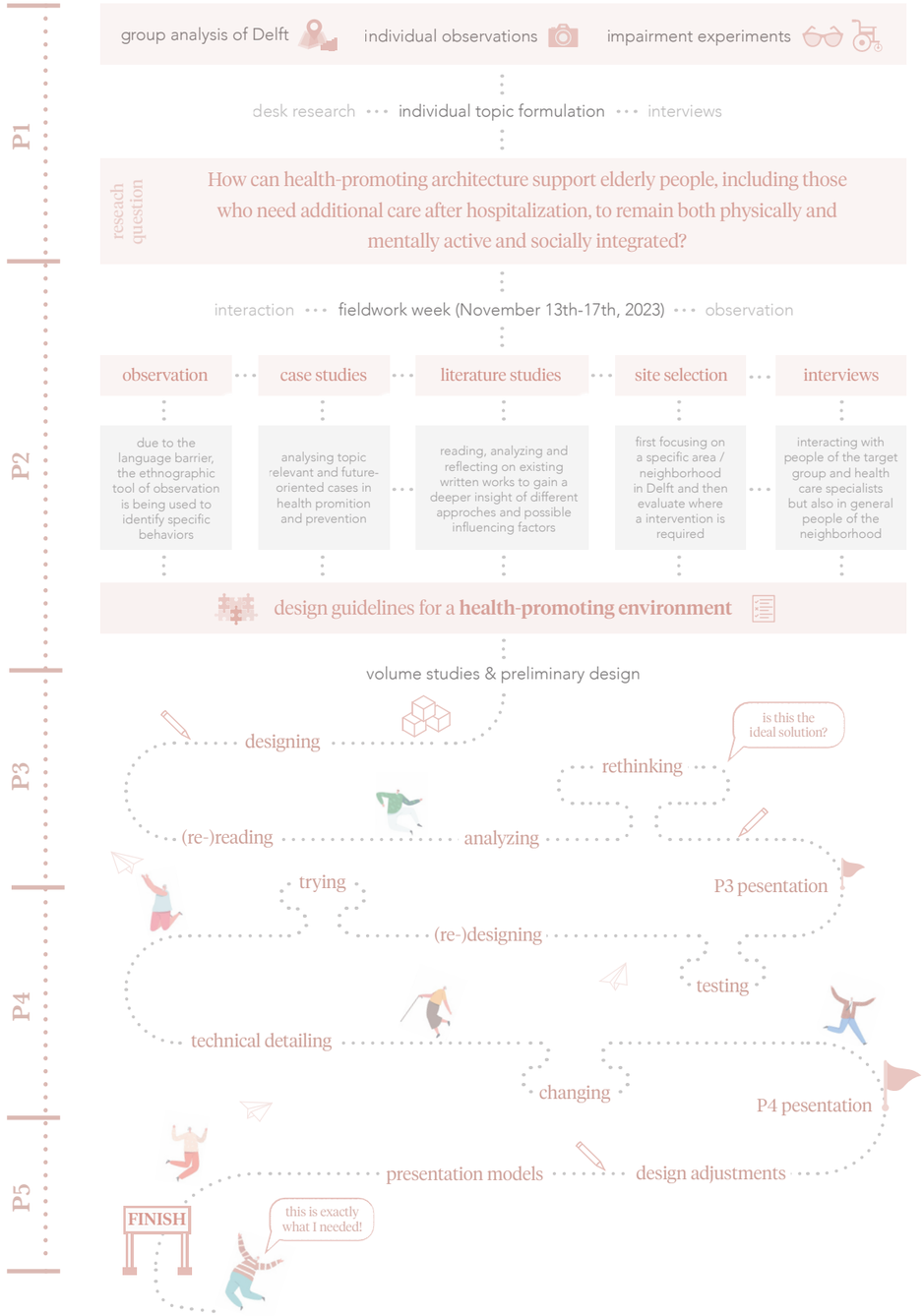
HOW?

interviews	literature review	literature review
literature review	case studies	interviews
case studies	interviews	documentaries
		case studies

THIS!

design guidelines for a **health-promoting environment**
leading to an architectural implementation in the context of Delft

IV. work plan



V. definitions

aging in place

The ability to live in your own home and community safely, independently, and comfortably, regardless of income, age, or ability level (RHIHub, n.d.).

blue zones

The so-called Blue Zones are five regions around the world (Italy, Japan, Greece, Costa Rica, and the USA) where the extraordinary longevity and vitality of the population were examined. All of these regions were compared and resulted in nine lifestyle habits that they share with each other – the so-called Power 9 (Buettner, 2008, p. 168).

fundamental self-care tasks

According to Covinsky et al. (2003), fundamental self-care tasks of daily life include dressing, toilet use, bathing, transferring from bed or chair, and eating without external support. By being able to execute these tasks, the person is considered largely "independent".

geriatrics

Geriatrics is a field of expertise that is based on improving health care for older people. It advocates health improvement in the elderly by preventing and treating illnesses and disabilities that arise as people age (Portea, n.d.).

genius loci

"genius loci" is a Latin term meaning 'the genius of the place', referring to the presiding deity or spirit. Each place has its own unique characteristics, not only in terms of its physical nature, but also in terms of how it is perceived. It should therefore be the role of the architect or landscape designer (but far too often it is not) to respond to and enhance these unique qualities rather than destroy them. Alexander Pope, in Epistle IV (1731) of his Moral Essays addressed to Lord Burlington, states in his argument that "instanced in architecture and gardening,… all must be adapted to the genius of the place, and… beauties not forced into it, but resulting from it." (Oxford Reference, n.d.).

health promotion

Health promotion is the process that enables people to increase control and improve their health. The focus goes beyond the individual behavior toward a wide spectrum of environmental and social interventions (WHO, 1998).

health creation

At the present time, there is no universal definition for „health creation", but it is frequently used in association with the process of improving and maintaining the overall health and well-being of individuals, but also an entire community.
According to The Health Creation Alliance (2023), which operates in the UK, health creation is the process of gaining a sense of purpose, hope, and control over life and by doing so enhancing overall health and well-being.

human-centered architecture

Human-centered architecture puts people at the center of the design process, striving to create spaces that serve their needs, improve their well-being, and encourage a sense of connection to their environment (Fidanci, 2023).

informal health care

Informal care refers to disabled people or elderly people who receive care and support that is carried out by relatives, friends, acquaintances, or neighbors, often without a contract agreement or formal payment (European Centre for Social Welfare Policy and Research, n.d.).

intergenerational

According to the Cambridge Dictionary (2023), intergenerational stands for "involving different generations". In the context of a community, this can be applied to social exchanges between people of different age groups.

source index

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figure index

appendix

interview questions / activities

part 1: Is the contemporary clinical approach health-promoting?

1.1 Show the elderly people 2-3 pictures of a contemporary hospital environment and ask if they perceive this as a health-promoting environment.

- If yes, why? _____

- If no, why? _____

1.2 Show the participants 2-3 manipulated images of the same setting (e.g. corridor) but with different aspects (e.g. window on one side to the outside, classic middle aisle, complete transparency) and ask in which environment they would most likely feel comfortable, and why?

1.3 Do you have personal experience with hospitalization, and if yes, how did u perceive the clinical setting in terms of healing support and health promotion?

(if the previous question got answered with YES)

1.3.1 Did you get advice from the clinical health personnel or doctors, on how to prevent a decline in your health condition, or was the focus mainly on healing of the medical cause?

1.4 Besides the hospital approach, do you get advice from any other source on how to preserve your health condition or even increase it? (e.g. family members, caregivers, community members, …)

- If yes, please describe from whom and what kind of advice was given

part 2: The living environment as health promotion?

2.1 How often do you leave your **housing unit** per day and for what reason?

2.2 How often do you leave the **building** per week and for what reason?

2.3 Which areas and facilities do you value the most existing living environment and describe why?

2.4 What kind of facilities are missing in your living environment in your opinion?

2.5 Do you use the existing community facilities like the library, shared kitchen, and general gathering places?

- If yes, why? _____ - If no, why? _____

2.6 How does the integration of the public library influence your life? Do you feel more socially included or do you feel unsafe because of people from the outside coming inside?

2.7 Do you appreciate the interaction with younger people?

- If yes, why? _____ - If no, why? _____

2.7.1 Are activities with younger people offered or, if not, would you be interested in participating in intergenerational activities (e.g. play sessions with young children)??

2.8 Do you use public spaces, parks, or communal facilities in your neighborhood?

- If yes, which and why? _____ - If no, why? _____

2.9 Do you feel limited in your free and safe movement in the built environment?

- If yes, locate and describe them:_____

2.10 Are exercise and physical activity integrated into your everyday life?

- If yes, what is this and how often do you execute it? _____

- If no, what prevents you from being active and how could the built environment motivate and support you? _____

part 3: „mood survey“ / geriatric depression scale (GDS)

The Geriatric Depression Scale (GDS), developed in the 1980s by J. A. Yesavage, is a widely used international assessment tool which, with the help of a questionnaire to be completed by the person in need of care, can provide indications of any age-related depression or depressive mood. Important: the survey always refers to the previous week!

1.	Are you basically satisfied with your life?	YES	NO
2.	Have you dropped many of your activities and interests?	YES	NO
3.	Do you feel that your life is empty?	YES	NO
4.	Do you often get bored?	YES	NO
5.	Are you in good spirits most of the time?	YES	NO
6.	Are you afraid that something bad is going to happen to you?	YES	NO
7.	Do you feel happy most of the time?	YES	NO
8.	Do you often feel helpless?	YES	NO
9.	Do you prefer to stay at home, rather than going out and doing things?	YES	NO
10.	Do you feel that you have more problems with memory than most?	YES	NO
11.	Do you think it is wonderful to be alive now?	YES	NO
12.	Do you feel worthless the way you are now?	YES	NO
13.	Do you feel full of energy?	YES	NO
14.	Do you feel that your situation is hopeless?	YES	NO
15.	Do you think that most people are better off than you are?	YES	NO

Total Score: _____

evaluation:

Questions 1, 5, 7, 11 and 13 are counted with one point if the participant answers with „No“, the other questions are counted with one point if the answer is „Yes“.

More than 5 points indicate the suspicion of the existence of depression, with 11 and more points a manifest depression must be assumed.