NEGIN FROUGHISAEID
ENHANCING PSYCHOLOGICAL WELL-BEING OF NURSING HOME RESIDENTS: INCORPORATING HOMELIKE INTERIOR DESIGN ATTRIBUTES INTO SUPPORTIVE DESIGN THEORY
Bilkent University 2025

ENHANCING PSYCHOLOGICAL WELL-BEING OF NURSING HOME RESIDENTS: INCORPORATING HOMELIKE INTERIOR DESIGN ATTRIBUTES INTO SUPPORTIVE DESIGN THEORY

A Ph.D. Dissertation

by
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Ankara
September 2025

To my Grandmama…

EXPLORING ENERGY-RELATED OCCUPANT BEHAVIOR IN OFFICE BUILDINGS: AN INTERDISCIPLINARY STUDY IN THE CONTEXT OF BUILDING PHYSICS AND SOCIAL PSYCHOLOGY

The Graduate School of Economics and Social Sciences
of
İhsan Doğramacı Bilkent University

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NEGIN FROUGHISAEID

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By Negin Froughisaeid

I certify that I have read this thesis and have found that it is fully adequate, in scope and in quality, as a thesis for the degree of Doctor of Philosophy in Interior Architecture and Environmental Design.

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ABSTRACT

ENHANCING PSYCHOLOGICAL WELL-BEING OF NURSING HOME RESIDENTS: INCORPORATING HOMELIKE INTERIOR DESIGN ATTRIBUTES INTO SUPPORTIVE DESIGN THEORY

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The world's population is rapidly aging, and societies will face a significant rise in the proportion of older adults. While much research on aging emphasizes physical health and safety, fewer studies focus on psychological well-being (PWB). This dissertation introduces a new perspective by examining how supportive design and homelikeness influence the PWB of nursing home residents. It identifies design-related features of Supportive Design Theory (SDT) and homelikeness that positively affect older adults' experiences, while also investigating which attributes are most valued by residents. In addition, the study evaluates the physical and architectural characteristics of Turkish nursing homes, highlighting strengths and shortcomings, and offers recommendations for designing future facilities that enhance quality of life while reflecting cultural expectations—an area where research remains limited. The study was conducted in two

phases. Part 1 assessed seven nursing homes using the Physical and Architectural Features (PAF) checklist. Results indicated strengths in urban accessibility and staff facilities but revealed shortcomings in amenities, social-recreational spaces, and orientation aids. Part 2 examined residents' perceptions through the Supportive Design Theory and Homelikeness (SDTH) questionnaire in four nursing homes, combined with PWB measures. Findings emphasized privacy and sense of control as the most valued features, while natural elements and personalization showed the strongest correlations with PWB.

Overall, the findings extend SDT by showing that homelikeness—through personalization, atmosphere, and culturally resonant design—amplifies its predictive validity. The study concludes that nursing home standards in Türkiye should adopt a two-tiered framework: Ensuring safety and accessibility while embedding homelike, resident-centered features that foster autonomy, comfort, and belonging.

Keywords: Supportive Design Theory (SDT), Homelikeness, Psychological Well-being, Long-term Care/Nursing Home Design, Older Adults

ÖZET

HUZUREVİ SAKİNLERİNİN PSİKOLOJİK İYİ OLUŞUNU ARTIRMAK: EV GİBİ İÇ TASARIM NİTELİKLERİNİ DESTEKLEYİCİ TASARIM TEORİSİNE DAHİL ETMEK

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Dünya nüfusu hızla yaşlanıyor ve toplumlar yaşlıların oranında önemli bir artışla karşı karşıya kalacak. Yaşlanma üzerine yapılan araştırmaların çoğu fiziksel sağlık ve güvenliğe odaklanırken, psikolojik iyilik halini ele alan çalışmalar daha azdır. Bu tez, destekleyici tasarım ve ev gibilik huzurevi sakinlerinin psikolojik iyilik halini nasıl etkilediğini inceleyerek yeni bir bakış açısı sunmaktadır. Yaşlıların deneyimlerini olumlu yönde etkileyen Destekleyici Tasarım Teorisi (SDT) ve ev gibilik ile ilgili tasarım özelliklerini belirlerken, sakinlerin en çok hangi özelliklere değer verdiğini de araştırmaktadır. Ayrıca, çalışma Türk huzurevlerinin fiziksel ve mimari özelliklerini değerlendirerek güçlü ve zayıf yönlerini vurgulamakta ve kültürel beklentileri yansıtan, yaşam kalitesini artıran gelecekteki tesislerin tasarımı için öneriler sunmaktadır. Bu alan, araştırmaların sınırlı kaldığı bir alandır. Çalışma iki aşamada gerçekleştirilmiştir. Birinci

bölümde, Fiziksel ve Mimari Özellikler (PAF) kontrol listesi kullanılarak yedi huzurevi değerlendirilmiştir. Sonuçlar, kentsel erişilebilirlik ve personel tesisleri açısından güçlü yönleri ortaya koyarken, fiziksel olanaklari, sosyal-rekreasyon alanları ve yön bulma yardımcıları açısından eksiklikleri ortaya çıkardı. İkinci bölümde, dört bakım evinde Destekleyici Tasarım Teorisi ve Ev Gibilik (SDTH) anketi ile psikolojik iyilik hali ölçümleri birleştirilerek sakinlerin algıları incelenmiştir. Bulgular, mahremiyet ve kontrol hissinin en değerli özellikler olduğunu vurgularken, doğal unsurlar ve kişiselleştirme psikolojik iyilik hali ile en güçlü korelasyonları gösterilmiştir.

Genel olarak, bulgular kişiselleştirme, atmosfer ve kültürel vurgulama aracılığıyla ev benzeri ortamın SDT nin öngörü geçerliliğini güçlendirdiğini göstererek teoriyi genişlemektedir. Çalışma, Türkiye'deki huzurevleri standartlarının iki aşamalı bir çerçeve benimsemesi gerektiği sonucuna varmıştır: Güvenlik ve erişilebilirliği sağlarken, özerkliği, konforu ve aidiyeti teşvik eden ev benzeri, sakin odaklı özellikleri de içermelidir.

Anahtar Kelimeler: Destekleyici Tasarım Teorisi (SDT), Ev Gibilik, Psikolojik İyilik , Uzun Süreli Bakım/Huzurevi Tasarımı, Yaşlı Yetişkinler

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Finally, to my grandmama, who rests in peace and whose memory inspired this work; I miss her every day. I dedicate this thesis to all older adults whose resilience and wisdom continue to inspire my research and remind me of the profound importance of designing environments that support dignity, well-being, and a sense of home.

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LIST OF ABBREVIATIONS

ADL: Activities of Daily Living

AIC: Akaike Information Criterion

BE: The Built Environment

BIC: Bayesian Information Criterion

CCRC: Continuing Care Retirement Community

CFA: Confirmatory Factor Analysis

CHD: Center for Health Design

EASE: Environmental audit scoring evaluation

EAT-HC: Environmental Assessment Tool-High Care

EBD: Evidence-Based Design

GDS: Geriatric Depression Scale

GDSPDE: General Directorate of Services for Persons with Disabilities and The Elderly

GH: Green House

HCAHPS: Hospital Consumer Assessment of Healthcare Providers and Systems

LED: Light-Emitting Diode

LTC: Long-term Care

LTCU-EAT: Long-Term Care Unit Environment Assessment Tool

MEAP: Multiphasic Environmental Assessment Procedure

MLM: Maximum Likelihood Method

NH: Nursing Home

OWB: Objective Well-being

PAF: Physical and Architectural Features

PEAP: The Professional Environmental Assessment Procedure

PF: Psychological Factors

POLIF: The Policy and Program Information Form

PWB: Psychological Well-being

PWS: Psychological Well-being Scale

QoL: Quality of Life

RESIF: Resident and Staff Information Form

RH: Relative Humidity

SCES: The Sheltered Care Environment Scale

SD: Standard Deviation

SDT: Supportive Design Theory

SDTH: Supportive Design Theory and Homelikeness

SF: Social Factors

SPSS: Statistical Package for Social Sciences

SYDGM: T.C. Başbakanlık Sosyal Yardımlasma ve Dayanısma Genel Müdürlüğü Sosyal Hizmetler Çocuk Esirgeme Kurumu (Prime Ministry General Directorate of Social Assistance and Solidarity Social Services Child Protection Agency of Republic of Türkiye)

TESS-NH: The Therapeutic Environment Screening Survey for Nursing Homes

UCD: User-Centered Design

USA: United States of America

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CHAPTER 1

INTRODUCTION

The population of older adults aged 65 years and above is growing rapidly around the world, with estimates indicating that by 2050, it will comprise one-fifth of the world's population (WHO, 2018). Moving to a nursing home is not solely driven by the need for long-term care due to chronic health conditions and functional impairments among older adults. There are diverse reasons why some older adults choose to transition to nursing homes. These reasons encompass a range of factors, including preferences for safety, security, access to services and amenities, reduced responsibilities as well as opportunities for socialization and companionship.

Türkiye is experiencing a rapid demographic shift toward an older population, with the proportion of individuals aged 65 and above rising from 6.7% in 2000 to 9.5% in 2020. Projections indicate this share will reach 12.9% by 2030 and 25.6% by 2080 (Ministry of Family and Social Services, Republic of Turkey, 2021; TURKSTAT, 2023). Traditionally, older adults in Türkiye have been cared for within the family home, consistent with cultural norms emphasizing intergenerational support (Aysan & Aysan, 2016). However, factors such as urbanization, industrialization, and evolving family

structures have contributed to an increasing demand for formal long-term care (LTC) services (Güdük & Ankara, 2022). Notably, studies indicate that even older adults with children or those rooted in more traditional backgrounds may choose institutional care, reflecting an evolving shift in cultural expectations and caregiving norms within Türkiye's aging population (İnce, 2024). This trend underscores a growing need for the design and development of new nursing homes that can meet the evolving preferences and requirements of older adults.

1.1. Problem Statement

The future is expected to have many nursing homes commonly portrayed as gloomy places (Burton & Sheehan, 2010; Potter et al., 2018). Furthermore, research has shown that up to 40% of care home residents exhibit signs of poor well-being, particularly concerning their PWB (Burton & Sheehan, 2010). However, nursing homes can provide an environment that supports the PWB of older adults by providing supportive design features that create a sense of home.

The theory of supportive design by Ulrich (1997) suggests that the physical environment of healthcare settings can impact the PWB of adults if it provides control, social support, and positive distractions. The evidence-based design also emphasizes the importance of designing spaces that promote well-being and reduce stress (Ulrich, 2006). The supportive design theory (SDT) is a concept that was initially proposed for short-term care environments such as hospitals. It emphasizes the importance of creating a healing environment that promotes patients' physical and psychological well-being. However,

this theory can be applied to long-term care environments such as nursing homes, where the goal is to promote the quality of life (QoL) of older adults.

The psychological well-being of older adult individuals often experiences a decline when they transition to nursing homes. This is especially significant considering the substantial number of individuals who must ultimately move to nursing homes as their final place of residence. Unlike short-term care environments such as hospitals, nursing homes serve as long-term care settings where individuals reside for extended periods. The unique nature of nursing homes necessitates a focus on creating an environment that feels like home for the residents. Therefore "homelikeness" is considered to have a crucial role in nursing home residents' well-being.

Despite the evidence, creating a sense of home in nursing homes proved challenging in real life (Eijkelenboom et al., 2017). A primary obstacle is that the care environment frequently does not align with the therapeutic objectives that person-centered care systems seek to attain (Eijkelenboom et al., 2017). Hence, it is imperative to recognize and establish factors that facilitate the creation of a homelike environment within nursing homes while ensuring adaptability, applicability, and ease of implementation across diverse settings and layouts without compromising the safety and medical aspects of the residents' environment. Such efforts hold great significance as they have the potential to profoundly impact the psychological well-being and overall quality of life of older adults.

To make SDT applicable to long-term care environments, the concept of homelikeness can act as the fourth construct in addition to control, social support, and positive

distractions. The concept of homelikeness involves creating an environment that feels like home, with personalized living spaces, opportunities for social engagement, and a sense of belonging (Rijnaard et al., 2016). By incorporating the concept of homelikeness into SDT, designers and caregivers can create a more comfortable and nurturing environment for older adults in long-term care settings such as nursing homes, ultimately improving their PWB and overall quality of life.

Despite the importance of supportive design and homelikeness for promoting the PWB of older adults in nursing homes, there is a gap in the literature on how these factors influence each other in nursing homes with a focus on interior design features.

1.2. Thesis Aim

The study is intended to contribute to the literature by exploring the impact of supportive design and Homelikeness on the psychological well-being (PWB) of older adults and identifying specific design-related features of Supportive Design Theory (SDT) and Homelikeness that positively influence PWB of older adults in nursing homes. In addition, this research aims to understand which features of SDT and Homelikeness are perceived as important by older adults. This study's findings are valuable to policymakers, designers, and providers of long-term care services, helping them create environments that promote the PWB of older adults in nursing homes.

This study also seeks to assess the physical and architectural characteristics of selected nursing homes, highlighting their strengths and shortcomings, and to offer recommendations for designing future facilities that better support older adults' quality of life and reflect cultural preferences since the research examining the built

environment of Turkish nursing homes is still scarce. In response, It represents the first comprehensive evaluation of both public and private care institutions across three major cities in Türkiye, addressing a notable gap in the literature.

CHAPTER 2

LITERATURE REVIEW

The psychological well-being of older adults in nursing homes has long been a topic of concern for healthcare providers and policymakers. With the rapid growth of the aging population and the increasing number of older adults residing in nursing homes, understanding the relationship between the built environment and the PWB of older adults has become an essential area of research and a critical aspect of providing quality care. This literature review chapter examines the existing research on well-being and the built environment, focusing on the PWB of older adults in nursing homes. By synthesizing the current literature, this chapter aims to highlight the gaps in current research and to provide insights into effective interventions and strategies that can promote the PWB of older adults in nursing homes.

2.1. Well-being in the Context of Environmental Design

There is no sole definition of well-being in the literature due to its complex nature and many underlying factors. Commonly, *well-being* is defined as the subjective perception of life satisfaction, combined with the predominance of positive over negative affect in daily life (Kahneman et al., 1999). Well-being is often simplistically intended as

synonymous with wellness, happiness, and quality of life or associated with comfort and health (Altomonte et al., 2020). There are different types of well-being, including physical and mental well-being, which are discussed in subsequent segments.

Warr (2012) explains the importance of the operational definition of well-being as follows:

> "Well-being takes many forms and has no single index. Effective measurement clearly requires instruments that are technically sound, but particularly important is clarity about the form of well-being to be measured. Only when we are clear about what we are trying to assess can we decide whether we have been successful. Since many different operationalizations exist for constructs such as well-being, different researchers' operational definitions may be addressing different versions of supposedly the same construct (p. 1)."

According to Dearborn (2017), "Well-being can be operationalized as a dynamic process and state of being . . . [enabling people to] sense how their lives are going, through the interaction between their circumstances [e.g., physical environment], activities and psychological resources or mental capacities (P. 1)." She also adds:

"Well-being is a multi-dimensional, integrative, and all-encompassing condition that can be understood and achieved within the context of a worldview that acknowledges the inseparability of mind, body, and environment. Well-being combines mind and body wellness in equal measures and relies on built and natural environments that encourage us to think and act on those aspects of life that fulfill our human needs, appeal to our senses, and to our creativity (2017, p. 10)."

Lawrence (2017) states: "Well-being is considered to be a positive, evolutionary and multi-dimensional state with objective and subjective components and measurements" (p. 15). In agreement with Lawrence, regarding objectiveness and subjectiveness of well-being, Ann Petermans and Rebecca Cain (2019) claim that despite the fact that there is no consensus conceptualization of well-being and happiness in academic literature to date (Petermans & Pohlmeyer, 2014; Petermans & Nuyts, 2016), researchers agree in two points: first is that happiness is largely influenced by genetics, life circumstances, and intentional activities (Lyubomirsky et al., 2005) and the second point is that happiness and well-being have both subjective and objective components (Veenhoven, 2014; Petermans & Pohlmeyer, 2014).

Physical well-being refers to the capacity to engage in daily physical activities and fulfill social roles without being restricted by physical limitations, pain, or adverse biological health conditions (Capio et al., 2014). *Objective well-being* (OWB) refers to the external conditions that affect the quality of life of people, and parameters included in OWB are related to social, economic, cultural, and health indicators, and these data are collected without the subjective effect of people under examination (Costanza et al., 2007). On the other hand*, subjective well-being* is related to life satisfaction and emotional and psychological well-being and usually is evaluated by self-reports from people (Petermans & Cain, 2019; Veenhoven, 2014).

"Mental well-being" and "psychological well-being" are often used interchangeably, as they both refer to the overall state of a person's mental health. However, there is a subtle difference between the two terms. *Mental well-being* is defined as a state of well-being in which every individual realizes his or her own potential, can cope with the everyday

stresses of life, work productively and fruitfully, and contribute to her or his community (WHO, 2005). In other terms, mental health is now recognized as encompassing both the absence of mental illness and the presence of PWB (Tang et al., 2019).

Psychological well-being is defined as positive psychological functioning in six dimensions, including self-acceptance, positive relation with others, autonomy, environmental mastery, purpose in life, and personal growth (Heidrich & Ryff, 1993; Ryff, 1989, cited in Waldron, 1996). It also may be defined as including hedonic (enjoyment, pleasure) and eudaimonic (meaning, fulfillment) happiness as well as resilience (coping, emotion regulation, healthy problem solving, [Tang et al., 2019]). While eudaimonic well-being is associated with greater long-term well-being, hedonic well-being is primarily linked to immediate well-being (Huta, 2016). In essence, mental well-being is a broader concept that includes PWB, as well as other aspects of mental health. On the other hand, PWB is a more specific aspect of mental health that focuses on emotional and psychological functioning (Tang et al., 2019).

2.1.1. Well-being and the Built Environment

The effects of the built environment on human well-being have been studied for decades. Researches on well-being include offices and workplace, educational spaces, public spaces, parks, neighborhoods, sidewalks, street conditions, maintenance, residential buildings, and such. Undoubtedly, the environment, whether built or natural, affects people's behavior, thoughts, and well-being.

Some key built environment factors identified in previous studies as influencing well-being include:

- Connection to context and cultural responsiveness (Saglar Onay & Minucciani, 2020)
- Functional, psychological, social, sensory, aesthetic, and ergonomic qualities (Saglar Onay & Minucciani, 2020)
- Evidence-Based Design principles – single rooms, daylight, views to nature, wayfinding, personal control (Lawson, 2010; Ulrich et al., 2008; Connellan et al., 2013; Reavey et al., 2017; Gesler et al., 2004)
- Supportive Design Theory elements – stress reduction, social support, sense of control (Ulrich, 1997; Simonsen et al., 2022)
- Interior layout and spatial organization – plan layout, circulation, furniture arrangement (Cetin, Ultav, & Ballice, 2018)
- Lighting and ambiance – natural and artificial light quality, atmosphere, and healing effects (Cetin, Ultav, & Ballice, 2018; Ulrich et al., 2008)
- Material selection and tactile comfort – surface finishes, warmth, hygiene, and sensory qualities (Cetin, Ultav, & Ballice, 2018; Harris, 2017)
- Acoustic comfort and noise reduction – impact on satisfaction, stress, and communication (Harris, 2017; Reblin & Uchino, 2008)
- Visitor-friendly and socially supportive environments – promoting interaction and social contact (Harris, 2017)

A recent study by Minucciani and Saglar Onay (2020) presents a framework for well-being in interiors for adults (Figure 1). This framework investigates the general concept of well-being in regard to connection to context and functional, psychological,

social, sensory, aesthetic, and ergonomic requirements. They conducted a comparative study between Türkiye and Italy based on this framework in two steps.

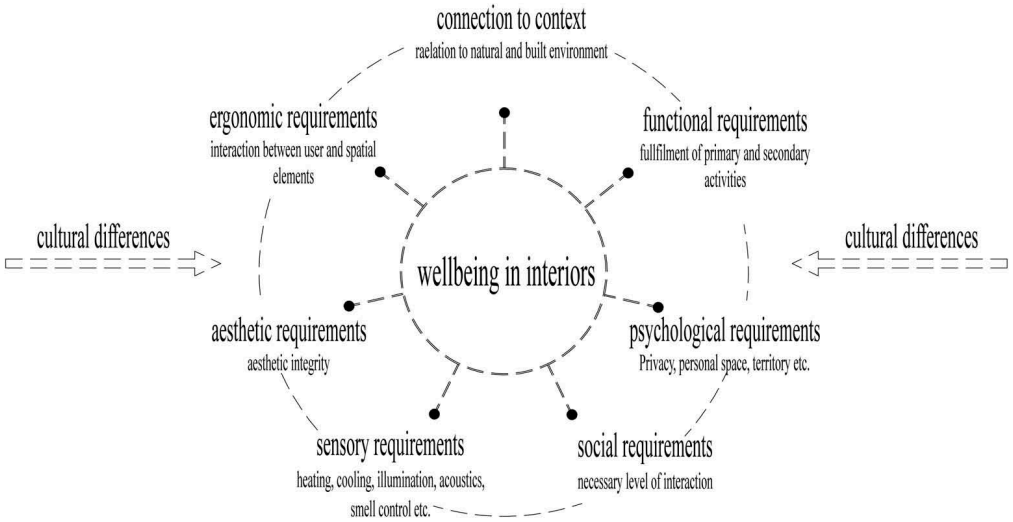

Figure 1. General well-being framework for interiors (Source: Minucciani & Saglar Onay, 2020).

In the first step, participants (in Italy, 41 participants, ten from age group 18–30, 19 from age group 30–60, and 12 from age group 60 and over, in Türkiye 60 participants, 17 from age group 18–30, 27 from age group 30–60 and 16 from age group 60 and over) were asked to order the requirements based on the importance (Figure 2), and in the second step, they were asked to order the negative conditions (Figure 3). The subjects were chosen to represent various social layers from various parts of the city's population, including the city center, business areas, educational districts, and peripheral residential areas. The results show that cultural aspects have a huge impact on the perception of well-being in the living environment. For instance, psychological requirements and connection to context were considered most important, while in Italy, all requirements

were considered important (Minucciani & Saglar Onay, 2020). In their studies, Saglar Onay and Minucciani note that "the physical features of a space can affect well-being in relation with contextual, functional, social, psychological, sensory, ergonomic and aesthetic requirements, that are in turn affected by the cultural context" (2020, p. 277).

Question: Well-being in an interior is mainly related to (put in order of importance):	
Answer representing the corresponding requirement	Corresponding well-being requirement
Connection to natural environment	Connection to context and nature
Having suitable spaces for all different activities	Functional requirements
Having suitable furniture for all activities	Ergonomic requirements
Having the necessary level of privacy and personal space	Psychological requirements
Having to opportunity to meet people and social encounters	Social requirements
Having the necessary level of heating, cooling, acoustic, illumination …	Sensory requirements
Having attractive and pleasing space, furniture and objects	Aesthetic requirements

Figure 2. Question about the hierarchy of well-being requirements (Source: Minucciani and Saglar Onay, 2020).

Question: Which of following condition in your living environment would you surely avoid: (put in order of importance)	
Answer representing the corresponding requirement	Corresponding well-being requirement
Visual and sensory total insulation (without any view, any connection with exterior space and so on)	Connection to context and nature
Lack of spaces available suitable for your activities in leisure time	Functional requirements
Uncomfortable furniture and accessories	Ergonomic requirements
Lack of privacy and personal space	Psychological requirements
Lack of social contacts	Social requirements
Having uncomfortable conditions of temperature, acoustics, lighting	Sensory requirements
Lack of attracting and pleasing space, furniture and objects	Aesthetic requirements

Figure 3. Question about the hierarchy of well-being requirements (Source: Minucciani and Saglar Onay, 2020).

A framework is proposed by Engineer et al. (2021) to portray the impact of the built environment on health (Figure 4). To reflect the foundational part of this environmental attribute, air quality is depicted at the bottom of Figure 4, in the building's foundation. It is impossible to create a healthy, constructed environment that promotes well-being without good air quality, which includes the removal of viruses, bacteria, particles,

allergens, volatile organic compounds, and other contaminants. For optimal well-being in the built environment, several other environmental qualities are required (2021). Healthcare settings have been receiving growing attention in recent years. In a literature study by Ulrich et al. (2008), three main focuses of the literature emerged:

> "The first section focuses on patient safety issues, such as infections, medical errors, and falls. The second section examines studies related to other patient outcomes, such as pain, sleep, stress, depression, length of stay, spatial orientation, privacy, communication, social support, and overall patient satisfaction. The third section surveys the scientific research relevant to staff outcomes, such as injuries, stress, work effectiveness, and satisfaction (p. 63)."

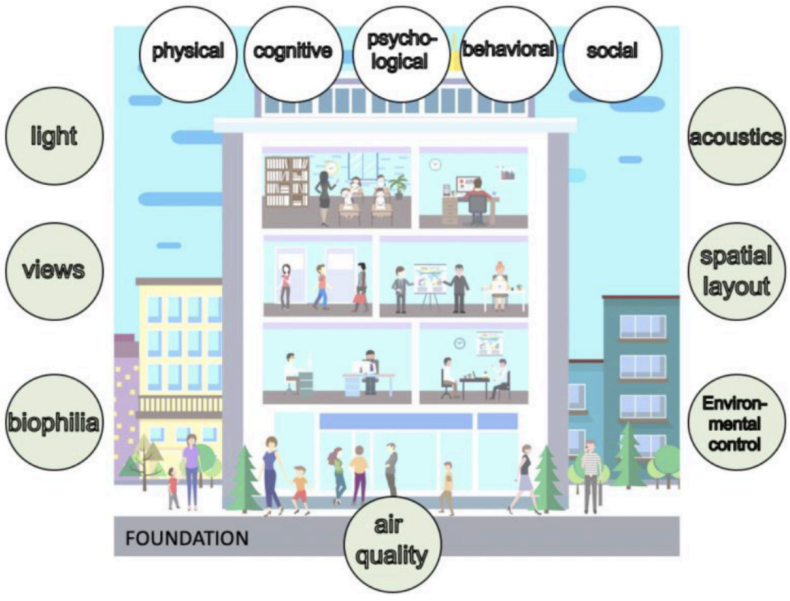

Figure 4. A framework for the impact of the built environment on health. Air quality is shown at the foundation because it is essential for health (Source: Engineer et al., 2021).

As a pioneer in well-being in healthcare environments studies with an evidence-based design (EBD) approach, Ulrich's work has played as guiding research on how healthcare environments can be designed in order to support well-being (Simonsen et al., 2022). The process of making substantial decisions about the built environment based on credible research data in order to create the most successful and achievable outcomes is known as evidence-based design (McCullough, 2010, as cited in Cetin et al., 2018).

Multiple design factors, such as single rooms, ambiance, sunlight, views to nature, wayfinding, and personal control over the immediate environment (Lawson, 2010; Ulrich et al., 2008), have been linked to improved health outcomes (Connellan et al., 2013; Reavey et al., 2017) and the development of therapeutic environments in hospital settings (Gesler et al., 2004) since Ulrich's (1984) early work (Simonsen et al., 2022). Furthermore, Ulrich has developed a Theory of Supportive Design (SDT) which has been used in many studies regarding well-being in healthcare settings, therapeutic spaces, and care home environments (1997). In the methodology section of this thesis, SDT is discussed in detail.

A study by Cetin, Ultav, and Ballice (2018) investigates the effects of interior design parameters on nursing stations in four hospitals using approaches frequently stated by EBD and User-Centered Design (UCD). They analyzed plan layout, color, material, furniture, and lighting in relation to nurses' physical and psychological needs. Questionnaires were used to collect data regarding four interior design elements (plan and furniture layout, color, lighting, and materials) to see if they met the physical needs of nurses, such as usefulness, security, ergonomics, hygiene, flexibility, and accessibility,

as well as their psycho-social needs, such as aesthetic taste, belonging, personalization, controlling desire, privacy, and border themes.

The study's findings revealed that the furniture layout affects not only the nurse working areas' physical function but also the nurses' psychology and social contact. Color has an impact on the psychology of nurses during their working hours in terms of concentration, alertness, aggression, and stress. Lighting affects healing rates, navigation, wayfinding, and aesthetics, as well as promoting a sense of well-being. Furthermore, control of artificial light was viewed more favorably in these environments than control of daylight. Materials have a significant impact on the design quality of healthcare interiors as well (Cetin, Ultav, and Ballice, 2018).

Another study regarding healthcare environments and well-being by Harris (2017) investigated and compared the effects of two different flooring materials on patients' safety, satisfaction, and quality of care. This comparative study examined six patient rooms, three with vinyl flooring and three with carpet tiles, to assess differences in their impact on the indoor environment, patients, staff, and visitors. A multi-method approach was employed, incorporating patient and staff surveys, medical records, behavioral mapping, and objective environmental measurements. Environmental qualities such as lighting, acoustics, ventilation, temperature, and relative humidity (RH) were evaluated.

The result of the study demonstrated that by reducing the ambient noise levels remarkably, carpet tiles increase patients' perception of a quieter environment and satisfaction score in Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) surveys. Reduced sound levels in hospitals have been shown to

improve patient satisfaction as well as staff stress, anxiety, and job satisfaction, according to past studies. Staff and patients perceived carpeted rooms to be quieter, both within the room and from the corridor. In rooms with carpets, RH level showed less variation, sustaining a safe level of RH, indirectly contributing to minimizing cases of respiratory infections and allergies. Harris (2017) explains that patients tended to view rooms with vinyl flooring as cleaner, with fresher air and improved ventilation, whereas rooms with carpet tiles were described as having a more comfortable temperature. Staff members also rated vinyl-floored rooms higher in terms of cleanliness, odor, ventilation comfort, air freshness, and ease of movement. In contrast, carpet tile spaces were considered warmer, quieter, and less reflective. Elevated air exchange rates may have influenced how occupants experienced thermal comfort. For staff, vinyl flooring was preferred because it simplified cleaning after spills, while those favoring carpet tiles pointed to the greater comfort they provided. Patients, on the other hand, preferred carpet tile due to its comfort, slip resistance, and reduced noise, while those who chose vinyl did so mainly because of concerns about hygiene (Harris, 2017).

Staff prefers vinyl flooring because it has well-established cleaning and decontamination protocols. Patients favor carpet tile because of its slip resistance, impact reduction, comfort, and design qualities; even patients who were not allocated to rooms with carpet tile preferred it.

In rooms with carpet tiles, the amount of time spent by the visitors was significantly higher. This is beneficial for the patient since social support has positive effects on patients' health. The creation of welcoming environments for visitors is said to boost social support for patients, resulting in improved physical, emotional, and spiritual

well-being (Reblin & Uchino, 2008, as cited in Harris, 2017). Finally, he suggests that designers should take into account the advantages to patients in terms of minimizing falls and the severity of injuries, the benefits to the organization in terms of hospital ratings, and the expenses connected with fall injuries (2017).

2.1.2. Well-being of Older Adults and the Built Environment

Well-being in the context of architecture has been studied for many years; however, despite the fact that physical and mental health are interconnected (Howden-Chapman et al., 2011), the majority of studies are directed to physical and objective aspects of the well-being of the older adults, and the relationship between the built environment and mental well-being is vastly understudied (Beemer et al., 2021; Bunn et al., 2003; Burns et al., 2014; Cerda et al., 2013; Egan et al., 2003; Moore et al., 2018; NICE, 2008; Tully et al., 2013; World Health Organization, 2006). In addition, very few studies have taken the interiors of buildings into consideration with regard to older adults (Petermans & Cain, 2019; Petermans & Pohlmeyer, 2014).

Various studies have identified the following as influential factors related to the well-being of the older adults:

- Indoor air quality (Altomonte et al., 2020; Beemer et al., 2021; Bluyssen, 2010; Evans, 2003; Ige et al., 2019; Webb et al., 2013)
- Thermal comfort (Altomonte et al., 2020; Bluyssen, 2010)
- Acoustical quality (Altomonte et al., 2020; Bluyssen, 2010; Evans, 2003; Parra et al. 2010)

- Visual or lighting quality (Altomonte et al., 2020; Bluyssen, 2010; Camilloni et al., 2011; Dogan et al., 2010; Evans, 2003)
- Connection to nature (Burton, Mitchell & Stride, 2011; Beemer et al., 2021; Groenewegen et al., 2006; Hadavi, 2017; Li, 2020; Maas et al., 2009; Moore et al., 2018; Van den Berg et al., 2015)
- Control (Beemer et al., 2021; Bluyssen, 2010; Evans, 2003; Stones & Gullifer, 2016)
- Neighborhood condition (Carta et al., 2012; Clarke et al. 2011; Curl, Fitt & Tomintz, 2020; Evans, 2003; Friesinger et al., 2019; Hadavi, 2017; Oswald et al., 2011)
- Accessibility (Afacan, 2018; Dogan et al., 2010; Oswald et al., 2007)

According to Burton, Mitchell, and Stride (2011), the well-being of older adults is positively associated with factors such as greenery, block size, and the distance of dwellings from the street, whereas higher density, location characteristics (e.g., large towns or rural areas), street layout, and topography are linked to negative outcomes. Li (2020) mentions that existing studies mainly investigated proximity, the density of amenities, the walking environment of the neighborhood, mobility, and physical activity in relation to well-being and the built environment. In his review, Li identifies three characteristics of an aging-friendly living environment in the existing literature: 1) having interior amenities such as a bathroom on the first floor, 2) having an aging-friendly physical and social environment, 3) having stable social relationships and attachment in the community (2020).

Among studies that focused on aging-friendly environments, well-being and residential satisfaction, three of them found positive relations (Burton, Mitchell & Stride, 2011; Evans, Kantrowitz & Eshelman, 2002; Fernandez-Portero, Alarcon & Padura, 2017). Only one research concluded that aging-friendly residential environments are not related to the well-being of low-income people (Engel et al., 2016).

There are much fewer studies and guidelines regarding interiors (compared to studies focused on exteriors such as neighborhoods, parks, and urban settings) and the well-being of older adults, and most of them are about accessibility, freedom of movement, and barrier-free living environments. However, designing for the well-being of older adults is not just about these factors. There is little research that investigates the relationship between physical factors of interior environments and the well-being of older adults. Some of these studies are discussed in the following sections.

A study by Mclntyre and Harrison (2017), which is also conducted in care homes, reveals five significant qualities of the built environment that have the ability to enable or disable the everyday activities of the residents. These qualities are identified as Spatial Legibility, Spatial Interconnectedness, Spatial Traversability, Spatial Diversity, and Spatial Aesthetics. According to their study, spatial legibility helps the residents understand their surroundings and find their way by offering spatial and temporal cues, but there is also the possibility of misinformation. Spatial cues may include furniture, signage, personal objects, and color, which were observed to be helpful in wayfinding, and sometimes these cues were not found or understood, which led to confusion among the residents. The similarity between different parts of the care home was identified as problematic for the residents in terms of understanding if they are on the right way to

their desired destinations, distinguishing common doors from private doors, and so forth. Internal windows were found to aid in increasing legibility by offering views into places so residents could identify which room was for what purpose. Open plans and highly interconnected spaces were identified as beneficial in regard to affordance for both residents and staff (2017).

Traversability, or the ease of movement through the building, was observed to impact residents' activity (Mclntyre & Harrison, 2017). The diversity of spaces provided different opportunities for various activities and supported the diverse demands of residents by offering flexibility in furniture, a choice of rooms, and other conditions. Results of observing aesthetic qualities in regard to activity revealed affordances and impediments in terms of decor and furnishings, connection to the outside, and points of interest (2017).

Some scholars claim that the relationship between well-being and the built environment is ambiguous, and there is not enough evidence to support it. In addressing this issue, some researchers make suggestions regarding future research, and a few others bring forward place attachment as a mediating factor of well-being (Evans et al., 2002; Stones & Gullifer, 2016).

Another study conducted by Burton and Sheehan (2010) on care-home environments and well-being investigated residents' reasons for preferring certain places over others. Design features that were included in their study were 1) Building style, 2) Story height of a building, 3) Openness in communal spaces, 4) Entrance arrangement, 5) Type of neighborhood, 6) Arrangement of bedrooms (corridors), 7) Bedroom size/style, 8)

Lounge seating arrangement, 9) Lounge function, 10) Bathroom style/type, 11) Garden access, 12) Garden style.

Results of the study show that design features that were the most influential on residents' mood (feeling happy or depressed) were (in decreasing value of importance): 1) Home-like design (a repeatedly emerging theme), 2) How comfortable the home is (e.g., how warm), 3) Quality/attractiveness of building, and 4) location/outlook. Cleanness, ease of wayfinding, noise levels, ease of access within the home, and size of the rooms were other factors mentioned by the participants (Burton & Sheehan, 2010). The top four reasons for choosing favorite places were: 1) Provides privacy, personal space, and quiet, 2) Provides opportunities to meet people, 3) Is comfortable, and 4) Is sunny.

Residents also were asked to state what feature of their bedroom affects their well-being. The answers were (in decreasing value of importance): 1) Having one's own space/privacy/peace and quiet, 2) Size, 3) Comfort (e.g., no drafts, right temperature), 4) Being able to have one's own possessions, 5) Quality of furniture (e.g., bed), 6) Cleanliness, 7) Views from windows, and 8) Having one's own bathroom/WC/basin. Burton and Sheehan suggest to increase the well-being of residents of care homes, the building should have characteristics of easy access in and outdoors, open-plan common areas, wide and light corridors or open circulation spaces, and bedrooms with practical, accessible bathrooms, plenty of views (preferably to nature), and residents' own possessions and furniture (2010).

Studies concerning psychological well-being, older adults, and the built environment often circle around exterior environments. Walkability and promoting physical activity

(Kerr et al., 2012), access to public facilities such as parks and hospitals (Iwarsson et al., 2007), building quality (Evans et al., 2002), neighborhood conditions such as streets, crowds, and traffic (Clarke et al., 2011; Parra et al., 2010) are examples of these studies. Evans (2003) directly relates housing type, floor level, neighborhood quality, crowding, noise, indoor air quality, and light to mental health. He also mentioned three indirect ways that psychological processes are influenced by the built environment: personal control, social support, and restoration (2003). Beemer et al. (2021) identify indoor air quality, personal control, and connection to nature as the main three factors influencing mental health in the built environment.

Nursing facilities have been linked to several iatrogenic (relating to illness caused by medical examination or treatment) issues, including increasing dependence, depression, and social isolation among older adults (Rodin, 1986). Studies on the physical environments of nursing homes and similar institutions investigate individual design objectives such as safety and security or privacy and studies of specific design features such as therapeutic garden design (Burton & Sheehan, 2010). There are studies that confirm the positive physical and psychological effects of a connection to nature. Some studies focus on care environments for people with dementia as well (Joseph et al., 2016). There are also regulations and standards for the design of nursing homes, but they "tend to concern overall space and facility provision rather than design quality/style or layout, and the guidance usually advocates design objectives rather than strategies for achieving them. Very little guidance has been derived from or tested by empirical evidence" (Burton & Sheehan, 2010, p. 238).

2.2. The Role and Characteristics of Nursing Homes

Nursing homes are places that offer a variety of medical and personal care services to older adults with greater emphasis on medical treatment (National Institute on Aging, 2017). Nursing care, 24-hour supervision, three meals a day, and support with daily activities are typical of these services. Physical, occupational, and speech therapy are among the rehabilitation options available (2017). The typology and characteristics of nursing homes are discussed in more detail in the following section.

2.2.1. Housing for Older Adults

The types of housing specifically created for older adults differ according to its residents' level of independence, as well as their functional impairment or disability (Alexander, 1997). In some countries, housing options range from non-institutional (e.g., retirement communities) to semi-institutional (e.g., assisted living) to fully institutional (e.g., nursing homes). Figure 5 shows different options for housing for older adults based on their needs and level of dependency in the United States of America. Montag Architects (2018), that are specialized in older adults' care environment design, provide a brief definition of each senior housing option which is presented in the next paragraphs.

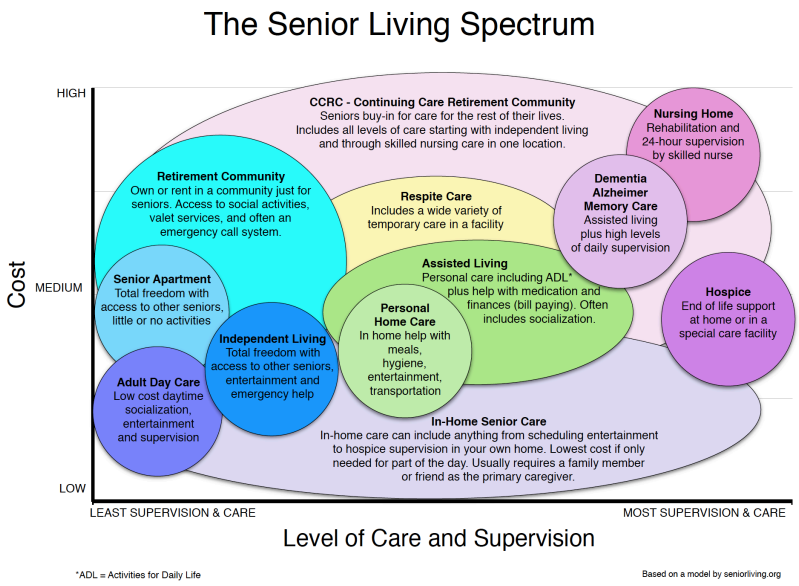

Figure 5. Senior Living Spectrum in the USA (Source: Montag Architects, 2018).

Adult Day Care: is a community-based service model that provides daytime supervision, structured activities, and opportunities for social engagement to individuals over the age of eighteen. These programs are staffed by professionals and are designed to deliver health-related, social, and supportive services in a group environment

Senior Apartments: are housing units specifically planned for older adults who are independent, require no supervision, and prefer to live among peers of a similar age group. These residences typically minimize stair use, include in-unit laundry, and provide only limited activities and few additional services.

Independent Living: are intended for older adults who remain self-sufficient but wish to benefit from the conveniences of senior-oriented housing. Similar to senior apartments, they eliminate responsibilities such as yard work and household repairs, while also offering services that improve quality of life, including meals, transportation,

housekeeping, laundry, social and educational activities, and a 24-hour emergency call system. Many also provide access to additional health care if residents' needs change, with housing options typically ranging from studio units to two-bedroom apartments.

Retirement Community: is a residential development or housing complex intended for older adults who are largely independent in daily living. While residents typically manage their own care, some communities permit the use of external home care services. These settings often incorporate organized activities and social opportunities to encourage engagement among residents.

Continuing Care Retirement Community (CCRC): is a type of retirement community offering a continuum of care that ranges from independent living to assisted living, memory care, and skilled nursing. Entry typically requires that residents be able to live independently at the outset. Membership involves signing a long-term contract that assures access to housing, services, and health care throughout the individual's lifetime.

Respite Care: refers to short-term care services offered to dependent, elderly, ill, or disabled individuals. It is typically provided for a limited duration, both to support the individual's needs and to allow caregivers a period of relief. Such care may take place either in the person's home or within a dedicated facility.

Assisted Living: are designed for residents who remain largely independent but require ongoing personal support. Services typically include meals, help with medications, assistance with bathing, dressing, transportation, financial management, and opportunities for social interaction. Their most important feature is the provision of a safe environment with 24-hour support and immediate access to care when needed.

Memory Care: is a specialized form of assisted living designed for older adults experiencing progressive cognitive decline, including conditions such as dementia, Alzheimer's disease, and other memory-related disorders. These programs provide structured support and a secure environment tailored to the unique needs of individuals with memory impairments.

Nursing Home: whether public or private, delivers extensive long-term personal and nursing care to individuals who are no longer able to care for themselves. These facilities employ licensed nurses and nursing assistants around the clock and provide a range of services including medical treatment, physical therapy, speech therapy, and occupational therapy.

Hospice: delivers end-of-life support either in an individual's home or within a care facility. It follows a team-based approach that combines medical expertise, pain management, necessary equipment, and emotional or spiritual guidance, all tailored to meet the specific needs and preferences of the patient (Montag Architects, 2018).

A study conducted by Mohammadi et al. (2019) uses an older adults housing typology consisting of three categories that are frequently used in literature and practice in the Netherlands. In their research, outpatient housing support (older adults living at home with or without care) is not listed as a category in this study, for there is limited data about this type. Figure 6 shows their table of definitions of housing typologies. They use two particular categories to describe different housing typologies of older individuals within inpatient facilities (2019).

	Housing typologies	Definitions
Inpatient Facilities	Residential homes	An inpatient facility with older adults needing care; this form has often transformed in what we now see as care homes.
	Care homes	Inpatient facility with residences that contain a living room and bedroom, kitchen, and bathroom. It is used for long stay or permanent stay for older adults who are in need of certain services in order to live at home.
Inpatient Facilities with 24/7 care	Nursing homes	A large(r) scale inpatient facility (90–120 beds) for chronically ill inhabitants who cannot live independently and need 24/7 care.
	Small-scale nursing homes	A form of (small-scale) group living, but with individual bedrooms and communal living rooms/kitchens in which intensive 24/7 care and services are provided.
Assisted Ambulatory Housing	Service apartment	Residential building with independent apartments for older adults and communal spaces where collective or individual services can be received. Home care can be provided if required.
	Residential care center	A residential care center has both residential apartments and inpatient facilities. Care, living, and services are separated in this model. On the basis of contracts, care or service packages can be bought by the residents. The center can also be a service location (in relation to care) for the surrounding neighborhood.

Figure 6. Definitions of housing typologies (Source: Mohammadi et al., 2019).

The first are inpatient facilities, where residents live in a care facility and get care and/or services 24/7, and the residents require assistance and care in order to live independently at home (Mohammadi et al., 2019). The second type of facility is inpatient care, which focuses on delivering services to residents rather than providing 24-hour care. In the Netherlands, the most prevalent types of inpatient care are residential homes and care homes.

Assisted ambulatory housing is a type of "improved" independent living encompassing typologies between inpatient and outpatient housing. In assisted ambulatory housing, older people live in their own homes or apartments, but they are frequently located in or

near a care facility or (collective) service provider, and they can readily access the care institution's or service provider's collective and individual services. Service apartments and residential care centers are the most common typologies in this group (2019). The older adults' housing options presented in Figures 5 and 6 are available in countries such as the United States and the Netherlands. However, these classifications are not applicable to every country since every country has its own versions of older adults' housing and care facilities.

2.2.2. Nursing Homes' Physical and Architectural Features

In recent years, there has been a growing recognition of the importance of evidence-based design in healthcare environments, including nursing homes and assisted living facilities. Evidence-based design refers to an approach that incorporates research, data, and best practices to inform design decisions and create spaces that promote positive outcomes for residents (Malkin, 2008). Many nursing homes have embraced this approach and implemented evidence-based design principles to enhance the physical, social, and psychological well-being of their residents. The Green House Project (GH) is a national non-profit organization located in the USA that provides training and support to nursing homes as they transition to a person-centered care model. This model emphasizes individual choice, control, and autonomy for residents and is designed to support the physical, emotional, and spiritual well-being of residents.

The GH model, developed by the National Green House Project, is a trademarked approach that encompasses structural, procedural, and philosophical elements (Cohen et al., 2016). According to the Green House national office's definition, this model is based

on three core values: creating a real home environment, fostering a meaningful life, and empowering staff (The Green House Project, 2022). To achieve these values, the GH model establishes small, residential-style houses situated in community neighborhoods. The GH model aims to eliminate the traditional roles and expectations found in nursing homes, avoiding related terminology. Each GH home accommodates 10-12 residents, referred to as elders, who have private rooms with attached bathrooms. They share a central living space that includes an open kitchen, dining, and living area or hearth and have access to outdoor spaces. Caregivers prepare meals in the open kitchen, and residents gather around a common dining table to share meals. Over the past two decades, the Green House model has seen remarkable growth, with the construction of nearly 400 homes across 32 states and more homes in the pipeline.

From an architectural perspective, the Green House Project applies several design principles that aim to create a more homelike and welcoming environment for residents. First, the homes are designed to be smaller and more self-contained, typically housing no more than 10-12 residents each. This allows for a more personalized and intimate living experience, with greater opportunities for social interaction and connection between residents and staff. The homes are also designed to be more accessible and inclusive, with features like wider doorways, easy-to-navigate floor plans, and outdoor spaces that are safe and easy to access (Rabig et al., 2006). This helps to promote greater mobility and independence for residents, as well as a greater sense of connection to the natural environment.

In addition to physical design elements, the Green House Project emphasizes a person-centered approach to care, with a focus on building strong relationships between

residents, caregivers, and family members. This includes features like private resident rooms that are designed to be comfortable and inviting and shared living spaces that are designed to facilitate social interaction and community building. A two-year study in the United States by Kane et al. (2007) compared the well-being of residents in four Green House homes, each accommodating ten residents (total n=40), with two control sites. One control group consisted of 40 residents in a traditional nursing home located within the same facility as the Green House units, while the other included 40 residents in a nursing home situated more than 100 kilometers away. All three facilities were operated by the same nonprofit organization. Data were gathered through resident, family, and staff interviews, as well as nursing home records, at baseline and again at 6, 12, and 18 months. The purpose was to evaluate how the Green House model influenced residents' quality of life, measured through interviews, and quality of care. After adjusting for factors such as age, gender, functional status, and admission date, findings indicated that Green House residents reported significantly higher perceptions of quality of life compared to those in the control homes (Kane et al., 2007). Figures 7 and 8 show different Green House nursing homes.

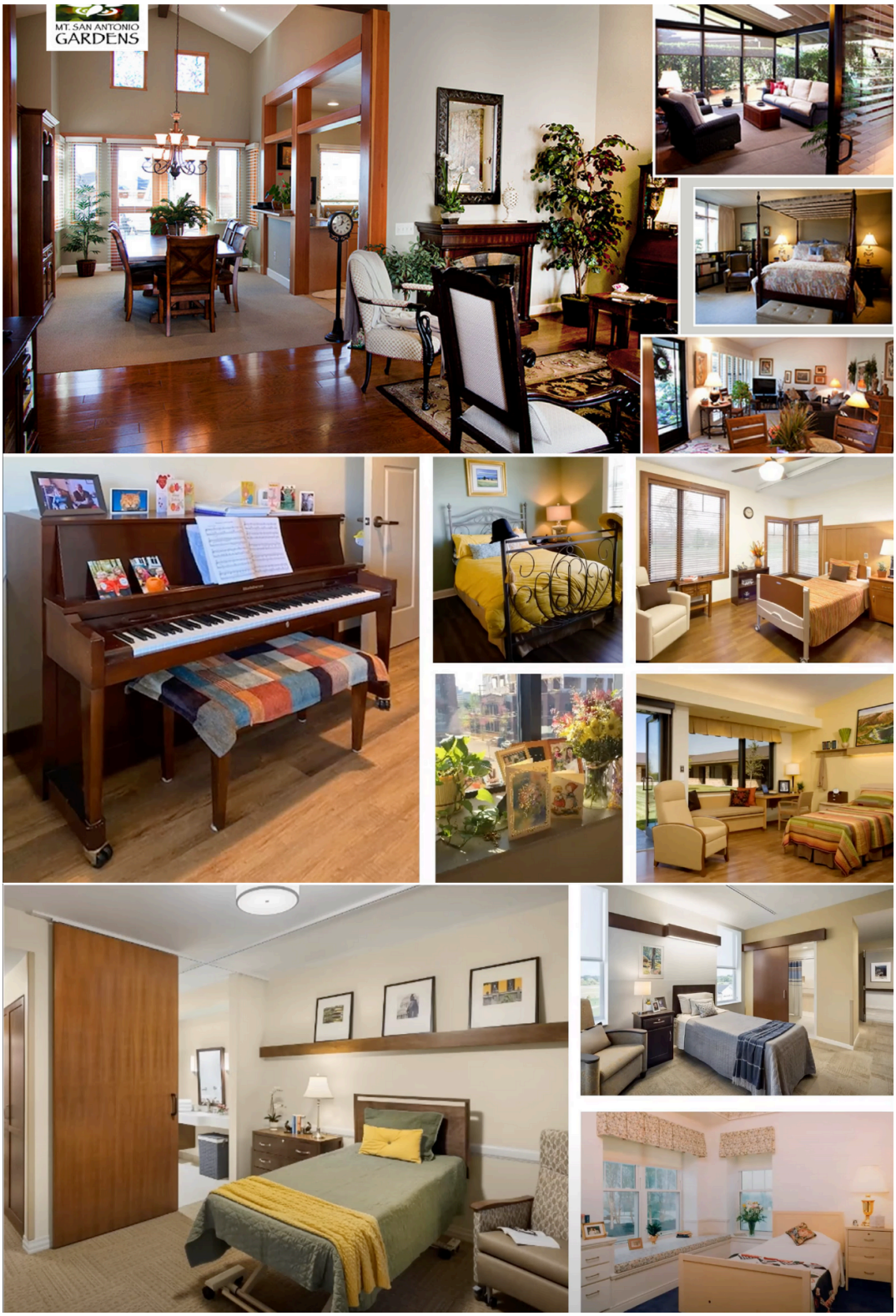

Figure 7. Green House Project Nursing Homes (Retrieved from https://thegreenhouseproject.org/).

Figure 8. Green House Project Nursing Homes (Retrieved from https://thegreenhouseproject.org/).

There are several long-term care facilities that strive to create a homelike environment for their residents. The View of Cedar Rapids Senior Assisted Living and Memory Care is one such facility that adopts innovative approaches to enhance the residents' experience (Figure 9). They incorporate nature-inspired materials and soothing soundscapes throughout the premises, creating a calming and natural ambiance (The

Center for Health Design, 2023). A unique aspect of their approach is that residents have the freedom to come and go as they please, promoting a sense of independence and autonomy. Instead of assigning rooms to residents, they are given the opportunity to choose their preferred living space, allowing them to personalize their surroundings. Additionally, services such as cleaning are discreetly carried out during the third shift, ensuring minimal disruption to residents' routines and maintaining a sense of privacy. “You don't see Lenin carts going around your home!” notes Melody Karick, the director, highlighting that this attention to detail aims to replicate the feeling of being at home, where the presence of linen carts and other maintenance activities is not typically observed (2023).

Figure 9. The View of Cedar Rapids Senior Assisted Living and Memory Care (Retrieved from CHD online workshop recording, 2023).

A preliminary step before designing new nursing homes and establishing design principles is to evaluate existing environments in order to assess their performance and generate evidence to inform future developments. Various tools are available for evaluating the quality of physical healthcare environments, each designed to focus on

specific dimensions. Elf et al. (2017) reviewed 23 tools, based on several methodological quality criteria, such as reliability and structural validity. Except for the MEAP, TESS-NH, and PEAP, most of the tools had low validity, limited application following their development, or were not widely adopted by other researchers (Rom et al., 2022). While TESS-NH and PEAP focus on settings for people with dementia, the MEAP evaluates a broader range of care settings.

More recent instruments include EASE (Wrublowsky et al., 2024), LTCU-EAT (Chen et al., 2024), and EAT-HC (Fahsold et al., 2023). EAT-HC shows strong reliability and validity, while EASE shows strong reliability, with a validation process currently underway. Both tools target settings for older adults with cognitive impairments and high care needs. LTCU-EAT is designed for broader LTC settings, showing promising validity during its application in the early phase of its development.

Although these newer built environment assessment tools are available, MEAP was selected for the present study for a number of reasons. First, it has strong validity and aligns with the study's target population. It is considered the most comprehensive instrument for evaluating the environments of care facilities (Cutler et al., 2006) and explicitly targets residential environments for older adults. Additionally, its validity and reliability have been tested and confirmed in multiple studies (Elf et al., 2017; Linney et al., 1995), making it a foundational reference for developing subsequent instruments (Elf et al., 2017; Cho & Kim, 2014; Cutler, 2000) and appropriate for assessing environments for older adults (Niezabitowski, 2019). Second, it has a strong theoretical foundation, emphasizing the need for congruence between an older person's capabilities and the demands of their environment (Elf et al., 2017). Third, researchers still rely on MEAP

for its rigorous, multiphasic view of environments, while selectively refining it (or developing spin-off tools) to better capture what today's older adults expect from the places they call home (Mahmoud et al., 2022; Niezabitowski, 2019). In short, MEAP offers a valuable tool for evaluating the built environment, providing a useful framework for gaining a general understanding of current conditions in nursing homes and identifying areas for improvement. MEAP is composed of four sub-instruments, namely the Resident and Staff Information Form (RESIF), the Physical and Architectural Features Checklist (PAF), the Policy and Program Information Form (POLIF), and the Sheltered Care Environment Scale (SCES).

One example of a nursing home assessment is City Haven, discussed by Moos and Lemke (1996). Using the Physical and Architectural Features (PAF) checklist they evaluated several dimensions including community accessibility, physical amenities, social-recreational aids, orientation aids, and staff facilities. Its urban location enhances community accessibility, resulting in a high score in this area. The presence of multiple staff offices, meeting rooms, and lounges also boosted its score in the staff facility dimension. However, the facility scored lower in physical amenities, social spaces, and orientation aids due to lacking sheltered outdoor seating, room mirrors, communal televisions, a reception desk, and color-coded corridors (Moos & Lemke, 1996).

Mahmood et al. (2022) evaluated the four multi-unit buildings as part of the Temporary Housing Program for older adults at risk of homelessness in Vancouver, Canada, using an adapted PAF checklist. Public transportation was seen as beneficial for residents' social activities. Exteriors scored well in amenities and accessibility features like seating, landscaping, and ramps, though improvements were needed in storage, sheltered

seating, and security. Interiors required upgrades in lighting, common areas, and orientational aids. Safety in residents' units could be improved with non-slip surfaces and handrails. Overall, the facilities showed strengths in functionality and accessibility, with room for improvement in safety and social interaction (Mahmood et al., 2022). The above studies provide valuable insights into various aspects of the environments of older adults; building on them, part one of this study assesses the physical environment of nursing homes in Türkiye to identify strengths and areas needing improvement.

2.2.3. Housing for Older Adults in Türkiye

There are two types of housing available (based on residents' needs and given services) for older adults in Türkiye to the best of the author's knowledge. One is a Nursing Home (89%) which is also called a Nursing Home and Elderly Care Center (in Turkish: Huzurevi ve Yaşlı Bakım Merkezi), and the other one, which is not that common, is called a Senior Home (in Turkish: Yaşlı yaşam evi).

Senior Homes are the places where active and healthy older adults aged 60 and up live as 3 to 4 people in houses located in the community, and at least one caregiver is available 24 hours a day in these houses (Ministry of Family and Social Policies of Türkiye, 2017). In addition, professionals visit these houses several times a week. However, this type of housing is not that common (11%), and the number of senior housing in the country is only 41 in a report from the Ministry of Family and Social Policies of Türkiye in 2017 (data is from July 2016). Moreover, this type of housing is not listed on the website of the General Directorate of Services for Persons with Disabilities and The Elderly (GDSPDE), a subdivision of The Ministry of Family and Social Services.

In Türkiye, *nursing homes* fit the definitions mentioned in previous sections, and they are also a combination of dementia care and geriatric care, where nursing homes within themselves have wards or units designated for special care such as psychiatry, dementia, and palliative care. In addition, some of the nursing homes also provide adult daycare services.

Elderly Care Services in Türkiye Report (Türkiye Ministry of Family and Social Policies, 2017) classifies the nursing homes based on their ownerships as follows:

- Nursing Homes Affiliated to the Ministry
- Nursing Homes Affiliated with Other Ministries
- Nursing Homes Owned by Municipalities
- Nursing Homes Owned by Associations and Foundations
- Nursing Homes Owned by Minorities
- Private Nursing Homes

A more general classification is offered by the General Directorate of Services for Persons with Disabilities and The Elderly a subdivision of The Ministry of Family and Social Services (2021). There are 441 nursing homes in Türkiye, 267 of which are private (61%), the GDSPDE administers 153 (35%), and 21 are approved but not administered by the GDSPDE (5%).

In Türkiye, the primary regulation for nursing homes, whether newly constructed or converted, is established by the Ministry of Family and Social Services (Resmi Gazete, 2009). This regulation sets requirements for fire and traffic safety, as well as functional spaces. It specifies that shared areas, such as kitchens and lounges, should allow for

comfortable movement but does not provide minimum size standards for all spaces (Froughisaeid & Altay, 2025). Notable exceptions include bedrooms, which must be at least 12 m² for single occupancy and 18 m² for double occupancy, with no more than four residents per room. It also mandates a minimum bed size of 90 × 190 cm and a ceiling height of 270 cm. However, the absence of comprehensive design specifications makes it challenging to maintain consistent quality across facilities (Ministry of Family and Social Services, Republic of Turkey, 2021).

2.3. Supportive Design Theory (SDT)

Previous research has identified several theories that may serve as frameworks for the present study. One such theory is The Theory of Supportive Design (SDT), proposed by Ulrich in 1997, which has been selected due to its potential relevance to the constructs of interest in this research. SDT offers a unique approach by investigating the built environment and analyzing it through three elements: a sense of control, social support, and positive distractions. Unlike other theoretical frameworks in interior design, such as the person-environment fit and environmental behavior model, which aim to explain the interaction between environments and human beings, SDT focuses on understanding the specific factors within the environment that impact well-being. (Bae et al., 2019).

Ulrich proposes that if healthcare settings are to reduce stress and subsequently promote well-being, they need to provide 1. A sense of control with respect to physical-social surroundings, 2. Access to social support, and 3. Access to positive distractions in physical surroundings (1991). He adds, “By focusing on the concept of stress, a theory of supportive design can be developed that conceptualizes human impacts of design in

ways that are related directly to scientifically credible indicators or interpretations of wellness" (Ulrich, 1991, p. 99).

2.3.1. Sense of Control

Sense of Control has been emphasized by Ulrich, noting that lack of control increases stress and adversely influences the well-being of the patients (1997). In his article, privacy, control over lighting and temperature, controllable televisions, accessible gardens or grounds, access to window views, and headphones that allow personal music are considered important for promoting a sense of control of patients in healthcare settings.

Recent research on aging and control has produced compelling experimental data that suggests that a loss of control and lower predictability of environmental events may speed up aging (Baltes & Baltes, 2014). Studies demonstrate that limiting older people's ability to control their activities has a negative impact on their health; on the other hand, interventions that increase nursing home residents' control alternatives positively impact their health (Rodin, 1986). In another research, nursing home residents who were told to be accountable for themselves reported feeling happier, had improved alertness, and participated in more activities than residents who were informed that the staff was responsible for them as patients (Langer & Rodin, 1976).

In a study by Barnes (2006), among 452 long-term stays (more than one month), residents from 38 care homes were conducted. Demographic, dependency, and QoL information were collected. Continuous outcomes were the *proportion of time active* and *level of environmental control*, and the daytime location was a binary variable

representing “own room and both versus lounge.” Results of this study show that after controlling for some variables like dependency and age, residents’ QoL is associated with a gradation of space and daytime location (2006). By offering the residents different types of public spaces to socialize at different levels, the nursing home environment gives the opportunity to the resident to have control over the amount of social interaction that she or he desires. This way, the resident can have social interaction in small groups and recess from the crowd and have more control over his or her privacy.

Research by Bowsher and Gerlavh (1990) was conducted to understand the relationship between control and psychological well-being in nursing homes. They use Rotter’s (1982) social learning theory, which offers a personal control framework. Based on this theory, “individuals become aware of their own personal effectiveness, which enables them to attain desired reinforcements through their own behaviors, PWB increases” (Bowsher & Gerlach, 1990, p. 92). In their study, a set of variables were used that were taught as the best combination of predictors of PWB, including expectancy of control, reinforcement value, physical and functional health, socioeconomic status, and length of stay. 302 older adults from 22 nursing homes participated and answered survey questions measuring the aforementioned predictors. Their control-related questions were questions such as “do chores (things) for yourself,” “spend your time doing whatever you wish,” “able to find privacy,” and “get away from the nursing home when you wish.” Regression analysis of collected data supports the social learning theory and suggests that personal control is related to PWB, which many researchers after them also come to confirm.

2.3.2. Social Support

Social support refers to frequent or prolonged contact of patients with family and friends who are helpful or caring (Ulrich, 1997). Ulrich notes that "individuals with high social support, compared to those with low support, experience less stress and have a higher level of wellness… Studies have found links between low social support and both higher rates of illness and less favorable recovery indicators following serious illness" (Ulrich, 1991, p. 101). According to Ulrich, design strategies that would improve social interaction include convenient overnight accommodation, comfortable waiting areas with moveable seating, outdoor gardens and seating areas, and accommodation for pets and companion animals (1991). He also notes that design should be in a way that, while promoting social interaction, it should not deny access to privacy.

Incorporating various spatial unit sizes and configurations can create a sense of a large family space (Calkins, 2009) and provide opportunities for socialization (Chaudhury et al., 2018). Private rooms have been associated with higher satisfaction, increased family visits, improved clinical outcomes, and reduced resident-to-resident aggression compared to shared rooms (Calkins, 2018). In a potentially unfamiliar and stressful environment, such as a hospital or care facility, the presence of social support from others plays a crucial role in alleviating stress and promoting well-being (Bolger & Amarel, 2007). The design of the physical space should take into account the need to accommodate the visits and interactions of family members, recognizing their important role in providing social support (Andrade & Delvin, 2015). Numerous studies have highlighted the significant influence of social support as a psychosocial factor on various

health outcomes (Berkman, Glass, Brissette, & Seeman, 2000; Cohen, 1988; Uchino, 2009).

Research indicates that high levels of social support can have a buffering effect, mitigating the negative impact of stress on individuals (Kornblith et al., 2001). In times of stress or adversity, having a strong support network can provide emotional comfort, practical assistance, and a sense of belonging, all of which contribute to improved well-being and coping mechanisms (Uchino, 2009). Social support has been linked to positive physical health outcomes, including faster recovery rates, improved immune function, and better overall health (2009).

2.3.3. Positive Distraction

Positive distractions "are environmental features… eliciting positive feelings, holding attention and interest without taxing or stressing the individual… [and] block[ing] or reduce[ing] worrisome thoughts" (Ulrich, 1991, p. 103, as cited in Molzahn, 2013, p. 28). The most effective positive distractions consist of 1. Happy, laughing, or caring faces; 2. Animals; and 3. Nature elements such as water, plants, trees, etc. (1991). Positive distractions serve as a means for individuals to divert their attention from discomfort and anxiety toward other stimuli (Andrade & Delvin, 2015). These distractions can take various forms, including stationary forms of stimulation, such as written materials and images, and nature-themed artwork; additionally, active stimuli like music, companion animals, and social interactions involving laughter have the potential to offer positive distraction (2015). Numerous studies have explored the benefits of nature for residents in long-term care (Bae & Asojo, 2022). For instance, visits to outdoor gardens have been found to enhance self-reported health conditions,

lower cortisol levels (indicating reduced stress), and decrease psychiatric disturbance (Joseph et al., 2016; Nordin et al., 2017).

Ulrich's SDT focuses on temporary healing environments, such as hospitals. It has been the foundation of many types of research related to healing environments, such as studies regarding different hospital environments such as hospice, and palliative care, specific healing environments such as intensive care units, particular diseases, pediatric wards, and mental disorders. In addition, many studies have employed this theory in contexts other than healing environments, such as urban design: walking in urban environments, neighborhoods, parks, etc.

Although SDT has its roots in interior design, little research has been carried out on it, and it has only lately been revisited (Andrade & Devlin, 2015; Bae & Asojo, 2022; MacAllister et al., 2016; Shepley, 2006). This revival signals a growing recognition of SDT's relevance, yet the body of literature remains relatively small, underscoring the need for further research to adapt and expand the theory for various environments and design challenges. A study by Andrade and Devlin (2015) investigates SDT in a virtual hospital room with students as participants. They proposed a model based on their findings (Figure 12). They used the theory again in later years in hospitals with real patients (Andrade et al., 2017; Devlin et al., 2016).

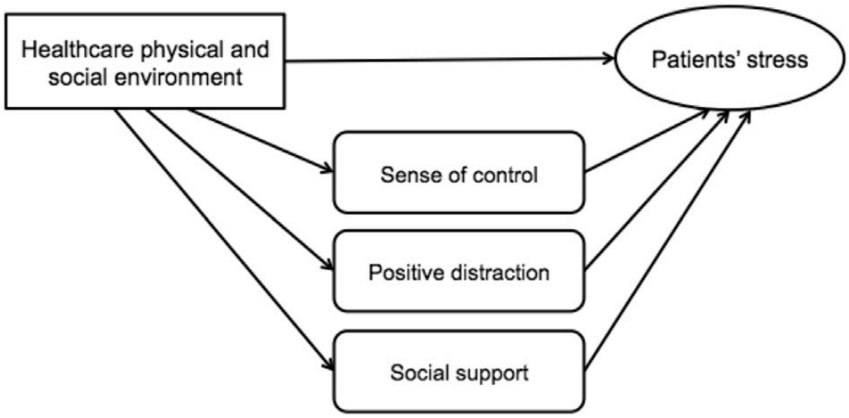

Figure 10. Adaptation of Ulrich's theory of supportive design (Andrade & Devlin, 2015).

The results show that positive distraction had the highest impact on patients in comparison to a sense of control and social support. However, a very recent study by Bae and Asojo (2022) explores SDT in long-term care units (e.g., nursing homes). Their results show that the most liked features for the residents are "window and view," "pictures and photos," and "TV." In addition, the answers to the question of what they want to improve were "bigger room and space," followed by "improved by privacy" and "more options for food." Bae and Asojo mention that their results are in line with Ulrich's theory, although they found other elements that are considered important by the participant (e.g., cleanness, comfort, and institutional setting), which would not fall into any three categories of SDT. The responses of the participants regarding what they would like to improve were highly associated with a sense of control (45.6%), positive distraction (29.7%), social support (12.8%), and others (11.8%). Positive distraction seems to have more importance for hospital patients, whereas for long-term care residents having control over environments is more significant (Bae & Asojo, 2022).

2.4. The Concept of Homelikeness in Institutional Care

Looking through previous studies regarding nursing homes present the factors involved in the well-being of their residents, which can fall into SDT categories, including a sense of control, privacy, and social interaction. In addition, there are some other significant factors that cannot be supported by SDT. The concept of homelike environments is not a new idea in this context. Homelikeness has been associated with the psychological and physical well-being of older adults many times in the literature, a relationship that is examined further in the following sections.

Homelikeness has various definitions depending on who is defining it. A definition based on residents' views could be an individual's perception of feeling at home (Chamberlain et al., 2017). Homelikeness, the meaning of home, sense of home, and at-homeness are the variations used in research to reflect a homelike environment in nursing homes (Rijnaard et al., 2016). It is quite challenging to decide on any specific feature of "homelikeness," especially as the term has widely divergent implications depending on who is asked to define it (Kervin, 2020). A study conducted by Shepley et al. (2016) in mental and behavioral health settings with young adults between 20 and 24 years old indicates that a deinstitutionalized and homelike environment is likely the most critical quality for patients; however, the definition of "homelike" was unclear: "not everyone embraces the traditional vision of home, and that the notion of home may be disturbing to some. A common sentiment was that the essence of 'home' has little to do with a particular genre of design and more to do with feeling welcome and secure" (2016, p. 16). In a workshop held by The Center for Health Design (CHD) Shepley

emphasized that “homelike” is strongly bound to “choice and control” (The Center for Health Design, 2023).

Nevertheless, studies have tried identifying characteristics associated with homelikeness in nursing homes or similar settings. In a systematic review of related articles, Rijnaard et al. (2016) list 15 factors creating a sense of home in nursing homes categorized into three main themes: Psychological aspects, Social aspects, and The built environment. Some of these factors overlap to some extent, and their boundaries are not clear. The psychological factors are a sense of acknowledgment, preservation of one's habits and values, autonomy and control, and coping. Social factors include interaction and relationships with staff, interaction with other residents, family and friends, pets, and activities. The built environment factors are the private space, the (quasi-)public space, personal belongings, technology, look and feel, and outdoors and location (2016).

Rijnaard’s (2016) study provides a comprehensive list of factors that have been proven to influence residents' sense of home in a nursing home or a long-term care facility (Appendix A). The extent of their influence differs, and some of the factors seem to have more importance to residents than others and subsequently affect the homelikeness and well-being of the residents more.

In a recent scoping review article on the impact of the built environment on the health, behavior, and quality of life of individuals with intellectual disabilities in long-term Care by Roos et al. (2022), it is gathered that homelike interiors are experienced through smaller wards, bedrooms of varying dimensions with differently sized and positioned windows, common spaces located nearer to the entrance, individualized bedrooms, and

finishes such as wooden doors, wallpaper, carpeting, and artwork. Additional elements comprise less reverberation, increased lighting points in shared living areas, and the presence of personal belongings within resident rooms (Roos et al., 2022). All these features can be assigned to one or more categories proposed by Rijnaard (2016). A summary of the factors influencing homelikeness, as identified in Rijnaard et al.'s study (2016), is presented below.

Psychological Factors:

- Sense of Acknowledgement: Feeling cared for, respected, and known; shared interests with residents; friendly staff; supportive daily routines; good staff–family communication.
- Preservation of Habits and Values: Maintaining old routines, privacy, daily rituals, sensory engagement, spiritual activities, and dignity in care.
- Autonomy and Control: Freedom to make choices, decorate rooms, control environment (lighting, temperature), decide relationships, participate in decision-making, and arrange personal furniture.
- Coping: Acceptance, positive outlook, avoiding negative self-image, emphasizing benefits of nursing home life, managing shame, and maintaining future orientation.

Social Factors:

- Interaction with Staff: Caring relationships, trust, reliability, involvement in daily activities, privacy respect, shared meals, and equal power dynamics.

- Interaction with Residents: Social connections, shared daily life, and awareness that socializing can sometimes cause friction.
- Interaction with Family/Friends: Closeness, visits, living with a partner, and being treated as part of the community.
- Interaction with Pets: Companionship, joy, and emotional comfort.
- Activities: Meaningful, suitable activities that match abilities and are integrated into daily life.

Built Environment:

- Private Space: Private rooms and bathrooms, personal belongings, space to withdraw, and opportunities to customize the environment.
- (Quasi-)Public Space: Small-scale settings, homelike dining, privacy, and clear visual cues for orientation.
- Personal Belongings: Familiar objects, memorabilia, emotional connections, decorative value, and freedom to arrange furniture.
- Technology: Personal tech access, with TV valued for connection to the outside world.
- Look and Feel: Homelike aesthetics, warmth, daylight, decor, flowers, displaying residents' art, avoiding institutional design, and ensuring comfort, ventilation, and sensory stimulation.
- Outdoors and Location: Access to gardens, nature views, balconies, and familiar local places; avoiding isolation from meaningful surroundings.

There are many similarities and overlaps among the variables of homelikeness and SDT factors. For instance, privacy is one of the most crucial, if not the most, factors to achieve either homelikeness, control, or social interaction. Having control over the information communicated about oneself provides privacy, and having privacy means controlling how much one wants to share with others. Different types of public spaces in nursing homes to socialize at different levels provide the ability to control social interactions and privacy. Moreover, privacy and having control of oneself and space are one of the most important factors in feeling at home, therefore, achieving homelikeness (Kervin, 2020).

In addition, having pets and relations with animals, having a connection to nature, and having a view are included in both homelikeness and SDT. Figure 13 illustrates the schematic process for selecting homelikeness attributes from the literature, mapping their connections to design and architecture, and distinguishing them from SDT.

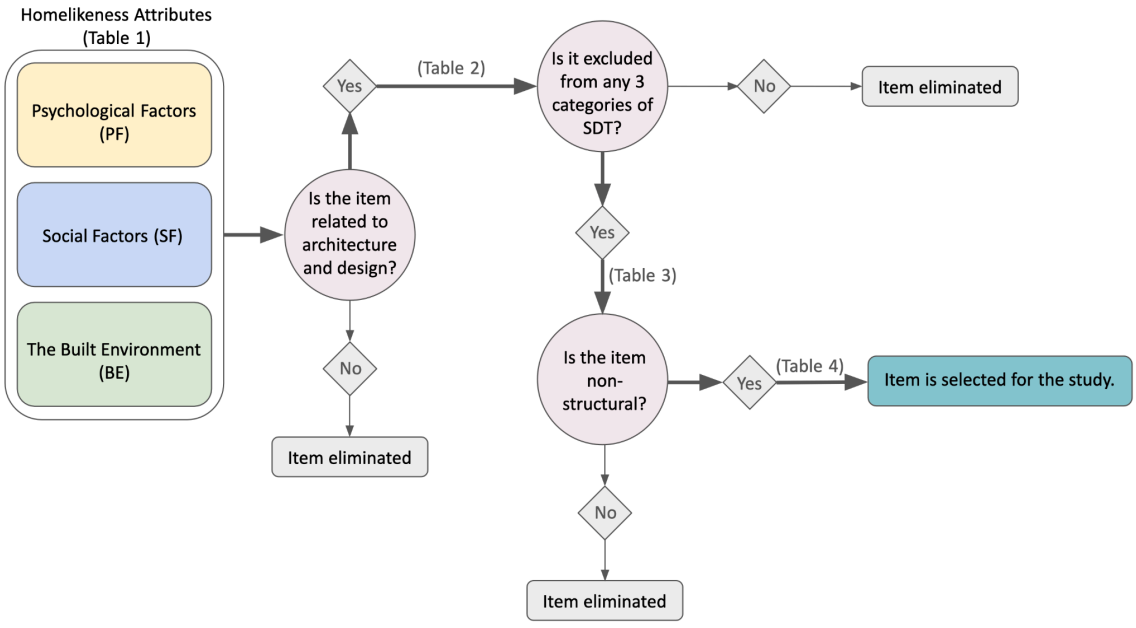

Figure 11. The schematic process for selecting homelikeness attributes.

Tables 1 to 4 illustrate the step-by-step process of selecting homelikeness attributes for this study. Table 1 presents all homelikeness themes and their associated attributes, as identified in Rijnaard et al.'s (2006) systematic review. As shown earlier in Figure 13, items unrelated to architecture and design were first eliminated (Table 2). The remaining items were then examined for potential overlap with existing SDT categories; those already covered by SDT were excluded (Table 3). Finally, the remaining items were assessed in terms of their structural character. Non-structural items were retained (Table 4), as one of the study's objectives was to identify features that are feasible and likely to be implemented in practice. Only Tables 1 to 4 are color-coded throughout the thesis to facilitate ease of understanding and to help readers relate the items back to the main themes.

Table 1. Homelikesness themes and their attributes based on Rijnaard et al.'s systematic review article (2006).

Main Theme	Factors	Attributes
Psychological Factors (PF)	Sense of Acknowled-ment (a)	1-Special social bonds (Lewinson et al., 2012; Molony et al., 2011; Robinson et al., 2010) 2-Enhanced family access to staff (Robinson et al., 2010) 3-Resident-centered attitude of the staff (De Veer & Kerkstra, 2001) 4-Having things in common with other residents (Bland, 2005) 5-Feeling respected and feeling known by the people in a facility (Lewinson et al., 2012) 6-Style if working (e.g., providing residents with more control and choice within the daily routines [Klaassens & Meijering, 2015])
	Preservatio n of One's Habits and Values (b)	1-Engagement in old habits (Falk et al., 2013; Klaassens & Meijering, 2015) 2-Moments of privacy (Falk et al., 2013) 3-Continuity in normal daily activities and rituals (reflects the amount of control they have over their day-to-day life [Cooney, 2012]) 4-Engagement with one's senses (Fleming et al., 2015) 5-Respecting a person's dignity while carrying out care (Fleming et al., 2015)
	Autonomy and Control (c)	1-Control over activities, decisions, and social relations (Bland, 2005; Cooney, 2012; Falk et al., 2013; Molony et al., 2011; van Dijck-Heinen et al., 2014) 2-Independence (Molony et al., 2011) 3-Privacy (Molony et al., 2011) 4-Management methods (Klaassens & Meijering, 2015; van Dijck-Heinen et al., 2014) 5-Pieces of furniture that were easily moveable enhanced residents' self-determination (Jonsson et al., 2014) 6-Ability to decorate their own room (e.g., drilling holes in the wall for hanging things [Van Hoof et al., 2016])
	Coping (d)	1-Connectedness to the future (Carboni, 1990) 2-Acceptance (Nakrem et al., 2013) 3-Using coping strategies (e.g., not looking back, making yourself happy, and being good [Cooney, 2012]) 4-Personalizing their private room (Falk et al., 2013) 5-Preventing negative attitude and promoting positive perspective (Falk et al., 2013; Nakrem et al., 2013)

Table 1 (cont'd).

Main Theme	Factors	Attributes
Social Factors (SF)	Interaction with Other Residents (b)	1-Social relationships with and between fellow residents (Molony et al., 2011; van Dijck-Heinen et al., 2014) 2-Sharing the daily life (Klaassens, & Meijering, 2015) 3-Access to moments of privacy (Bland, 2005; De Veer & Kerkstra, 2001; Nakrem et al., 2013)
	Interaction with Family and Friends (c)	1-Closeness and involvement with family (Molony et al., 2011) 2-Occasional visits back home (Bland, 2005; Lewinson et al., 2012) 3-Living with a spouse or a partner in the nursing home (Bland, 2005; van Dijck-Heinen et al., 2014) 4-Small scale nursing homes treated the relatives as members and not as visitors (van Zadelhoff et al., 2011)
	Interaction with Pets (d)	1-Distraction and joy (Rijnaard et al., 2016) 2-Opportunities to engage (Rijnaard et al., 2016) 3-An animal gives a sense of consolation and warmth and makes the resident feel less lonely (van Dijck-Heinen et al., 2014)
	Activities (e)	1-Should be appropriate to the resident's needs, skills, education level, and abilities (Cooney, 2012; Fleming et al., 2015; van Dijck-Heinen et al., 2014) 2-Scheduled activities incorporated into daily life enhances satisfaction and a sense of homeliness (Klaassens, & Meijering, 2015; Robinson et al., 2010; van Zadelhoff et al., 2011)
The Built Environment (BE)	The Private Space (a)	1-Private room and bathroom (Cooney, 2012; Nakrem et al., 2013; Fleming et al., 2015; Robinson et al., 2010; van Dijck-Heinen et al., 2014) 2-Having personal belongings around oneself (Cooney, 2012) 3-Ability to withdraw (De Veer & Kerkstra, 2001) 4-Opportunity to create one's own environment (De Veer & Kerkstra, 2001) 5-Spacious room (particularly shower and kitchen, for social interaction, work corner with a desk [Jonsson et al., 2014])
	The (Quasi-) Public Space (b)	1-Small residential density, including family-style dining, increases the perception of belonging (Molony et al., 2011) 2-Spatial layout and furniture (van Dijck-Heinen et al., 2014) 3-Clear and consistent interior symbols (Hauge & Kristin, 2008) 4-A certain degree of privacy and ability to withdraw (Carboni, 1990; van Zadelhoff et al., 2011)
	Personal Belongings (c)	1-Personalizing with furniture and memorabilia creates familiarity and symbolizes self-identity (Falk et al., 2013) 2-Freedom in choice and positioning of furniture to make the room cozier (Van Hoof et al., 2016)
	Technology (d)	1-Easy access to one's personal data (De Veer & Kerkstra, 2001) 2-Television set is considered the most valued item in the private room linking the residents to the outside world and providing distraction (Van Hoof et al., 2016)

Table 1 (cont'd).

Main Theme	Factors	Attributes
	Look and Feel (e)	1-Avoiding institutional environment (Fleming et al., 2015; Jonsson et al., 2014; van Dijck-Heinen et al., 2014) 2-Organized and welcoming of family members (Robinson et al., 2010) 3-Cleanliness (Van Hoof et al., 2015) 4-Flowers (Van Hoof et al., 2015) 5-The decor, color, warmth, daylight access, and coziness (Cooney, 2012; van Dijck-Heinen, 2014) 6-Display of residents' artwork (Cooney, 2012) 7-Ventilation (Fleming et al., 2015) 8-Window nearby (Fleming et al., 2015) 9-Physical comfort (Jonsson et al., 2014) 10-A physical environment that makes activities accessible (Jonsson et al., 2014) 11-Promoting pleasure and stimulation of all senses with lighting and support of visual perception (Jonsson et al., 2014)
	Outdoors and Location (f)	1-Accessibility to familiar places (Carboni, 1990) 2-Connection to nature (Robinson et al., 2010) 3-Any type of view (nature, park, traffic, playground with children, lively street, or a building [Van Hoof et al., 2015]) 4-Balconies (Van Hoof et al., 2016)

Table 2. Homelikeness attributes related to architecture and design.

Main Theme	Factors	Attributes
Psychological Factors (PF)	Preservation of One's Habits and Values (b)	2-Moments of privacy 3-Continuity in normal daily activities and rituals (reflects the amount of control they have over their day-to-day life)
	Autonomy and Control (c)	1-Control over activities, decisions, and social relations 2-Independence 3-Privacy 5-Pieces of furniture that were easily moveable enhanced residents' self-determination 6-Ability to decorate their own room (e.g., drilling holes in the wall for hanging things)
	Coping (d)	4-Personalizing their private room

Table 2 (cont'd).

Main Theme	Factors	Attributes
Social Factors (SF)	Interaction and Relationship with Staff (a)	5-Social activities
	Interaction with Other Residents (b)	1-Social relationships with and between fellow residents 2-Sharing the daily life 3-Access to moments of privacy
	Interaction with Family and Friends (c)	4-Small scale nursing homes treated the relatives as members and not as visitors
	Activities (e)	1-Should be appropriate to the resident's needs, skills, education level, and abilities
The Built Environment (BE)	The Private Space (a)	1-Private room and bathroom 2-Having personal belongings around oneself 3-Ability to withdraw 4-Opportunity to create one's own environment 5-Spacious room (particularly shower and kitchen, for social interaction, work corner with a desk)
	The (Quasi-) Public Space (b)	1-Small residential density, including family-style dining, increases the perception of belonging 2-Spatial layout and furniture 3-Clear and consistent interior symbols 4-A certain degree of privacy and ability to withdraw
	Personal Belongings (c)	1-Personalizing with furniture and memorabilia creates familiarity and symbolizes self-identity 2-Freedom in choice and positioning of furniture to make the room cozier
	Technology (d)	1-Easy access to one's personal data contributes to feeling at home 2-Television set is considered the most valued item in the private room linking the residents to the outside world and providing distraction
	Look and Feel (e)	1-Avoiding institutional environment 2-Organized and welcoming of family members 3-Cleanliness 4-Flowers 5-The decor, color, warmth, daylight access, and coziness 6-Display of residents' artwork 7-Ventilation 8-Window nearby 9-Physical comfort 10-A physical environment that makes activities accessible 11-Promoting pleasure and stimulation of all senses with lighting and support of visual perception

Table 3. Homelikeness attributes not covered by Supportive Design Theory (SDT).

Main Theme	Factors	Attributes
Psychological Factors (PF)	Autonomy and Control (c)	6-Ability to decorate their own room (e.g., drilling holes in the wall for hanging things)
	Coping (d)	4-Personalizing their private room
Social Factors (SF)	Interaction with Family and Friends (c)	4-Small scale nursing homes treated the relatives as members and not as visitors
	Activities (e)	1-Should be appropriate to the resident's needs, skills, education level, and abilities
The Built Environment (BE)	The Private Space (a)	2-Having personal belongings around oneself 4-Opportunity to create one's own environment 5-Spacious room (particularly shower and kitchen, for social interaction, work corner with a desk)
	The (Quasi-) Public Space (b)	1-Small residential density, including family-style dining, increases the perception of belonging 2-Spatial layout and furniture 3-Clear and consistent interior symbols
	Personal Belongings (c)	1-Personalizing with furniture and memorabilia creates familiarity and symbolizes self-identity 2-Freedom in choice and positioning of furniture to make the room cozier
	Look and Feel (e)	1-Avoiding institutional environment 3-Cleanliness 5-The decor, color, warmth, daylight access, and coziness 6-Display of residents' artwork 7-Ventilation 10-A physical environment that makes activities accessible
	Outdoors and Location (f)	1-Accessibility to familiar places

Note: All references are as indicated in Table 1.

Table 4. Non-structural Homelikeness attributes.

Main Theme	Factors	Attributes
Psychological Factors (PF)	Autonomy and Control (c)	6-Ability to decorate their own room (e.g., drilling holes in the wall for hanging things
	Coping (d)	4-Personalizing their private room
Social Factors (SF)	Activities (e)	1-Should be appropriate to the resident's needs, skills, education level, and abilities
The Built Environment (BE)	The Private Space (a)	2-Having personal belongings around oneself 4-Opportunity to create one's own environment
	The (Quasi-) Public Space (b)	2-Spatial layout and furniture 3-Clear and consistent interior symbols
	Personal Belongings (c)	1-Personalizing with furniture and memorabilia creates familiarity and symbolizes self-identity 2-Freedom in choice and positioning of furniture to make the room cozier
	Look and Feel (e)	1-Avoiding institutional environment 5-The decor, color, warmth, daylight access, and coziness 6-Display of residents' artwork

Note: All references are as indicated in Table 1.

The remaining items of homelikeness (Table 4) are classified into three main categories: personalization, an activity, and a homelike atmosphere.

2.4.1. Personalization

One important feature not explicitly addressed by SDT, yet widely recognized as essential for residents in long-term care settings, is the ability to personalize their living environment. While personalization was one of the top features mentioned by long-term care residents, it was the least mentioned feature of control in hospitalized patients (Bae

& Asojo, 2022). These results indicate the importance of personalization and a homelike environment for long-term residents. These results, alongside other findings regarding the well-being of older adults in nursing homes, highlight the fact that while the theory supports short-term stays in hospitals, it does not cover some important areas for long-term care settings (2022). Therefore, more research must be done to broaden the theory so that it can be used in studies with inclusive approaches in the future (2022).

Personalization in long-term care settings can include the ability to decorate one's room, display memorabilia, keep personal belongings, and create an environment that reflects individual preferences (Cooney, 2012; De Veer and Kerkstra, 2001; Falk et al., 2013; Van Hoof et al., 2016). It may also involve incorporating artwork or other personally meaningful items, all of which contribute to a sense of identity, familiarity, and comfort for residents.

2.4.2. Activity

Opportunities for meaningful activities are a key contributor to creating a sense of homelikeness in long-term care environments. When residents' private rooms provide spaces that support activities suited to their needs, skills, education level, and abilities—such as reading, puzzles, crafts, knitting, exercise, listening to music, or playing a musical instrument—these environments foster personal fulfillment, autonomy, and comfort (Cooney, 2012; Fleming et al., 2015; van Dijck-Heinen et al., 2014). Likewise, common spaces designed for group activities, including exercise classes, social gatherings, arts and crafts, book clubs, cooking, or gardening, promote social connection and community engagement, further reinforcing the feeling of home.

Activities that are thoughtfully tailored to individual capabilities not only encourage participation but also provide meaning to life (Rijnaard et al., 2016). Moreover, ensuring that the physical environment facilitates access to these activities—through features such as barrier-free design, step-free circulation, and clear wayfinding—removes obstacles to engagement. Incorporating scheduled activities into daily routines has been shown to enhance satisfaction and strengthen the sense of homeliness (Klaassens & Meijering, 2015; Robinson et al., 2010; van Zadelhoff et al., 2011). Together, these design and programming strategies enable residents to maintain familiar routines, pursue personal interests, and build relationships, all of which are essential to cultivating a sense of home in nursing homes.

2.4.3. Homelike Atmosphere

A homelike atmosphere in long-term care environments plays a crucial role in fostering residents' sense of comfort, belonging, and well-being. Elements such as room decor, warmth, and coziness—created through thoughtful choices in colors, furniture, lighting—can evoke a relaxed and familiar feeling that mirrors the comfort of a true home (Cooney, 2012; van Dijck-Heinen et al., 2014). The spatial layout and arrangement of furniture further contribute to usability and comfort, allowing residents to move easily, interact with their environment, and engage in daily activities (van Dijck-Heinen et al., 2014). Incorporating artwork—such as paintings, photographs of nature, residents' own creations, and handcrafted objects—adds visual interest, cultural relevance, and emotional resonance (Cooney, 2012). Homelike furniture, often in older styles and warm materials such as wood, can further enhance familiarity and comfort (Jonsson et al., 2014), while avoiding overly neutral, single-hue interiors and lacquered institutional

furniture (Jonsson et al., 2014). Ease of navigation, supported by clear wayfinding, accessible layouts, and logical organization of spaces, ensures residents feel confident and oriented within the facility.

Room size also matters, as adequate personal space supports privacy and autonomy, while the overall scale of the nursing home, including the number of rooms and residents, influences the sense of intimacy versus institutional impersonality (Molony et al., 2011; van Zadelhoff et al., 2011). A "homey" building design (Fleming et al., 2015) that is organized and welcoming to family members (Robinson et al., 2010) reinforces this atmosphere.

Avoiding hospital-like characteristics, long corridors, and maze-like layouts with nooks and crannies (van Dijck-Heinen et al., 2014) helps preserve a warm, residential character. Conversely, an institutional environment—characterized by sterile finishes, lack of contrast, or impersonal decor—diminishes the homelike feel (Jonsson et al., 2014). Taken together, these elements work in harmony to create a genuinely homelike atmosphere that nurtures psychological well-being, fosters social connection, and encourages residents to view the nursing home as their home rather than a mere care institution.

Crosschecking the results from various studies shows that many of the other factors that do not suit the three conditions of SDT can be supported by homelikeness attributes. This study aims to strengthen theoretical frameworks in interior design by examining the SDT within the context of long-term care environments. Very few studies have explored this theory in LTC environments; therefore, this study aims to fill the gaps in the related

literature. Furthermore, it aims to advance SDT by integrating homelikeness as a complementary construct, offering a more holistic framework for enhancing the quality of life and PWB of residents in long-term care settings (Figure 14).

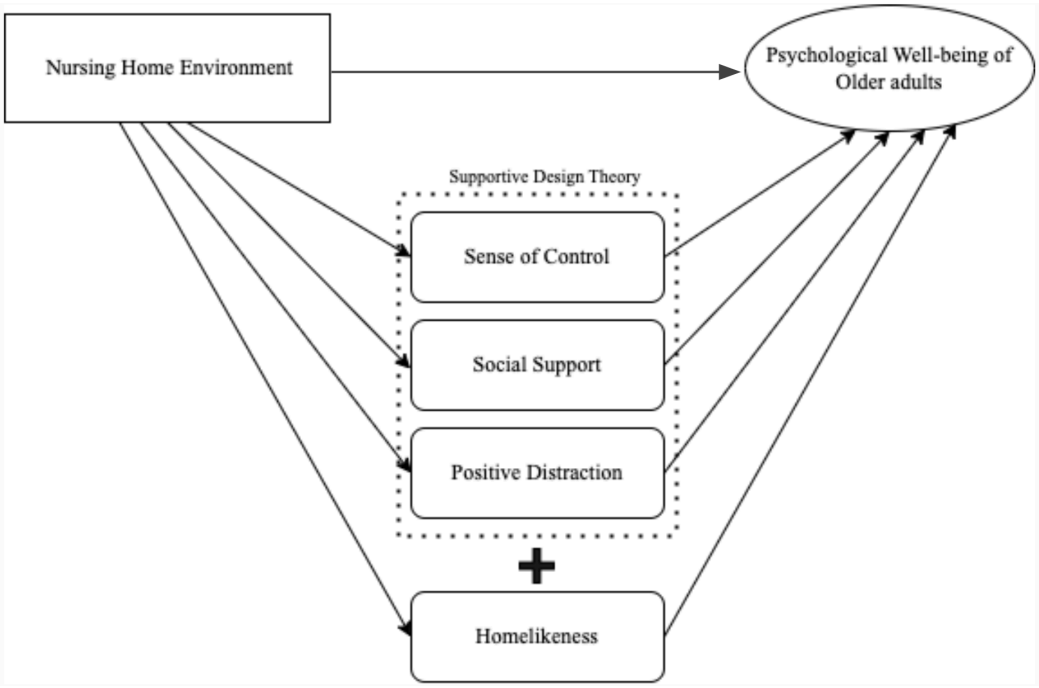

Figure 12. Author's adaptation of Ulrich's Supportive Design Theory (SDT), expanded to include the concept of homelikeness.

CHAPTER 3

METHODOLOGY

This chapter outlines the methodological approach of the thesis to address the research aims, organized into two main parts. The first part describes the methods used to assess the current conditions of selected nursing homes in Türkiye, and the second part presents the methodological framework applied to evaluate perceived supportive design and homelikeness design elements and their relationship to psychological well-being.

This study investigated seven nursing homes: five in Ankara, one in Izmir, and one in Istanbul, Türkiye (Table 7). A list of nursing homes was retrieved from the General Directorate of Services for Persons with Disabilities and The Elderly (GDSPDE), a subdivision of The Ministry of Family and Social Services website. A total of 441 nursing homes are listed, and 50 are in Ankara, 125 are in Istanbul, and 67 are in Izmir. Of these 242 nursing homes in three cities, 205 are private, 27 are under the GDSPDE administration, and ten are approved but not administered by the GDSPDE.

Forty-eight nursing homes were contacted by phone. Due to the Coronavirus disease (COVID-19) pandemic, government-administered nursing homes stated that they are prohibited from having outsiders in the buildings. Private institutions stated that patients' families are against these processes because of the pandemic. A few explained that even patients' families meet in the outdoor areas of the nursing homes rather than inside the building for safety measures. In addition, a few telephone numbers were wrong, or they never answered the phone despite several attempts on different times and days.

Eleven nursing homes initially agreed to participate in the study. However, three of these facilities predominantly cared for residents with advanced cognitive or physical illnesses, rendering them unsuitable for inclusion. Additionally, one nursing home primarily accommodated individuals who were homeless or had lost their homes during the 2023 earthquake. To avoid potential insensitivity, given the study's focus on a homelike environment, and reduce the risk of bias related to the unique circumstances of these residents, this facility was also excluded, ensuring the study maintained its integrity and consistency.

Table 5 lists all participating settings and specifies their inclusion in each part of the research. An overview of the study instruments and their corresponding parts is presented in Table 6, with each instrument discussed in detail in its respective section.

Table 5. Settings and their inclusion in study components.

Nursing Homes	Location	Ownership	Capacity	Area (m^2)	Room types	Opening Year	Part 1	Part 2 (Total N=141)
NH1	Ankara	Private	53	800	Single, double, and triple	2012	✓	-
NH2	Ankara	Private	162	1,600	Single, double, and triple	2016	✓	-
NH3	Ankara	Private	75	2,220	Single, double, triple, and quadruple	2017	✓	✓ (N=16)
NH4	Ankara	Private	98	1,050	Single, double, and triple	1997	✓	-
NH5	Ankara	Public	122	31,790	Single, and double	1993	✓	✓(N=15)
NH6	Izmir	Public	947	119,000	Single, and double	2001	✓	✓(N=73)
NH7	Istanbul	Public	462	22,000	Single, and double	2012	✓	✓(N=37)

Table 6. Instruments of the study.

	Instrument	Process
Part 1	Physical and Architectural Checklist (PAF): ● Community Accessibility ● Physical Amenities ● Social-recreational Aids ● Orientational Aids ● Prosthetic Aids ● Safety Features ● Staff Facilities	Site visits, Administered by the researcher
Part 2	Survey: ● Demographic Questions ● Psychological Well-being Scale ● Katz Independence in ADL ● Supportive Design Theory and Homelikeness Questionnaire	Participants filled the survey, Katz ADL filled by the caregivers

3.1. Methodology Part 1: Assessment of the Physical and Architectural Features

3.1.1. Aim and Research Question

The aim of this study is to comprehensively evaluate the existing condition of physical and architectural features of selected nursing homes in Türkiye, with a particular focus on community accessibility, physical amenities, social-recreational aids, prosthetic aids, orientational aids, safety features, and staff facilities. Given the limited research on the built environment of nursing homes in Türkiye, this study seeks to identify the strengths and weaknesses of current design practices by assessing both public and private facilities across three major cities. It aims to highlight gaps between regulatory requirements and user-centered, homelike care environments, and to provide insights that can guide the creation of future care settings that enhance quality of life while reflecting the cultural preferences of older adults. Furthermore, the study intends to offer evidence-based recommendations to inform the planning and design of long-term care facilities that are both contextually relevant and supportive of residents' well-being. The research question for this part of the study is as follows:

RQ1: What are the current physical and architectural conditions of nursing homes in Türkiye, specifically in terms of Community Accessibility, Physical Amenities, Social-Recreational Aids, Prosthetic Aids, Orientational Aids, Safety Features, and Staff Facilities?

3.1.2. Research Design and Settings

To achieve the objectives of Part 1 of the study and to address RQ1, an observation-based research design was employed to systematically evaluate the existing

conditions of the nursing homes' built environments. This approach allowed for the direct assessment of physical and architectural features in their real-world context, enabling the identification of both strengths and areas for improvement. The evaluation was conducted using a structured and standardized framework for assessing environmental quality in long-term care settings. The settings of the study are as specified in Table 5.

3.1.3. Instrument

Given the present study's focus on evaluating the physical environment, and considering feasibility constraints within institutional settings, only the PAF checklist from MEAP was used (Appendix D). In this study, the terms 'physical features' and 'architectural features' are used in alignment with the PAF. Physical features refer to the tangible, observable elements within the built environment, such as furniture and safety features. Architectural features describe the structural and spatial characteristics of the building, including room sizes, corridor widths, layout, and the placement of key areas like nurse stations or exits. PAF has 153 items across eight dimensions (Community Accessibility, Physical Amenities, Social-Recreational Aids, Prosthetic Aids, Orientational Aids, Safety Features, Staff Facilities, and Space Availability). Table 8 represents a brief description and example items of each dimension.

Table 7. PAF checklist subscale description (adapted from Moos, 2012).

Dimension (Total N=153)	Description	Examples of Assessment Items
Community Accessibility N=16	Evaluates the proximity of community services that enhance convenience for facility users.	- Is there a grocery store nearby within walking distance? - Is there public transport nearby within walking distance?
Physical Amenities N=30	Assesses the presence of design elements and features that improve comfort and convenience.	- Are common areas like halls decorated? - Is there extra lighting in shared spaces like lounges?
Social-Recreational Aids N=28	Examines the availability of facilities that encourage social interaction and recreational activities.	- Is there a patio or outdoor area? - Are there seating arrangements in the lobby for residents?
Prosthetic Aids N=24	Measures the level of accessibility and independence support provided by the physical environment.	- Is there a call bell or system available? - Are doorways wide enough to accommodate wheelchairs?
Orientational Aids N=13	Determines how well the environment helps residents orient themselves and navigate the space.	- Is there a reception desk? - Is there an easily accessible bulletin board for announcements?
Safety Features N=18	Identifies safety features that help in monitoring common areas and preventing accidents.	- Are communal outdoor spaces well-lit? - Is there a system for visitors to sign in for safety?
Staff Facilities N=11	Assesses the availability of dedicated areas and resources that support staff in managing the facility.	- Are there offices for social services or counseling? - Is there a designated staff lounge?
Space Availability * N=13	Evaluates the adequacy of both communal and private spaces in relation to the number of residents who use them	- What are the dimensions of the smallest bathroom? - How much closet space is allocated per resident?

*This dimension was not assessed due to restricted access to some spaces within some of the nursing homes.

The evaluation involves using dichotomous scales to capture the presence or absence of features, compare the actual situation with standards, and identify areas for improvement. In this study, all the dimensions were assessed except for Space

Availability due to restricted access to specific areas within certain nursing homes, which limited the evaluation of all intended spaces.

3.1.4. Data Collection and Analysis

The PAF checklist was administered to the seven nursing homes through observations during site visits, supplemented by photographic documentation where permitted. All of the facilities were visited during working hours, and depending on the size of the facility, approximately two to four hours were spent during the assessment.

Afterward, the data collected from the checklist were transferred to hand-scoring worksheets designed to compute the raw scores for each dimension. Then, the raw scores were converted to standard scores with the help of conversion tables provided by MEAP guidelines for comparison (Moos & Lemke, 1996).

3.2. Methodology Part 2: Investigating the Perceived Supportive Design and Homelikeness Design Elements

3.2.1. Aim, Research Questions and Hypotheses of Part 2

This study aims to investigate whether the concept of homelikeness can be considered an additional construct to the existing SDT and whether it can substantially impact the psychological well-being of older adults residing in nursing homes. Furthermore, it aims to explore whether the presence of homelikeness elements, in conjunction with supportive design features, demonstrates a statistically significant difference compared to environments that solely comprise some supportive design elements. Additionally,

this research seeks to determine if specific homelike characteristics can be easily incorporated into different settings without requiring significant alterations to the existing environment yet still positively influence the PWB of nursing home residents.

The following are the research questions and hypotheses of Part 2 of this research study:

RQ2a: Which design attributes of the Supportive Design Theory (SDT) are perceived as important by older adults living in nursing homes?

RQ2b: Which design attributes of homelikesness are perceived as important by older adults living in nursing homes?

RQ2c: Which design attributes of the Supportive Design Theory (SDT) influence the psychological well-being of older adults living in nursing homes?

RQ2d: Which design attributes of homelikeness influence the psychological well-being of older adults living in nursing homes?

RQ2e: Is there a significant relationship between the psychological well-being of older adults living in nursing homes and the existence of design-related Supportive Design Theory (SDT) and homelikeness attributes?

> **H2e:** There is a significant relationship between the psychological well-being of older adults living in nursing homes and the existence of design-related Supportive Design Theory (SDT) and homelikeness attributes.

RQ2f: Does the incorporation of homelikeness attributes to the Supportive Design Theory (SDT) elements within the scope of interior design influence the psychological well-being of older adults living in nursing homes?

> **H2f:** The incorporation of homelikeness attributes to the Supportive Design Theory (SDT) elements within the scope of interior design increases the psychological well-being of older adults living in nursing homes.

Table 9 presents the dependent and independent variables of the study, along with their corresponding research questions and the instruments used for their measurement.

3.2.2. Research Design and Settings

The main purpose of this study is to explore the relationship between the built environment of nursing homes and psychological well-being of their residents, focusing on SDT and homelike design attributes. To achieve this objective, a mixed-method research approach was adopted, incorporating observations of nursing home environments and residents, along with questionnaires designed to gather information about participants' personal characteristics and the attributes of their surroundings.

The study adheres to ethical guidelines, ensuring informed consent, confidentiality, and the protection of participants' rights and well-being. Approval was obtained from the Bilkent University Ethics Committee, as well as the necessary authorization from the Ministry of Family and Social Services prior to beginning the study (Appendices B and C).

Table 8. Dependent and independent variables of the study.

Research Question	Independent Variable	Dependent Variable	Instrument
RQ2a: Which design attributes of the Supportive Design Theory are perceived as important by older adults living in nursing homes?	—	—	SDTH Questionnaire
RQ2b: Which design attributes of homelikesness are perceived as important by older adults living in nursing homes?	—	—	SDTH Questionnaire
RQ2c: Which design attributes of supportive design theory influence the psychological well-being of older adults living in nursing homes?	Selected design-related attributes of SDT	Psychological Well-being	PWB scale and SDTH questionnaire
RQ2d: Which design attributes of homelikeness influence the psychological well-being of older adults living in nursing homes?	Selected design-related attributes of homelikenss	Psychological Well-being	PWB scale and SDTH questionnaire
RQ2e: Is there a significant relationship between the psychological well-being of older adults living in nursing homes and the existence of design-related supportive design theory and homelikeness attributes?	Selected design-related Homelikeness and Supportive Design Theory (SDT) attributes	Psychological Well-being	PWB scale and SDTH questionnaire
RQ2f: Does the incorporation of homelikeness attributes to supportive design theory elements within the scope of interior design influence the psychological well-being of older adults living in nursing homes?	Selected design-related Homelikeness attributes	Psychological Well-being	PWB scale and SDTH questionnaire

The seven nursing homes were initially included in Part 2 of the study; however, three private facilities were later excluded during data collection due to residents' inability or

unwillingness to complete the forms as a result of mental or physical conditions. Characteristics of the nursing homes are presented previously in Table 5. Out of the four nursing homes, 16 participants were from NH3, 15 from NH5, 73 from NH6, and 37 from NH7 (Total N=141).

3.2.3. Participants

Participants for this study were selected using a combination of purposive, convenience, and snowball sampling techniques.

1. *Purposive Sampling:* The initial selection of nursing homes was based on their agreement to participate in the study, targeting facilities that were accessible and met the study's inclusion criteria.
2. *Convenience Sampling:* Within the participating nursing homes, older adults were approached in common areas such as the yard and shared living spaces, where they were readily available and willing to engage with the researcher.
3. *Snowball Sampling:* Some participants recommended or brought friends to participate, broadening the sample through interpersonal connections.

This mixed sampling approach ensured practical feasibility while capturing a diverse range of participants within the nursing home environment. The combination of methods also allowed for flexibility in engaging with older adults in natural and comfortable settings. All older adults residing in the nursing homes were considered as potential participants, without stratification based on age categories (youngest-old, middle-old, and oldest-old) to avoid a significant reduction in the sample size. Over 210 individuals were provided with the questionnaire, and 176 of them returned it. Among the returned

questionnaires, 141 were completed properly and deemed suitable for analysis. Of 141 participants, 84 were female (59.57%) and 57 were male (40.42%). The age of participants ranged between 60 and 94 with the average of 77 years old.

3.2.4. Instruments

Several instruments are used in this research based on variables of the study. General information, including age, gender, marital status, length of stay, education and occupation (before retirement and living in the nursing home) were collected, to investigate their relationship with the research variables as well as to control for extraneous variables (Appendix F).

PWB is assessed using a 15-item Psychological Well-Being Scale for the Older People which was developed by Demir (2022) based on Ryff's (1995) Psychological Well-being Scale (PWS; Appendix G). The Katz ADL index is used to measure functional health (Appendix H). The index evaluates performance adequacy across six functional areas of bathing, dressing, toileting, transferring, continence, and feeding (Katz et al., 1970). A caregiver or nurse answers yes/no for independence in each of the six functions. A score of 6 indicates full function (independence), 4 indicates moderate impairment, and 2 or less indicates severe functional impairment (completely dependent). A questionnaire was developed specifically for this research to explore the role of SDT and homelikeness features, which will hereafter be collectively referred to as SDTH throughout the study. The details regarding the questionnaire development process are presented in the following section. The questionnaire includes items related to architecture and interior design, based on factors identified in the literature. Items irrelevant to architecture and

interior design, such as staff attitudes, staff behavior, and facility policies, are excluded. All the items are answered on a Likert scale where participants can choose from 1 (not at all), 2 (little), 3 (somewhat), 4 (to a large extent), and 5 (completely). The results are carefully analyzed to identify the most significant factors contributing to a homelike environment from the residents' perspective. Furthermore, up to the present time, no comprehensive scale has been formulated for assessing homelikeness. Consequently, this questionnaire can serve as a foundational tool for future investigations aimed at developing measurement instruments in this area.

3.2.4.1. SDTH Questionnaire Development

As previously highlighted in the literature review chapter, a few studies investigate SDT in long-term care settings. In addition, the factors influencing homelikeness in nursing homes remain inadequately understood. Furthermore, according to the author's knowledge, there is a notable absence of questionnaires in the existing literature that specifically address the intersection of design aspects within SDT and homelikeness. Developing a scale was deemed a crucial step to address the research questions posed in this study and contribute to filling this research gap.

The literature review process involved identifying items related to SDT and homelikeness, which were then carefully examined and filtered based on their design relevance. Items unrelated to design were excluded. Given the inherent overlap between homelikeness and SDT, it was essential to distinguish and isolate their respective influences for a clearer understanding. Consequently, items related to homelikeness that also fell under the SDT category were treated as SDT items, while the remaining items

were designated as homelikeness elements. . Figure 13 demonstrates the questionnaire development flowchart.

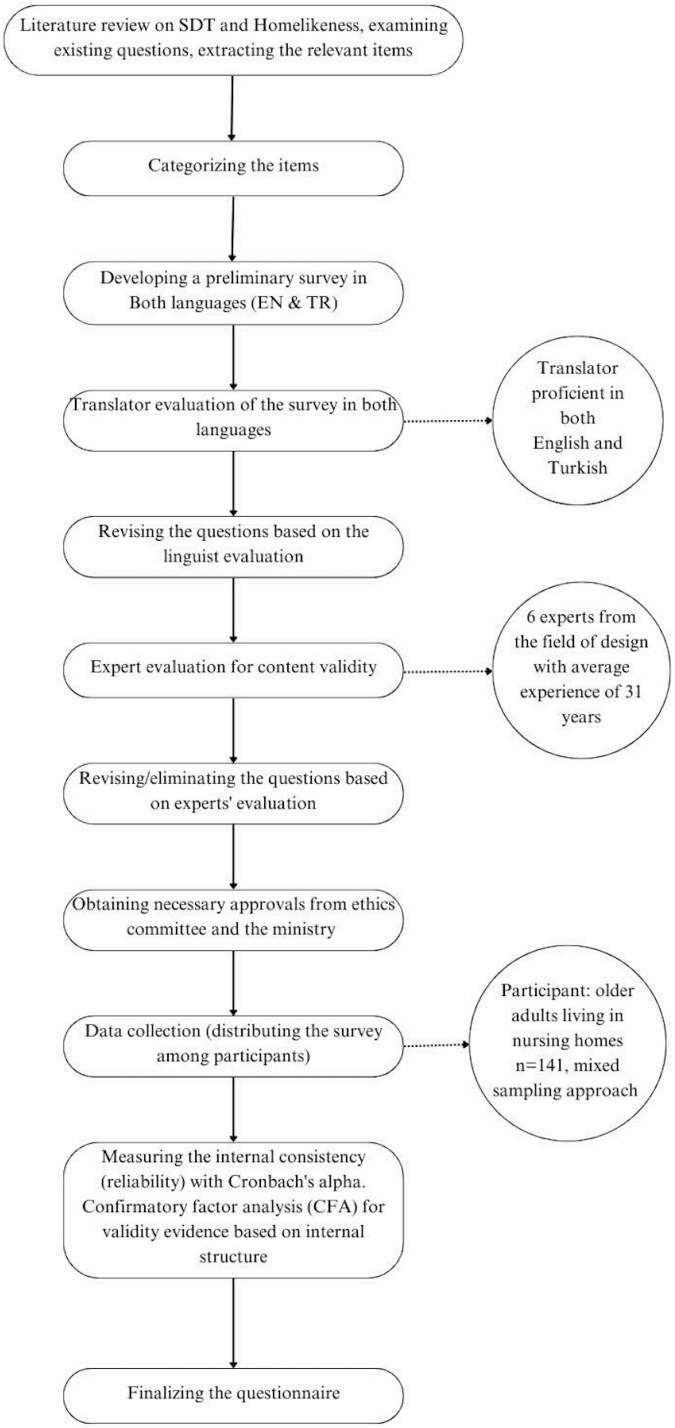

Figure 13. Survey development flowchart.

Upon scrutinizing the literature, some of the items related to SDT and homelikeness already had existing questions, which were adapted for the study's purposes. For the remaining items, new questions were formulated to investigate these aspects comprehensively. Items of homelikeness are classified into three main categories: personalization, an activity zone, and a homelike atmosphere. By undergoing multiple revisions, the number of questions was decreased to reduce the survey's completion time without compromising its research objectives.

Four items were adapted from scales used in other studies to measure the perceived level of control and its importance in the nursing home (Barnes, 2006; Rijnaard et al., 2016). Three items were adapted from the previous studies to measure the social support provided by the nursing homes and its importance level for the residents (Rijnaard et al., 2016). Finally, to measure the positive distraction provided by the physical environment, five items were adapted from scales used to measure fascination (Andrade & Devlin, 2015; Hartig et al., 1997; Laumann et al., 2001), and items that are considered as positive distractions (Robinson et al., 2010; Van Hoof et al., 2015). All the items will be answered on a Likert scale where participants can choose from 1 (not at all), 2 (little), 3 (somewhat), 4 (to a large extent), and 5 (completely).

Initially, a preliminary version of the questionnaire was prepared in English (Appendix J) and subsequently translated into Turkish (Appendix I). Both versions underwent evaluation by a proficient translator possessing a master's degree in industrial psychology and twenty-eight years of research and practice experience in Türkiye and the United Kingdom. Incorporating the translator's feedback, adjustments were made to the questions in both languages.

To ensure the content validity of the survey, six experts in the design field, including architects and interior architects, were engaged (Table 9). The experts were selected based on their educational background, expertise in the relevant field, and research experience related to aging, healthcare environments, and well-being. Upon their willingness to evaluate the survey, an expert evaluation form was provided, presenting the research aim and a brief literature review covering relevant concepts, definitions, and terminologies.

Table 9. Descriptive statistics of the evaluators.

	Gender	**Age**	**Experience**	**Degree**
Expert 1	Female	52	29 years	PhD- Architect and Interior Architect
Expert 2	Female	44	21 years	PhD- Architect and Interior Architect
Expert 3	Female	78	54 years	Master's- Architect
Expert 4	Female	64	42 years	PhD- Architect
Expert 5	Female	33	10 years	PhD- Interior Architect
Expert 6	Female	54	32 years	PhD- Architect

The survey's structure and instructions for rating the questions were explained. Each section of the questionnaire included an overview of its objective, prompting experts to rate each question on a scale from 1 to 6 based on its effectiveness in measuring its intended objective. Additionally, a designated space for evaluator comments accompanied the rating box.

Following the compilation of expert feedback, the mean score for each question was calculated. If any question got a mean score below four or received less than four from

three or more experts, it will be eliminated. Fortunately, none of the questions met the criteria for elimination. Notably, 90 percent of the questions achieved a mean score of 5 or higher, with approximately 60 percent attaining a mean of 5.5 or above. After thoroughly examining experts' scores and comments on each question, some were revised, and a few were removed. The revised version of the questions are presented in Table 10.

Table 10. The revised survey questions to measure the extent of existing supportive design theory (SDT) and homelikeness elements in the study setting and their importance level for the residents.

Main Construct	Sub-construct	Attribute in question	Key References
Supportive Design Theory (SDT)	Sense of Control (5 items)	-1a & 2a. Lighting (e.g., turning it on and off as you wish, the ability to dim or brighten the lights, opening and closing the curtains, etc.) -1b & 2b. Temperature (e.g., making it cooler or warmer as you wish, turning it on or off, etc.) -1c & 2c.. Ventilation (e.g., opening and closing the windows, turning the air conditioner on and off, changing its temperature, etc.) -1d & 2d.. Privacy of the room (e.g., the ability to withdraw from the public whenever you want, the ability to control who comes and goes into your room, etc.) -1e & 2e.. Privacy of the bathroom (e.g., having your own bathroom, ability to take your time while using the bathroom without worrying about interruption by roommates, caregivers, etc.)	Adapted from Barnes, 2006 and Rijnaard et al., 2016; Cooney, 2012; Fleming et al., 2015; Robinson et al., 2010; van Dijck-Heinen et al., 2014
	Positive Distractions (5 items)	-3a & 3b. Fascinating qualities (e.g., beautiful things to look at, interesting things in your room that draw your attention, etc.) -4a & 4b. Spending time in the room and looking at the surroundings -5a & 5b. Access to a view in the room (e.g., view of outside, a park, buildings, street, people, etc.) -6a & 6b. Access to nature or natural elements in the room (e.g., plants and flowers in the room, natural wood furniture, etc.) -7a & 7b. Access to nature or natural elements in the nursing home (e.g., plants and flowers in common spaces, trees in the yard, gardens, fountains, etc.)	Adapted from Harting et al., 1997; Laumann et al., 2001; Robinson et al., 2010; Van Hoof et al., 2015

Table 10 (cont'd).

Main Construct	Sub-construct	Attribute in question	Key References
Supportive Design Theory (SDT)	Social Support (3 items)	-8a & 8b. Relationship with fellow residents -9a & 9b. The room provides space and conditions for residents to spend time with fellow residents, family, and friends (e.g., the room has comfortable seating or space for visitors, welcoming visitors as it is at home, etc.) -10a & 10b. The nursing home providing space and conditions for residents to spend time with fellow residents, family, and friends (e.g., there is comfortable seating, areas for visitors to spend time with you, having different spaces to choose from to spend time with family and friends, welcoming visitors as it is at home, etc.)	Adapted from Rijnaard et al., 2016
Homelikeness	Personalization (5 items)	-11a & 11b. Decorating the room -12a & 12b. Memorabilia in the room (e.g., souvenirs from your travels, statues, pictures, objects that remind you of good memories, etc.) -13a & 13b. Having personal belongings in the room (e.g., things you had before coming to the nursing home and you brought with you here, such as your clothes, furniture, blanket, etc.) -14a & 14b. Have the opportunity to create one's own environment in the room (e.g., adding your personal touch to your room, changing the furniture or their places and positions, adding/removing items to/from your room as you please, hanging your artwork on the walls, etc.) -15a & 15b. Artwork in the room (e.g., paintings, pictures of nature, places, animals, etc., art objects such as statues, crafts.)	Based on Van Hoof et al., 2016; Falk et al., 2013; Cooney, 2012; De Veer and Kerkstra, 2001;
	Activity Zone (3 items)	-16a & 16b. The room provides an environment for activities appropriate for the needs, skills, and abilities of the resident (e.g., reading, puzzles, crafts, knitting, exercise, listening to music, playing a musical instrument, etc.) -17a & 17b. The nursing home's common spaces provide an environment for activities appropriate for the needs, skills, and abilities of the resident (e.g., group exercises, trips, gatherings, arts and crafts, book clubs, cooking, growing plants, etc.) -18a & 18b. The physical environment makes activities accessible (e.g., the existence of barriers, steps, wayfinding, etc.)	Cooney, 2012; Fleming et al., 2015; van Dijck-Heinen et al., 2014; Jonsson et al., 2014

Table 10 (cont'd).

Main Construct	Sub-construct	Attribute in question	Key References
Homelikeness	Homelike Atmosphere (9 items)	-19a & 19b. The room's decor, warmth, and coziness (e.g., the comfortable and relaxed feeling that the colors, furniture, lighting, objects, and the overall atmosphere provided) -20a & 20b. The room's spatial layout and furniture. -21a & 21b. The size of the room. -22a & 22b. The scale of the nursing home (i.e., number of rooms and residents in the nursing home) -23a & 23b. Artwork in the nursing home (e.g., paintings, pictures of nature, places, animals, etc., art objects such as statues, crafts, etc.) -24a & 24b. Ease of navigation and understanding different areas of the nursing home, like finding the room, the public areas, entrances and exits, etc. -25a & 25b. The nursing home looking and feeling like an institutional environment (i.e., look and feel like a non-residential environment such as a hospital or a healthcare environment)	Based on Zadelhoff et al., 201; Jonsson et al., 2014; Molony et al., 2011; van Dijck-Hein en et al., 2014; Huage and Kristin, 2008; Falk et al., 2013; Fleming et al., 2015
Total Items		**56 Items**	

Originally, the survey was composed of three sections. The first section focused on existing attributes of the SDT and homelikeness elements in nursing homes. The second section explored the perceived importance of these elements. The third section sought to assess how these elements contribute to a sense of home among older adults residing in nursing homes.

In response to experts' feedback and a comprehensive reevaluation of the questions, it was decided to eliminate the third part. The rationale behind this decision was based on the experts' comments, highlighting three primary reasons:

1. Experts expressed concern that the length of the questionnaire might pose challenges for older adults.

2. They observed significant similarities between the third and first sections, noting that such redundancy could be confusing and potentially unnecessary.
3. The aspiration is that it is possible to infer the elements that promote a sense of home for older adults through comparing and analyzing the results from the first two sections.

The SDTH questionnaire is structured into two parts for each question: part 'a' and part 'b'. Part 'a' assesses how residents perceive the current state of the item in question, while part 'b' evaluates the importance of that item to the residents, highlighting its relative significance. This structure applies to all questions in the questionnaire, except for the first two.

Question one focuses on the level of control residents have over five specific features: 1a. lighting, 1b. temperature, 1c. ventilation, 1d. room privacy, and 1e. bathroom privacy. Question two then examines the importance of these same features: 2a. lighting, 2b. temperature, 2c. ventilation, 2d. room privacy, and 2e. bathroom privacy. This categorization simplifies the response process by maintaining a clear and logical flow. By comparing the perceived importance of each feature with its current condition, the questionnaire identifies areas that residents consider important but find lacking.

3.2.4.2. SDTH Survey Reliability Assessment

After revising the questionnaire based on experts' feedback, it is submitted to the ethics committee along with other necessary documents for approval to initiate data collection. Once approval was obtained (Appendix B and Appendix C), data collection began. After collecting the responses, Cronbach's alpha was calculated for measuring the reliability

which demonstrated high internal consistency ($\alpha = 0.946$). Since the data set is not normally distributed, MLM (maximum likelihood estimation with robust standard errors and a Satorra-Bentler scaled test statistic) method, which provides robust estimators in case of non-normal multivariate distribution, was used to estimate the CFA model.

All z-values are very large (e.g., $z = 44.36$ for SDTH11a), and p-values are 0.000, meaning all factor loadings are statistically significant. The CFA shows that most items significantly and strongly load onto their respective latent factors, indicating a reliable measurement model. In other words, the SDTH variables loaded correctly on the factors. Overall, the scale demonstrates strong psychometric properties, supported by significant factor loadings and error variances.

Social support items had low scores therefore were excluded from the statistical measures. Over all categories show moderate to robust reliability (Table 11). Previously, the Cronbach's Alpha score for Homelike atmosphere importance was 0.604 and the Cronbach's Alpha score for Total Scale-Importance was 0.900.

The Cronbach's Alpha if Item Deleted changes to 0.752 and 0.918 respectively when item SDTH-22-b is deleted (question 22b: How important is it for you to live in a small-scale nursing home? i.e., the number of rooms in the nursing home no more than 10-12 rooms).

Table 11. Reliability scores of SDTH questionnaire.

Reliability Statistics	Cronbach's Alpha	N of Items
Sense of Control-Existing Attributes	0.845	5
Sense of Control-Importance	0.870	5
Positive Distraction-Existing Attributes	0.770	5
Positive Distraction-Importance	0.705	5
Personalization-Existing Attributes	0.723	5
Personalization-Importance	0.771	5
Activity-Existing Attributes	0.642	3
Activity-Importance	0.746	3
Homelike Atmosphere-Existing Attributes	0.670	7
Homelike Atmosphere-Importance	0.752	6
Total Scale-Existing Attributes	0.907	25
Total Scale-Importance	0.918	24
Total Scale	0.946	49

3.2.5. Data Collection

After obtaining the necessary approvals and revising the survey, a nursing home outside the seven included in the study was contacted for two purposes. First, to conduct a practice session for assessing the building, familiarizing with the checklist, and refining the process of completing it. Second, to pilot the resident survey by asking the questions to five residents to ensure they were clear and understandable. Once it was confirmed that the questions were comprehensible and the building assessment checklist (PAF) was used with ease, the nursing homes were contacted to schedule data collection. The

building assessments and resident surveys were conducted during the same session, as detailed in the following sections. The participants were approached with the utmost care and respect in public spaces such as the lobby, hobby rooms, or yard. Initially, a member of the social services team accompanied the researcher, introducing the spaces and allowing residents to see the researcher in their presence, helping to create a sense of comfort. The researcher would then approach either a group or individual residents, asking if they had a few minutes to chat. If they agreed, the researcher introduced herself, providing her name, field of study, academic affiliation, and the purpose of the research. She then asked if they would be willing to take some time to complete the questionnaire. The participants signed a consent form (Appendix E) prior to completing the survey

3.2.6. Data Analysis

The collected data were carefully transferred into a digital format to prepare for statistical analysis and subsequently analyzed using the SPSS 26 software. Descriptive statistics were employed to gain information about the participants and their demographic characteristics. Considering the distribution of observations across room type groups, the effect of room type on participants' PWB was analyzed using the non-parametric Kruskal–Wallis H test. Since the dataset for SDTH questionnaire was not normally distributed, the MLM method (maximum likelihood estimation with robust standard errors and a Satorra–Bentler scaled test statistic), which provides robust estimators under conditions of non-normal multivariate distribution, was used in the estimation of the CFA model. For measuring internal reliability the Cronbach's Alpha reliability test was used.

Since the sample was not normally distributed, non-parametric tests were employed to rank the importance of the items. The Wilcoxon Signed-Ranks Test, which compares two related measurements from the same participants, was used to examine differences in the perceived importance of two SDT items. In addition, Friedman's S Test, which compares three or more related measures from the same participants, was applied to assess the relative importance of the three categories of homelikeness. Pearson correlation analysis was conducted to examine the degree of association between the SDT and homelikeness items and PWB. To evaluate the unique contribution of each predictor from SDT and homelikeness while controlling for the effects of the others, multiple linear regression analysis was applied. To assess whether incorporating homelikeness attributes alongside supportive design improves the prediction of psychological well-being Regression Model Comparison was conducted.

CHAPTER 4

RESULTS

The results of the study are presented in two main parts. The first one is the building assessment results which did not involve any human participants, and the second section presents the quantitative results of the survey. The results of Part 2 of the study which involved participants do not include photographs of the nursing homes due to ethical considerations and restricted approval from the authorities.

4.1. Results of Part 1: Assessment of Physical and Architectural Features

In order to answer **RQ1** the building assessment results were processed as follows. The raw scores for a facility are percentage-based, representing the portion of features present out of the total possible features (Moos & Lemke, 1996). For instance, a facility with 15 out of the 30 physical features would receive a raw score of 50% in physical amenities. Conversely, standard scores use a facility's characteristics relative to others, enabling direct comparison across subscales.

These standard scores have a mean of 50 and a standard deviation of 10 (Moos & Lemke, 1996). Figure 14 and Table 12 present the seven facilities' standard scores in seven domains.

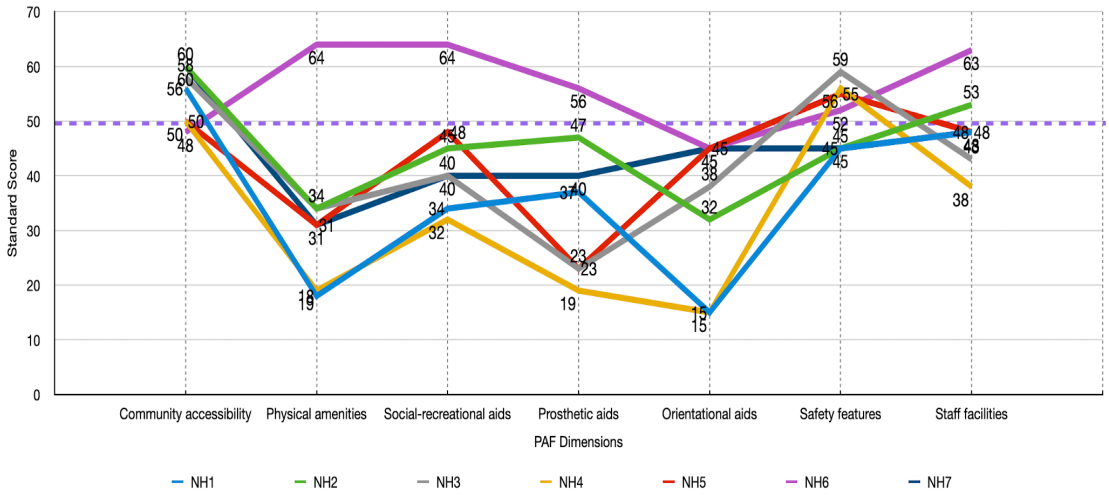

Figure 14. PAF profile for the seven nursing homes.

Table 12. Standard scores of seven nursing homes in seven dimensions of PAF.

	Community accessibility	Physical amenities	Social-recreational aids	Prosthetic aids	Orientational aids	Safety features	Staff facilities	Total
NH1	56	18	34	37	15	45	48	253
NH2	60	34	45	47	32	45	53	316
NH3	58	34	40	23	38	59	43	295
NH4	50	19	32	19	15	56	38	229
NH5	50	31	48	23	45	55	48	300
NH6	48	64	64	56	45	52	63	392
NH7	60	31	40	40	45	45	48	309
Mean	54.57	33	43.29	35	33.57	51	48.71	299.14
Median	56	31	40	37	38	52	48	300

Mean= 50, Sd=10 Note: A facility with a 100% raw score will achieve maximum converted scores of 73 in Community Accessibility, 78 in Physical Amenities, 77 in Social-Recreational Aids, 76 in Prosthetic Aids, 86 in Orientation Aids, 71 in Safety Features, and 68 in Staff Facilities, according to the conversion table (Moos & Lemke, 1996, pp. 280-282).

The comparative assessments across the facilities regarding the seven dimensions are provided below. These findings can also be found in Froughisaeid and Altay (2025).

4.1.1. Community Accessibility

This dimension evaluates the proximity of various community resources, such as banks, post offices, and pharmacies, to nursing homes, with "easy walking distance" defined as ¼ mile (approximately 402 meters) based on PAF guidelines. Additionally, it assesses the availability and accessibility of public transportation. One specific item in this section considers whether a church or synagogue is within walking distance of the facility. In this case, to account for cultural differences, the item was modified to measure the proximity of a mosque. Google Maps was used to identify the nearest community resources for each nursing home. The seven nursing homes average score is 0.46 standard deviations (SD) above the mean in community accessibility, indicating acceptable access to community services.

Regarding accessibility, NH2 and NH7 have higher scores, indicating better accessibility to resources within the community. Figure 15 illustrates examples of nursing homes with their immediate surroundings in favorable locations, which include well-lit streets with bus stops equipped with benches.

Figure 15. High community accessibility: Sheltered bus stops with benches and lighting in the street.

4.1.2. Physical Amenities

This dimension evaluates nursing homes based on the availability of specific physical features in exteriors, such as outdoor furniture and sheltered entrances, and in interiors, such as shops, kitchen facilities, wall spaces for hanging pictures, etc. The mean score for physical amenities is 1.7 SD below the mean, showing a significant lack of physical amenities compared to the standard. Regarding the exterior spaces, in all facilities, entrances were sheltered to protect from rain. Moreover, outdoor furniture was found to be in good condition, with some facilities providing outdoor seating areas that offer protection from sun and rain (Figure 16).

Figure 16. Exterior physical amenities: Seating with umbrella shading.

Many nursing homes had inadequate amenities, particularly in the interiors. In the interiors, only two public nursing homes offered commissary stores or shops whereas air conditioning was present in only three. Four of the facility hallways were partially decorated with artwork, with the majority of the walls left undecorated. Moreover, in community areas, there was only one facility with a drinking fountain, whereas writing surfaces or table lamps allowed for individual use were absent. As for kitchen/kitchenette availability, two had no kitchenette at all, three of them had a communal kitchen on each floor, while two had kitchenettes within the rooms (Figure 20). Some positive aspects of nursing homes were the wide window sills wide enough to accommodate flower arrangements in the rooms (Figure 17), the availability of wall spaces for hanging pictures within rooms, and installed mirrors in the bathrooms.

Figure 17. Interior physical amenities: Rooms with a kitchenette and available spaces for plants.

4.1.3. Social-recreational Aids

This dimension assesses how well the physical and architectural features promote socialization and activity engagement by examining the availability of amenities such as seating areas at the building's entrance, gardening spaces, game tables, designated activity areas, library resources, reading materials, and more. The average social-recreational aids score 0.67 SD below the mean, suggesting a limited space for social and recreational activities.

Opportunities for social interaction were limited in the majority of the nursing homes. However, NH6, which received the highest score with a significant margin compared to the others, provided numerous socialization opportunities for its residents. These included a dedicated space for a choir group, two hobby rooms, a library, a music room, multiple lounges, and small lobbies serving every four rooms (Figure 18). Additionally, NH6 offered various dining options, including a restaurant where residents could choose

to pay for a meal if they did not prefer the fixed menu and a coffee shop. The two other public nursing homes also offered common areas with both indoor and outdoor seating, along with gardening spaces and courtyards (Figure 19), as well as multipurpose hobby rooms that served as a library and a space for activities such as painting, arts and crafts, pottery, and knitting. Although these facilities did not offer the same variety of amenities as NH6, they were comparatively better than private nursing homes in providing distinct spaces for various activities.

In contrast to the public nursing homes, the private nursing homes lacked dedicated dining rooms, with meals being served to residents in their rooms. Furthermore, no specific spaces were allocated for exercise or activities such as arts and crafts. Instead, these activities were conducted in the lobby or common areas within the wards.

Figure 18. Social-recreational indoor spaces: Small lobbies for every four rooms.

Figure 19. Social-recreational outdoor spaces: A plantation garden and courtyard.

4.1.4. Prosthetic Aids

This dimension assesses various features, including the presence of safety bars and handrails in hallways, bathrooms, and inside rooms, hallway widths, sufficient spacing between furniture to allow wheelchair access, automatic doors, the absence of raised thresholds, and the elimination of stairs. The average score for prosthetic aids is 1.5 SD below the mean, indicating that these nursing homes are significantly under-equipped with prosthetic aids. Regarding hallway widths, there was variation across nursing homes. In public nursing homes, the hallways met the minimum width requirement of 2.4 meters (Figure 20); however, in some private nursing homes, certain hallways were as narrow as 90 centimeters. A positive feature was that all nursing homes were equipped with automatic doors (Figure 20).

While safety bars and handrails were available in most of the bathrooms and hallways of all nursing homes, none of the facilities had handrails within the rooms. In nursing homes with lower scores, bathroom doors did not open outward, no lift bars were beside

the toilets, and the bathroom spaces were not wide enough to accommodate a turning wheelchair.

Figure 20. Prosthetic aids: Wide hallways with handrails and automatic doors.

4.1.5. Orientational Aids

This dimension assesses the nursing home environment's ability to support residents in navigating the facility and the surrounding neighborhood. The score for orientational aids is 1.65 SD below the mean, highlighting the poor provision of orientational aids, while variations occurred. Each nursing home had a reception area; in some facilities, floors were numbered, though this feature was absent in others. Bulletin boards were present in the public nursing homes and one private facility. However, none of the nursing homes provided a list or pictures of staff members. A sound system for announcements was available in only two public nursing homes. None of the nursing homes had maps displaying nearby community resources or directions on accessing them. All nursing homes in the study displayed residents' names on their doors, though no pictures were included except in one facility. In certain homes, residents personalized

their doors with flowers, knitted decorations, or posters of their favorite sports teams or historical figures (Figure 21).

Figure 21. Orientational aids: Personalized door of a resident's room.

4.1.6. Safety Features

This dimension assesses how well the environment ensures the safety of its residents by evaluating features such as visibility of entrances and seating areas from employees' stations, adequate lighting of outside and inside spaces, nonslip surfaces, call buttons, smoke detection devices in the rooms and hallways, and similar attributes. The average score for safety features is 0.1 SD above the mean, showing a consistent level of adequacy, with room for enhancement.

The nursing homes' outdoor areas were well-lit, and the entrances and outdoor seating areas were visible from an employee's office or station. Each nursing home had a single main entrance monitored for security purposes. In all facilities, call buttons were in bathrooms, and smoke detectors were installed in hallways. However, not all nursing

homes featured non-skid surfaces on stairs or ramps, and some had inadequate lighting in stairways or hallways. In most nursing homes, areas prone to wetness, such as bathrooms, lacked nonslip materials, posing potential safety risks (Figure 22).

Figure 22. Low safety features: Lack of non-slip materials and grab bars.

4.1.7. Staff Facilities

This dimension evaluates how the built environment of the nursing home supports staff in performing their duties. The staff facilities, with a score of 0.13 SD below the mean, are moderately adequate but could be enhanced to better support staff well-being and performance, potentially leading to better care for residents. In all the nursing homes, offices were generally free from distractions caused by adjacent activities. Most public nursing homes had sufficient space for various managerial functions, with offices allocated for managers, social services staff, psychologists, registrars, and accountants. In some cases, a single office was shared by different staff members on different days; for example, it was used by the psychologist on Mondays and Wednesdays and by social

workers on other days (Figure 23). Only two nursing homes had conference rooms, while in most facilities, meetings were held in individual offices, usually in the office of the nursing home manager. Additionally, only two nursing homes had designated staff lounges. In the other facilities, staff took breaks in their offices or common areas within the nursing home.

Figure 23. Multi-purpose office.

4.2. Results of Part 2: Investigating the Perceived Supportive Design and Homelikeness Design Elements

The results of the survey are presented in three sections including demographic information, results of PWB , and the results for SDTH questionnaire.

4.2.1. Demographic Characteristics

This section presents various information regarding participants' characteristics. Participants demographic characteristics are presented in Table 13. Approximately 60%

of the participants were female, while 40% were male. Over half of the participants held a university degree or higher, and more than 85% had prior career experience.

Table 13. Participants' demographic characteristics.

		N	Percentage
Gender	Female	84	60
	Male	57	40
Education	Primary/Middle school	20	14
	High school	42	30
	University/Graduate degree	79	56
Past Work Experience	Has worked before	121	86
	Never worked	20	14

The age of the participants ranged between 60 and 94 with an average of 77 (Table 14). The duration of participants' stay in their rooms and nursing homes ranged from 1 month to 228 months. For some participants, the time spent in their rooms differed from their overall stay in the nursing home due to room changes. In certain nursing homes, participants initially lived in double or triple rooms before transitioning to private rooms when available. Conversely, some participants moved from private to shared rooms for reasons such as cost, a preference for companionship to avoid loneliness, or to ensure someone would be present in case of an emergency.

Table 14. Descriptive information of the participants.

Descriptive Statistics	N	Min	Max	Mean	Std.
Age	139	60	94	76.91	6.860
Months in room	141	1	228	44.48	49.420
Months in nursing home	141	1	228	66.82	63.110
Katz-ADL	141	5	6	5.97	0.167

For the purposes of this study, all participants were selected from residents with no or very mild cognitive disabilities, and all were independent in performing their activities of daily living (Table 14). With regard to the room type, more than 50% of the participants lived in a double room, 41% had private rooms, and approximately seven percent shared their room with two other residents (Table 15).

Table 15. Room type of the participants.

		N	Percentage
Room type	Private room	58	41
	Double room	73	52
	Triple or more	10	7

4.2.2. Psychological Well-being Assessment Results

As one of the instruments used in the study, the PWB (15 items) scale demonstrated strong and acceptable reliability with $\alpha = 0.889$. The PWB total scores varied between 38 and 75 with a mean of 59.55 and SD of 7.91. Considering the number of observations in the groups in terms of room type, the groups were compared using the nonparametric method (Table 16). It was important to understand if participants' room type influences

their PWB. There was no statistically significant difference between the mean PWB scores of nursing home residents in terms of the type of room they stayed in (p-value = 0.147 > 0.05).

Table 16. Kruskal-Wallis H Test Results.

Room-Type		N	Mean Rank	Kruskal-Wallis H	Asymp. Sig.
PWB-total	Private room	58	69.66	3.833	0.147
	Double room	73	75.14		
	Triple or more	10	48.60		

4.2.3. SDTH Survey Findings

Table 17 demonstrates the descriptive statistics for the SDTH questionnaire. The number of responses varies across categories due to invalid or missing data, leading to differences in the response counts for the study's variables.

Based on the Mean/N scores, the existing attributes in the nursing homes of the study that contribute to the constructs of interest are arranged from highest to lowest as follows: 1. Sense of Control (4.39), 2. Positive Distraction (3.86), 3. Activity (3.75), 4. Homelike Atmosphere (3.67), 5. Personalization (3.49). The importance of these attributes to the residents are ordered as 1. Sense of Control (4.50), 2. Activity (4.23), 3. Positive Distraction (4.18), 4. Homelike Atmosphere (4.10), and 5. Personalization (4.00).

Table 17. Descriptive statistics of SDTH survey.

Descriptive Statistics		N	Min	Max	Mean	Std.	Mean/N
Supportive Design Theory (SDT)	Sense of Control-Existing Attributes	141	11	25	21.94	3.578	4.39
	Sense of Control-Importance	141	13	25	22.48	3.086	4.50
	Positive Distraction-Existing Attributes	136	10	25	19.31	3.867	3.86
	Positive Distraction-Importance	136	14	25	20.90	2.590	4.18
Homelikeness	Personalization-Existing Attributes	140	7	25	17.44	4.958	3.49
	Personalization-Importance	139	10	25	20.01	3.537	4.00
	Activity-Existing Attributes	138	3	15	11.25	2.715	3.75
	Activity-Importance	139	8	15	12.69	1.676	4.23
	Homelike Atmosphere-Existing Attributes	132	15	35	25.69	4.170	3.67
	Homelike Atmosphere-Importance	132	22	35	28.70	3.241	4.10
SDTH	Total Score-Existing Attributes	128	58	122	95.66	15.976	3.82
	Total Score-Importance	126	77	123	104.55	11.330	4.18

Figure 24 illustrates the comparison between the attributes existing score and their importance. The largest gap between the existing attributes and importance belongs to Personalization (0.51), followed by Activity (0.48), Homelike Atmosphere (0.42), Positive Distraction (0.32), and Sense of Control (0.11).

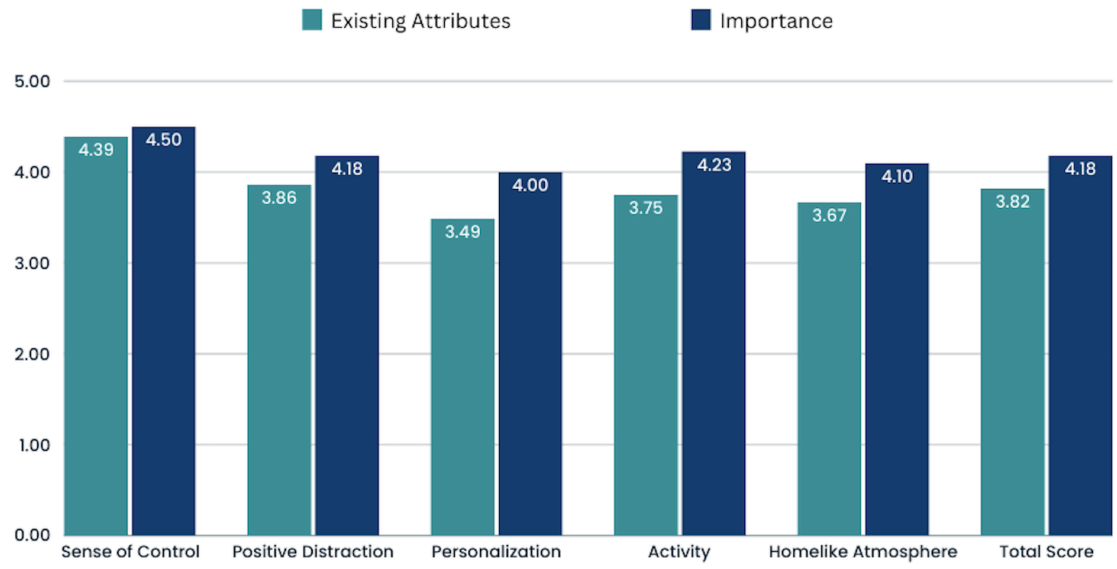

Figure 24. Comparison of the existing attribute scores and their importance for the residents.

The analysis demonstrates that room type significantly influences both the existing attributes and the importance of key environmental constructs. Participants in private rooms consistently report higher levels of Sense of Control, Positive Distraction, Personalization, Activity, and Homelike Atmosphere compared to those in double or triple rooms. The decrease in scores for triple or more shared rooms highlights the negative impact of overcrowded spaces on individuals' perceptions of their environment.

To answer **RQ2a** Table 18 compares the importance scores of SDT attributes: Sense of Control and Positive Distraction, using the Wilcoxon Signed-Ranks Test. This non-parametric test assesses differences between two related samples, making it suitable for analyzing paired importance ratings.

This indicates that individuals assign different levels of importance to these two constructs.

Table 18. Comparison of importance of sense of control (5 items), and positive distraction (5 items).

Wilcoxon Signed-Ranks Test		N	Mean Rank	Median	Z	Asymp. Sig. (2-tailed)
imp_post_dist_rate - imp_sense_control_rate	**Negative Ranks**	95[a]	61.12	0.84	-5.956	< 0.0001
	Positive Ranks	24[b]	55.56	0.96		
	Ties	22[c]				

a. imp_post_dist_rate <imp_sense_control_rate
b. imp_post_dist_rate>imp_sense_control_rate
c. imp_post_dist_rate = imp_sense_control_rate
There is a statistically significant difference between the importance given to the scores (p-value<0.0001). It can be said that sense_control is given more importance than positive_distraction.

The results are as follows:

- Negative Ranks (n = 95): Mean Rank = 61.12

  These are cases where Positive Distraction Importance is rated lower than Sense of Control Importance.

- Positive Ranks (n = 24): Mean Rank = 55.56

  These are cases where Positive Distraction Importance is rated higher than Sense of Control Importance.

- Ties (n = 22): Cases where both scores are equal.

  The higher number of negative ranks (95) indicates that participants generally rate Sense of Control as more important than Positive Distraction.

The results demonstrate a clear preference for Sense of Control over Positive Distraction in terms of perceived importance. Sense of Control reflects the ability to influence one's environment, make decisions, and feel autonomous, elements that are fundamental to

PWB. Specifically, the SDT attributes rated as most important by residents were: having a private bathroom (4.65), followed closely by having a private bedroom (4.63), the ability to control room lighting (4.45), temperature (4.40), and ventilation (4.35). This priority suggests that individuals place high value on environments that offer them control and agency. However, while Positive Distraction is also important, it is perceived as secondary to Sense of Control. This may be because the ability to exercise control over one's environment is foundational, whereas positive distractions enhance but do not replace this autonomy.

The findings highlight the dominant role of Sense of Control in supportive environments. Designing spaces that prioritize autonomy, choice, and personal influence is essential for improving user satisfaction and PWB. Although Positive Distraction remains relevant for providing comfort and engagement, it is viewed as less critical compared to the need for control. Therefore, interventions and designs should first address the need for Sense of Control and then incorporate opportunities for Positive Distraction to create balanced and supportive environments.

Tables 19 and 20 investigate the importance assigned to Homelikeness attributes: Personalization, Activity, and Homelike Atmosphere, by comparing their scores using Friedman's S test and pairwise comparisons which answer **RQ2b**. This test is appropriate for evaluating differences between three or more related samples in non-parametric data.

Table 19. Comparison of importance of personalization (5 items), activity (3 items), and homelike atmosphere (6 items) Friedman's S test results.

	Mean Rank	Chi-Square	p-value
personalization_imp_rate	1.63		
activity_imp_rate	2.19	33.537	0.000
homelike_atm_imp_rate	2.18		

There is a statistically significant difference between the importance given to the scores (p-value<0.0001).

Table 20. Pairwise comparisons of importance of personalization, activity, and homelike atmosphere.

Pairwise Comparisons	
Sample 1-Sample 2	**Sig.**
personalization_imp_rate-homelike_atm_imp_rate	0.000
personalization_imp_rate-activity_imp_rate	0.000
homelike_atm_imp_rate-activity_imp_rate	0.905

There is a statistically significant difference between personalization_imp_rate, activity_imp_rate and homelike_atm_imp_rate. personalization_imp_rate tends to be lower than both activity_imp_rate and homelike_atm_imp_rate. It can be said that the importance given to personalization is less than the importance given to activity and homelike atmosphere.

The results of Friedman's S Test reveal a statistically significant difference between the importance scores of Personalization, Activity, and Homelike Atmosphere (Chi-Square = 33.537, $p < 0.0001$). This confirms that individuals assign different levels of importance to these constructs. The mean ranks for each construct are as follows:

- Personalization Importance Rate: 1.63
- Activity Importance Rate: 2.19

- Homelike Atmosphere Importance Rate: 2.18

These mean ranks indicate that Personalization is rated as significantly less important than both Activity and Homelike Atmosphere. In contrast, the importance ratings for Activity Zone and Homelike Atmosphere are almost equal. Pairwise comparisons further clarify the differences between the three constructs:

- Personalization vs. Homelike Atmosphere: $p = 0.000$ (significant)
- Personalization vs. Activity Zone: $p = 0.000$ (significant)
- Activity Zone vs. Homelike Atmosphere: $p = 0.905$ (not significant)

These results confirm that the importance assigned to Personalization is significantly lower than the importance assigned to both Activity and Homelike Atmosphere. However, there is no significant difference between Activity and Homelike Atmosphere, suggesting that individuals view these two constructs as equally important.

Specifically, the homelikeness design attributes rated as most important included the overall homelike atmosphere of the room—encompassing decor, color, and homelike furniture (4.88)—followed by an accessible, barrier-free environment that enables participation in activities (4.85). Other highly valued attributes were the spatial layout of furniture in the room (4.80), room size (4.78), availability of activities suited to residents' abilities and skills (4.78), orientational aids (4.73), presence of artwork in the nursing home (4.68), rooms that facilitates activities (4.55), and avoiding an institutional appearance in the nursing home (4.33).

The findings highlight clear differences in the perceived importance of Personalization, Activity, and Homelike Atmosphere. While all three constructs are relevant,

Personalization is consistently rated as the least important. This suggests that individuals prioritize aspects of their environment that provide opportunities for activity and foster a homelike atmosphere over the ability to personalize their space. The equal importance assigned to Activity and Homelike Atmosphere underscores the significance of creating spaces that balance functionality and comfort. Activity zones likely promote engagement, interaction, and stimulation, while homelike features contribute to comfort, familiarity, and emotional well-being.

In conclusion, environments should prioritize the design of activity spaces and homelike features to support individuals' needs for engagement and comfort. Although Personalization remains relevant, its lower importance suggests that it plays a secondary role compared to activity and homelike qualities. These insights can guide the design of supportive environments that enhance user satisfaction and PWB.

4.2.4. SDT Findings in Relation to Psychological Well-being

To answer **RQ2c** the associations of SDT scores and sub-dimension scores with PWB total score are presented in Table 21. The SDT score demonstrates a moderate but significant positive relationship with PWB-total score ($r = 0.485$, $p = 0.000$). This suggests that supportive design elements contribute meaningfully to improved PWB. Environments that allow individuals to feel more in control, connected, and engaged with their surroundings provide tangible psychological health benefits, aligning with the goals of SDT.

Table 21. Association of SDT sub-dimensions' score with PWB-total score.

	PWB-total	Pearson Correlation	Sig. (2-tailed)
Supportive Design Theory	Sense of Control-Existing Attributes	0.354	0.000
	Positive Distraction-Existing Attributes	0.466	0.000

Positive distraction demonstrates a stronger correlation with PWB than sense of control. Among the attributes of the SDT, the factor contributing most to PWB is the presence of natural elements in the room, such as flowers and plants (r = 0.437), followed by the ability to control the room's lighting (r = 0.425) and the presence of nature in the nursing home environment (r = 0.423). The results show that strong alignment with SDT principles enhances perceived environmental quality and moderately improves PWB.

4.2.5. Homelikeness Findings in Relation to Psychological Well-being

To answer **RQ2d** the associations of Homelikeness scores and its sub-dimension scores with PWB total score are presented in Table 22. The results also indicate a moderate positive correlation between Homelikeness and PWB-total (r = 0.416, p = 0.000). This suggests that environments perceived as more homelike are associated with higher PWB. The significant p-value confirms that this relationship is statistically meaningful. Creating spaces that foster a homelike atmosphere appears to play an important role in enhancing individuals' PWB.

Table 22. Association of Homelikeness sub-dimensions' score with PWB-total score.

	PWB-total	Pearson Correlation	Sig. (2-tailed)
Homelikeness	Personalization-Existing Attributes	0.324	0.000
	Activity-Existing Attributes	0.260	0.002
	Homelike Atmosphere-Existing Attributes	0.437	0.000

Homelike atmosphere exhibits a stronger correlation with PWB than either personalization or activity. Among the attributes of homelikeness having memorabilia in the room shows the strongest relationship (r = 0.420) with PWB, followed by the presence of artwork in the nursing home environment (r = 0.393) and the overall atmosphere of the room created by elements such as decor, color, and homelike furniture (r = 0.321).

4.2.6. SDTH Questionnaire Findings in Relation to Psychological Well-being

This section discusses the results derived from SDTH and PWB as they pertain to **RQ2e**. Table 23 shows the relationship between the SDTH constructs and PWB total score. The correlations are measured using Pearson's correlation coefficients, which assess the strength and direction of associations between these variables. The relationship between Sense of Control and PWB (r = 0.354, p = 0.000) highlights the importance of perceived control over one's environment in fostering PWB. Additionally, Personalization (r = 0.324, p = 0.000) and Activity (r = 0.260, p = 0.002) also show significant, albeit weaker, correlations with PWB. These findings emphasize that personalizing spaces and engaging in activities are valuable contributors to overall well-being, though to a lesser extent compared to homelike environments and positive distractions.

The results reveal significant positive correlations between PWB-total score and the existing attributes of several SDTH constructs affirming **H2e**. Among these, the strongest association is with Total Score for existing attributes ($r = 0.474$, $p = 0.000$), indicating that individuals living in environments with higher overall quality tend to experience better PWB. Similarly, Positive Distraction ($r = 0.466$, $p = 0.000$) and Homelike Atmosphere ($r = 0.437$, $p = 0.000$) show medium positive correlations with PWB, suggesting that environments that provide comfort, distraction, and a homelike feel significantly enhance PWB.

Table 23. Associations between PWB-total score and SDTH scores.

	PWB-total	**Pearson Correlation**	**Sig. (2-tailed)**
Supportive Design Theory	Sense of Control-Existing Attributes	0.354	0.000
	Positive Distraction-Existing Attributes	0.466	0.000
Homelikeness	Personalization-Existing Attributes	0.324	0.000
	Activity-Existing Attributes	0.260	0.002
	Homelike Atmosphere-Existing Attributes	0.437	0.000
SDTH	Total Score-Existing Attributes	0.474	0.000

The strongest correlations are observed with constructs that promote comfort, distraction, and homelike features. Specifically, individuals who perceive greater Positive Distraction, Homelike Atmosphere, and Sense of Control report better PWB. These findings suggest that environments that reduce stress and provide a sense of familiarity, control, and engagement play a critical role in enhancing overall well-being. In addition, environments that feel homelike have an even greater impact on perceived quality while also fostering PWB.

In conclusion, both Homelikeness and SDT contribute positively to PWB, with SDT demonstrating a slightly stronger association. This emphasizes the value of creating environments that integrate supportive design principles while maintaining a homelike atmosphere to enhance individuals' mental and emotional health. A regression analysis would provide a clearer picture of individual versus joint contributions to provide answers to **RQ2f** (Table 24).

Table 24. Multiple Linear Regression Results.

	Coefficient	p-value	Interpretation
Supportive Design	0.304	0.007	Statistically significant: A 1-point increase in Supportive Design is linked to a 0.30-point increase in PWB.
Homelikeness	0.165	0.044	Also significant (though weaker): A 1-point increase in Homelikeness is linked to a 0.17-point increase in PWB.

The coefficient ($R^2 = 0.195$) suggests that the model explains 19.5% of the variance in PWB. That's a modest effect which is common in social and behavioral sciences. Both predictors contribute significantly, even when controlling for each other. Supportive design has a significant positive effect on PWB. Adding homelikeness attributes contributes additional, statistically significant predictive value—but smaller than supportive design. This supports the **H2f** that combining both can improve outcomes more than supportive design alone.

Supportive Design and Homelikeness do explain part of PWB, but there's much more affecting well-being than just interior design elements. The model has statistical significance ($p < 0.001$), but moderate explanatory power. The remaining 79.3% of variation is due to other unmeasured factors. People's psychological well-being is

influenced by many other factors, like personal life experiences, health conditions, mood on the survey day, medication, individual personality differences, and even things like sleep quality or weather.

To assess whether incorporating homelikeness attributes alongside supportive design improves the prediction of PWB, three linear regression models were compared: (1) supportive design only, (2) homelikeness only, and (3) both predictors combined (Table 25).

Table 25. Regression Model Comparison.

Model	R-squared	Adj. R-squared	AIC	BIC
Supportive Design Only	0.183	0.177	957.2	963.1
Homelikeness Only	0.163	0.157	960.6	966.5
Both Predictors	0.207	0.195	955.0	963.9

The combined model produced the lowest Akaike Information Criterion (AIC = 955.0), indicating the best balance of model fit and complexity according to AIC. The supportive design-only model had an AIC of 957.2, resulting in a ΔAIC of 2.2. According to Burnham and Anderson (2002), a ΔAIC between 0 and 2 suggests that both models have substantial support, while a ΔAIC greater than 2 but less than 7 suggests weaker support for the higher AIC model. Therefore, the supportive design-only model remains plausible, but the combined model is preferred. However, the Bayesian Information Criterion (BIC) slightly favored the simpler model with supportive design only (BIC = 963.1 vs. 963.9), due to BIC's stricter penalty for model complexity.

The combined model also yielded the highest Adjusted R-squared (0.195), indicating it explained more variance in PWB than either individual predictor model (Supportive Design: 0.177; Homelikeness: 0.157). This suggests that including both predictors improves explanatory power, even when adjusting for the number of variables.

The significant contribution of both predictors and the higher adjusted R^2 and lower AIC support the inclusion of homelikeness alongside supportive design. Thus, the data support **H2f** that combining supportive design with homelikeness features enhances PWB among older adults in nursing homes.

CHAPTER 5

DISCUSSION

This study examines the physical and architectural features of seven nursing homes in Türkiye in Part 1, and in Part 2 explores the influence of SDT and Homelikeness features on the psychological well-being of older adult residents, while also identifying which of these features are perceived as most important by them.

5.1. Nursing Homes' Physical and Architectural Features

This study explored the built environments of seven nursing homes in Türkiye, highlighting both common strengths and critical shortcomings across facilities. These findings must be interpreted within the evolving context of elder care in Türkiye, where economic pressures, changing family structures, and changes in informal caregiving have increasingly made institutional care a necessary alternative (Güdük & Ankara, 2022). Although many older adults still prefer to age in place, physical limitations, health concerns, or the absence of familial support often necessitate institutionalization.

One of the most consistent strengths across the facilities was their urban location, which enhanced access to facilities such as shops and parks. This aligns with both Turkish

cultural values of proximity, familiarity, and connection, and international research indicating that access to community amenities supports resident engagement and reduces social isolation (Carlson et al., 2012; Gripko & Joseph, 2024; Mahmood et al., 2022; Moos & Lemke, 1996). However, since the current sample did not include rural or suburban homes, further research across diverse geographic regions is needed to validate these findings.

Staff facilities were another relative strength, especially in public and purpose-built facilities such as NH6. These spaces included break rooms, offices, and meeting areas—features linked to reduced staff stress and improved care quality (Joseph et al., 2016; Shetty et al., 2024). Some facilities even dedicated entire floors to staff use, resembling international best practices such as those seen in City Haven (Moos & Lemke, 1996).

Safety features were relatively consistent across the sample (Range: 42–59), likely reflecting national regulations. Most facilities met baseline standards for lighting, visibility, and general accessibility, particularly in public areas. However, critical safety upgrades—especially in bathrooms—were lacking, including insufficient grab bars, inward-opening doors, and absence of non-slip flooring. While this finding aligns with international research (Mahmood et al., 2022), it contrasts with a national risk assessment conducted in Türkiye (Gökler et al., 2022). Therefore, caution is warranted in interpreting its representativeness, and future research should include a larger and more diverse sample to better assess this critical feature.

Physical amenities varied widely (scores ranged from 18 to 64), with private and converted facilities showing the greatest deficiencies. Many lacked common international features such as barbershops, beauty salons, meditation rooms (Cutler, 2006), and, in the Turkish context, dedicated prayer rooms. In-room or hallway kitchenettes—which support independence in daily living—were largely absent, despite their presence in other countries (Nordin et al., 2017) and the documented need for them by Turkish residents (T.C. Başbakanlık Sosyal Yardımlasma ve Dayanısma Genel Müdürlüğü Sosyal Hizmetler Çocuk Esirgeme Kurumu [SYDGM], 2006). However, Turkish nursing homes did show alignment with global standards in other respects, such as having ensuite bathrooms and corridors with space for personal photos (Wahlroos et al., 2021; Cutler et al., 2006).

Despite cultural emphasis on social connection, only two facilities had adequate social-recreational spaces. This restricts opportunities for community building and meaningful activity, which are known to enhance physical and psychological well-being (Carlson et al., 2012; Aydın et al., 2020). The absence of communal dining areas or informal gathering spaces parallels findings from U.S. nursing homes lacking snack bars or dining hubs (Cutler et al., 2006), yet is particularly concerning in Türkiye, where family interaction is highly valued (SYDGM, 2006).

Orientation and mobility aids—such as color-coded hallways, signage, grab bars, and widened doorways—were inconsistently applied. These features are essential for navigating complex environments, especially for residents with cognitive or physical impairments, and are standard in many international facilities (Cutler et al., 2006; Nordin et al., 2017; Gökler et al., 2022).

Overall, public nursing homes, especially those designed specifically for elder care, consistently outperformed private or converted facilities in staff amenities, community access, and environmental support. This suggests that both ownership type and original building function are strong predictors of environmental adequacy (Froughisaeid & Altay, 2025). None of the seven homes scored near the top in any dimension, reflecting systemic issues. Key contributing factors include the use of non-purpose-built structures, gaps between policy and implementation, limited financial resources, and a focus on minimum safety over resident-centered quality of life (Roos et al., 2022; Wahlroos et al., 2021).

Figure 25 illustrates the variation in performance across the seven PAF dimensions. These discrepancies further highlight the need for comprehensive, context-sensitive national design standards and evaluation mechanisms aligned with both local values and global evidence. Design features should support residents with varying levels of dependency—offering both robust care infrastructure and spaces for independence and interaction (Froughisaeid & Altay, 2025).

Several modifications are recommended. First, social-recreational and communal dining areas should be expanded to reduce isolation and facilitate everyday engagement (Kaplan & Kaya, 2020; SYDGM, 2006). Second, orientation features—such as signage, color coding, and clear visual cues—should be standardized to support cognitive ease. Third, safety infrastructure must be enhanced, particularly in private bathrooms, using grab bars, non-slip surfaces, and accessible layouts (Gökler et al., 2022). Finally, personal amenities like kitchenettes and storage should be incorporated to support

autonomy and reflect cultural understandings of privacy, control, and "home" (Altındiş & Üner, 2023).

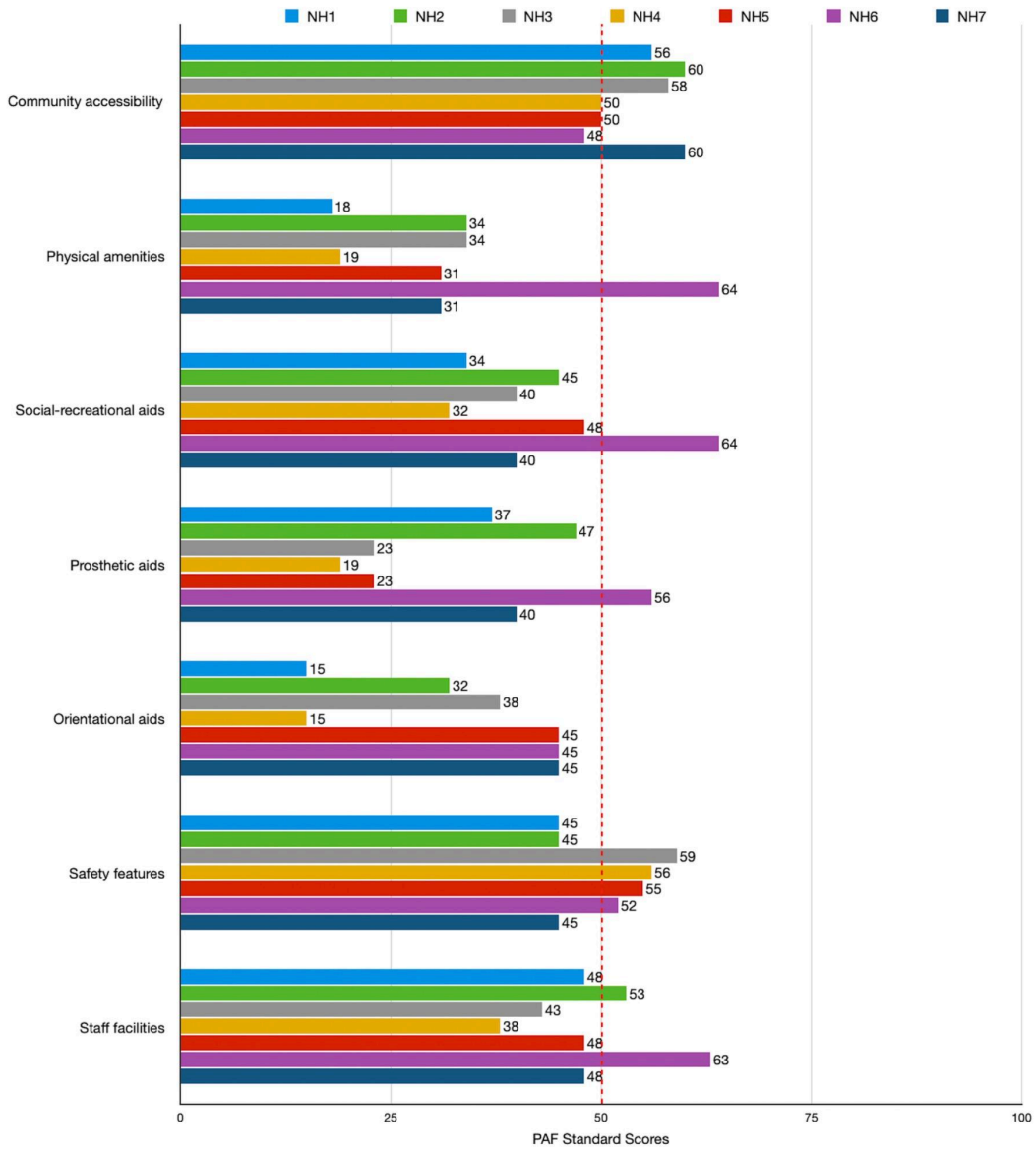

Figure 25. Bar chart of seven nursing homes' performance in seven dimensions of PAF (Froughisaeid & Altay, 2025).

In conclusion, while this study identified promising practices—particularly in public and purpose-built homes—widespread environmental disparities reflect broader inequities

within Türkiye's long-term care system. As societal expectations around aging continue to evolve, so must the physical environment of nursing homes. Regulatory frameworks should not only ensure adherence to design standards but be periodically reassessed for their real-world effectiveness in promoting well-being, autonomy, and dignity. Tools like the MEAP checklist can aid in tracking these changes and guiding future improvements.

5.2. Residents' Perception of SDTH

This study investigated the relationship between the design features of nursing homes and the psychological well-being of older adults, specifically through the lens of SDT and the construct of homelikeness. It sought to determine whether integrating homelikeness attributes into the SDT framework produces a significant impact on the psychological well-being of older adults residing in nursing homes.

The research was conducted across four nursing homes in Türkiye using a mixed-method approach, incorporating a custom-developed SDTH questionnaire and resident-reported psychological well-being data. By examining the integration of SDT with the concept of homelikeness, the findings reveal how architectural, physical, and interior attributes influence residents' perceptions, experiences, and emotional states. The results not only align with international evidence but also expand existing theoretical models by situating them in a non-Western care setting.

The results reveal that while existing facilities largely comply with regulatory requirements for safety and accessibility, many lack the broader design qualities that support autonomy, social engagement, and emotional comfort. In other words, the current regulatory framework ensures physical protection but does not necessarily create

environments conducive to holistic well-being. This finding is especially meaningful since, for Turkish older adults, the idea of "home" is closely linked to privacy, comfort, and sense of control (Altındiş & Üner, 2023)

5.2.1. Residents' Evaluation of SDTH Attributes

One of the most noticeable findings is the emphasis residents placed on privacy, especially the importance of having private bathrooms and bedrooms. These attributes were consistently rated as the most important features of supportive design, confirming previous research that identifies privacy as central to autonomy, dignity, and identity preservation in older adulthood (McIntyre & Harrison, 2017). In Türkiye, this emphasis takes on additional cultural meaning. Altındiş and Üner (2023) note that Turkish older adults strongly associate the concept of "home" with privacy, comfort, and a sense of control, making the provision of private, personal spaces particularly significant. In this way, the results echo Ulrich's (1997) argument that a sense of control is a cornerstone of supportive design, while also extending it by highlighting privacy as an essential cultural expression of control. This suggests that regulations focusing primarily on safety and minimum space standards (Resmi Gazete, 2009) may fall short of addressing deeper psychological needs, underscoring the need for policies that prioritize privacy as an intrinsic right rather than an optional amenity. This emphasis on privacy is consistent with a broad body of literature demonstrating that the ability to maintain personal space is not only consistently ranked as the most important factor (Burton & Sheehan, 2010; Nord, 2011), but also enhances older adults' quality of life (Engineer et al., 2021; Roos et al., 2022) and strengthens their sense of home and belonging within long term care environments (Carboni, 1990; Molony et al., 2011; van Zadelhoff et al., 2011).

Overall, the findings underscore the critical role of privacy and smaller room occupancy in fostering a sense of control, comfort, and personalization. Environments with fewer occupants are more conducive to positive experiences and are perceived as significantly more important for well-being, whereas overcrowded spaces detract from these outcomes.

5.2.2. Influence of SDTH on Psychological Well-being

The results demonstrate that positive distraction—especially exposure to natural elements—was more strongly correlated with psychological well-being than sense of control. Residents who reported access to flowers, plants, or outdoor greenery experienced higher well-being, even though they rated control as more important in abstract terms. This finding resonates with decades of research demonstrating the restorative power of nature (Andrade & Devlin, 2015; Bae & Asojo, 2022; Beemer et al., 2021; Joseph et al., 2016; Kaplan & Kaplan, 1989; Nordin et al., 2017; Ulrich et al., 2008). In healthcare and long-term care environments, access to natural views and elements has consistently been shown to reduce stress, improve mood, and promote recovery (Nordin et al., 2017). More recent studies in long-term care settings emphasize biophilic design and therapeutic landscapes as central to creating environments that support psychological resilience (Bae & Asojo, 2022). Thus, these findings call for nursing home design that not only meets clinical and safety standards but also creates daily opportunities for restorative encounters with nature.

The dimension of homelikeness adds another critical layer of understanding by drawing attention to the role of personalization and atmosphere. Although residents rated

personalization as less important than activity or homelike atmosphere, the presence of memorabilia, meaningful artwork, and a homelike atmosphere created through decor, color, homelike furniture, warmth and familiarity had the strongest correlation with psychological well-being. This echoes Falk et al. (2013), who identified personalization as essential for establishing continuity of self-identity, and Lewinson et al. (2012), who observed that personal belongings anchor residents emotionally to their former homes. In a broader sense, these findings reflect international scholarship that argues homelike features—such as warm colors, domestic furniture, and personalized decor—are vital in countering institutional anonymity and fostering belonging (Burton & Sheehan, 2010; Cutler, 2007). This study contributes fresh evidence by showing that Turkish residents value these homelike qualities similar to their Western counterparts, reinforcing the universality of personalization and atmosphere as components of supportive long term care environments.

Interestingly, the results reveal a nuanced divergence between perceived importance and actual correlation with psychological well-being. While residents rated control attributes—such as adjusting lighting, temperature, and ventilation—as highly important, positive distraction through nature demonstrated stronger correlations with psychological well-being outcomes. Similarly, personalization was rated lower in importance yet yielded one of the highest correlations. This suggests that while residents can articulate preferences, the factors most strongly influencing their psychological well-being may operate at a more experiential, less consciously articulated level. Such divergences highlight the value of combining self-reported preferences with empirical

outcome measures to avoid overreliance on stated priorities, which may not fully capture the lived impact of environmental features.

Theoretically, this study makes an important contribution by extending Ulrich's SDT. The integration of homelikeness into the model demonstrates that attributes fostering familiarity, identity, and emotional connection are not only compatible with but also enhance SDT's application in long-term care which confirms the hypothesis of this study. The evidence suggests that homelikeness strengthens all three pillars of SDT: personalization enhances sense of control and identity, homelike social spaces facilitate social support, and decor and artwork function as positive distractions. By empirically showing that homelikeness amplifies supportive design, this study provides a richer, more comprehensive framework for understanding how environments influence well-being in institutional care.

Practically, the results provide clear direction for policy and design in Türkiye. Nursing home regulations should prioritize privacy and environmental control. At the same time, designers and administrators should ensure that facilities incorporate abundant natural elements, from indoor plants to outdoor gardens accessible to all residents, including those with mobility challenges. Interior design choices should emphasize warmth, color, and personalization, moving away from institutional uniformity toward individualized and culturally resonant environments.

CHAPTER 6

CONCLUSION

This study investigated the relationship between the physical and architectural design of nursing homes and the psychological well-being (PWB) of older adults, using the combined frameworks of Supportive Design Theory (SDT) and homelikeness. Notably, it represents the first comprehensive effort to evaluate both public and private care facilities across three major cities in Türkiye, offering an evidence-based foundation for improving future environments. Conducted across seven nursing homes in Türkiye using a mixed-methods approach, the research demonstrated that design significantly contributes to the overall experience of residents and should be regarded as a critical factor in long-term care policy and practice.

This study makes several significant contributions to the growing body of knowledge on the relationship between the built environment and PWB in long-term care.

First, it is among the earliest attempts to investigate the combined influence of SDT and homelikeness in long-term care settings within a non-Western context. While much of the existing literature originates from Western healthcare systems, this research introduces a novel perspective by situating the inquiry within Türkiye. It further extends

theoretical understanding by proposing that homelikeness is not merely compatible with SDT but actively strengthens and enriches its application in residential care environments. This theoretical advancement offers new pathways for integrating cultural and contextual factors into environmental psychology and design.

Second, the study makes an early attempt to quantify the relationship between design and PWB, contributing much-needed empirical data to a field that often relies on qualitative measures rather than measurable outcomes. By moving beyond the predominantly qualitative measures common in the field, it contributes much-needed empirical evidence, demonstrating that design-related variables can be systematically measured and correlated with well-being outcomes. This methodological contribution highlights the potential of mixed-method and quantitative approaches in advancing evidence-based design.

Third, the research represents one of the very first comprehensive evaluations of the physical and architectural features of nursing homes in Türkiye, spanning both public and private facilities across multiple urban contexts. In doing so, it establishes a foundational dataset that not only identifies current strengths and limitations but also provides a benchmark for future studies and policy development. This localized yet transferable knowledge is particularly valuable for countries undergoing demographic transitions and seeking to adapt their care models to the growing needs of aging populations.

6.1. Implications

The findings revealed that features related to control over the environment, access to positive distractions, and social support—core principles of SDT—had a stronger association with psychological well-being. Residents responded positively to environments that allowed for personal choice, sensory engagement, and opportunities for interaction.

Homelikeness emerged as a particularly significant factor in shaping how residents perceived and evaluated their environments. Features that allowed for a homelike atmosphere and non-institutional feeling were consistently rated as beneficial. Although the statistical contribution of homelikeness to PWB was modest when separated from SDT, the overlapping dimensions—particularly those related to control and positive distrctions—appeared to reinforce the positive outcomes related with PWB.

This reinforces the idea that while SDT offers a solid foundation for healthcare design, its application in long-term care must be adapted to reflect the fact that such environments function not as temporary spaces for recovery, but as permanent homes. In this context, homelikeness should not be treated as an optional or secondary design principle, but as an integral framework that enhances and extends the supportive features defined by SDT.

Cultural specificity was also found to be a crucial consideration. In the Turkish context, residents expressed a clear preference for architectural details and interior elements that reflected traditional and domestic traits. This finding highlights that homelikeness is not a universal concept, but one that must be shaped by the values, histories, and preferences

of the individuals who live in these environments. Culturally sensitive design approaches are therefore essential in achieving environments that are perceived as supportive and appropriate.

From a methodological perspective, the integration of MEAP/PAF assessments, the custom SDTH questionnaire, psychological well-being scales, and resident feedback provided a comprehensive view of how design is experienced in practice. This mixed-methods triangulation was particularly valuable in identifying discrepancies between standardized evaluations and subjective perceptions. In some cases, facilities that met design criteria on paper were nonetheless perceived as impersonal or lacking in key qualities that contribute to PWB.

In summary, the results suggest several practical implications for nursing home design and policy development:

- *Integrating nature as therapy:* Outdoor gardens, natural views, and interior greenery should be considered essential, not optional, elements of design.
- *Enhancing personalization:* Facilities should explicitly support residents in decorating and personalizing their rooms and creating their own environment, as this strengthens identity continuity and comfort.
- *Fostering engagement:* Communal spaces should be designed to promote activity participation, intergenerational exchange, and family visits.
- *Beyond safety regulations:* Current regulations focus mostly on safety, room sizes, and accessibility but neglect psychosocial and cultural dimensions. Policy

frameworks must evolve to include standards for social support, sensory stimulation, and homelikeness.

- *Context-sensitive design:* Guidelines must reflect cultural differences, ensuring that supportive design principles are localized without compromising universal human needs.

6.2. Limitations

This study has several limitations. In the physical and architectural assessment study, the small sample of seven facilities across three cities limits generalizability; future research should include nursing homes in smaller towns and varied regions of Türkiye. Second, limited access to certain spaces—especially regarding space availability—restricted detailed assessments. Future protocols should better balance privacy with access. Additionally, the hybrid nature of the facilities may reduce applicability to contexts with more standardized care models (Froughisaeid & Altay, 2025).

While the PAF offers a comprehensive and practical framework, some items are culturally sensitive or subjective—such as religious access or lighting—and would benefit from adaptation and standardized tools (Froughisaeid & Altay, 2025). Collaborating with international experts can help update the tool to reflect evolving cultural and technological contexts.

To improve its usefulness, the PAF should integrate policy concerns, emphasize actual use over presence of features, and adopt a more user-centered lens—especially in assessing homelike qualities (Froughisaeid & Altay, 2025). Future research should refine the checklist accordingly and incorporate resident and staff perspectives, while

longitudinal studies could explore the long-term impact of environmental changes on well-being.

The survey part of the study also presents several limitations. First, the small sample size and geographic concentration in urban areas may limit the generalizability of findings to rural or underserved regions. Moreover, while the psychological well-being scales used were validated, they may not fully capture the complexity and variability of older adults' lived experiences. Well-being is influenced by individual characteristics, health status, social context, and even daily fluctuations, all of which may affect responses. Future research should consider longitudinal designs that can observe changes over time, as well as the inclusion of behavioral or physiological measures to support self-reported outcomes.

Sampling limitations should also be acknowledged. The voluntary nature of participation may have resulted in a sample skewed toward residents who are relatively healthier, more socially active, or more inclined to engage in research. Furthermore, individuals with severe cognitive impairments were excluded due to ethical and practical constraints, which reduces the representativeness of the sample by omitting some of the nursing home population.

In conclusion, this research reinforces that the physical and architectural features of nursing homes are not passive or secondary to care—they are active contributors to the psychological well-being of residents. A well-designed environment supports not only safety and accessibility but also individual identity, autonomy, and life satisfaction. By integrating homelikeness into the framework of supportive design, this study proposes a

more comprehensive and context-sensitive approach to designing long-term care environments that better align with the daily needs, preferences, and lived experiences of older adults.

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APPENDICES

Appendix A: Homelikesness themes and their attributes based on Rijnaard et al.'s systematic review article (2006).

Main Theme	Factors	Attributes
Psychological Factors	Sense of Acknowledment	-Relationship with staff who really cared (Lewinson et al., 2012; Molony et al., 2011) -Fun and friendship (Lewinson et al., 2012; Molony et al., 2011) -Knowing the person '*underneath*' the dementia (Robinson et al., 2010) -Enhanced family access to staff (Robinson et al., 2010) -Resident-centered attitude of the staff (De Veer & Kerkstra, 2001) -Having things in common with other residents (Bland, 2005) -Feeling respected and feeling known by the people in a facility (Lewinson et al., 2012) -Style if working (e.g., providing residents with more control and choice within the daily routines) (Klaassens & Meijering, 2015)
	Preservation of One's Habits and Values	-Engagement in old habits (Falk et al., 2013; Klaassens & Meijering, 2015) -Moments of privacy (Falk et al., 2013) -Continuity in normal daily activities and rituals (reflects the amount of control they have over their day-to-day life) (Cooney, 2012) -Engagement with one's senses (sounds, sunshine, and scents) and spiritual engagement as a way of nurturing (Fleming et al., 2015) -Respecting a person's dignity while carrying out care (Fleming et al., 2015)
	Autonomy and Control	-Ability to do what one's wants to do (van Dijck-Heinen et al., 2014) -Perceptions of freedom and mobility (Molony et al., 2011) -Privacy (Molony et al., 2011) -Ability to care for and do things for oneself (Molony et al., 2011) -Freedom of placement (e.g., having access to a taxi service) (Molony et al., 2011) -Ability to decorate their own room (e.g., drilling holes in the wall for hanging things) (Van Hoof et al., 2016) -Being allowed to decide whom to include or exclude independently (Falk et al., 2013) -Voluntary or involuntary relocation to a nursing home (Bland, 2005; Cooney, 2012) -Shifting from risk avoidance to risk management (Klaassens & Meijering, 2015) -Shared decision-making (van Dijck-Heinen et al., 2014)

		-The sense of autonomy of residents could be branched by forced and unwanted relationships caused by group living (van Dijck-Heinen et al., 2014) -Pieces of furniture that were easily moveable enhanced residents' self-determination (Jonsson et al., 2014)
	Coping	-Connectedness to the future (Carboni, 1990) -Acceptance (Nakrem et al., 2013) -Using coping strategies (e.g., not looking back, making yourself happy, and being good) (Cooney, 2012) -Incapability in coping can cause the residents to actively refrain from personalizing their private room, which reinforces the notion that home was someplace else for them (Falk et al., 2013) -Being ashamed of their "corporeal decay" contributes to isolation and strengthens feelings of being an outsider (Falk et al., 2013) -Negative self-conceptions about being a burden to others, including staff, prevent a sense of home (Falk et al., 2013; Nakrem et al., 2013) -Emphasizing the advantages of living in a nursing home (e.g., safety, emergency help) can help with coping (Nakrem et al., 2013)
Social Factors	Interaction and Relationship with Staff	-Interpersonal relationships with members of the staff who "really cared" are associated with at-homeness (Molony et al., 2011) -Affectionate manner (Van Hoof et al., 2015) -Miscommunication as a source of not feeling at home (Lewinson et al., 2012) -Lack of trust, feeling dismissed, feeling powerless, and fear of reprisals (Falk et al., 2013) -Lack of adequate staff to provide attentive, individualized care is detrimental to the sense of home (Robinson et al., 2010) -Availability, reliability, and flexibility of staff (Cooney, 2012) -The use of " key" appears to be important in the relationship and respect for privacy (Falk et al., 2013) -Having meals and cooking together highly contributes to a homelike feeling (Klaassens & Meijering, 2015) -Reciprocity and experiencing symmetric power relations contribute to a sense of self-worth (e.g., joining homelike activities such as setting the table or folding linen) (Falk et al., 2013; van Zadelhoff et al., 2011)
	Interaction with Other Residents	-Social relationships with and between fellow residents are very important to feeling at home in the nursing home (Molony et al., 2011; van Dijck-Heinen et al., 2014) -Sharing the daily life (Klaassens, & Meijering, 2015) -Sometimes being socially active can be a source of irritation, disturbance, and disagreement (Bland, 2005; De Veer & Kerkstra, 2001; Nakrem et al., 2013)
	Interaction with Family and Friends	-Closeness and involvement with family (Molony et al., 2011) -Occasional visits back home (Bland, 2005; Lewinson et al., 2012) -Living with a spouse or a partner in the nursing home (Bland, 2005; van Dijck-Heinen et al., 2014)

		-Small scale nursing homes treated the relatives as members and not as visitors (van Zadelhoff et al., 2011)
	Interaction with Pets	-Distraction and joy (Rijnaard et al., 2016) -Opportunities to engage (Rijnaard et al., 2016) -An animal gives a sense of consolation and warmth and makes the resident feel less lonely (van Dijck-Heinen et al., 2014)
	Activities	-Provide meaning to life (Rijnaard et al., 2016) -Should be appropriate to the resident's needs, skills, education level, and abilities (Cooney, 2012; Fleming et al., 2015; van Dijck-Heinen et al., 2014) -Scheduled activities incorporated into daily life enhances satisfaction and a sense of homeliness (Klaassens, & Meijering, 2015; Robinson et al., 2010; van Zadelhoff et al., 2011)
The Built Environment	The Private Space	-"Home" is associated with having a private room in a nursing home (Nakrem et al., 2013) -Opportunities to be on one's own (Cooney, 2012) -Privacy (Cooney, 2012) -Having personal belongings around oneself (Cooney, 2012) -Ability to withdraw (De Veer & Kerkstra, 2001) -Opportunity to create one's own environment (De Veer & Kerkstra, 2001) -Private bathroom is important for comfort, control, and sense of home (Fleming et al., 2015; Robinson et al., 2010; van Dijck-Heinen et al., 2014) -Spacious room (particularly shower and kitchen, for social interaction, work corner with a desk) (Jonsson et al., 2014)
	The (Quasi-) Public Space	-Small residential density, including family-style dining, increases the perception of belonging (Molony et al., 2011) -Spatial layout and furniture (van Dijck-Heinen et al., 2014) -Clear and consistent interior symbols (Hauge & Kristin, 2008) -A certain degree of privacy and ability to withdraw (Carboni, 1990; van Zadelhoff et al., 2011)
	Personal Belongings	-Create attachment to place (Falk et al., 2013) -Personalizing with furniture and memorabilia creates familiarity and symbolizes self-identity (Falk et al., 2013) -Emotional connection to previous home (Lewinson et al., 2012) -Evoke memory (e.g., memories of loved ones) (Jonsson et al., 2014; Van Hoof et al., 2015) -Decorative value (Van Hoof et al., 2016) -Freedom in choice and positioning of furniture to make the room cozier (Van Hoof et al., 2016)
	Technology	-Easy access to one's personal data contributes to feeling at home (De Veer & Kerkstra, 2001) -Television set is considered the most valued item in the private room linking the residents to the outside world and providing distraction (Van Hoof et al., 2016)
	Look and Feel	-"Homey" building (Fleming et al., 2015) -Organized and welcoming of family members (Robinson et al., 2010) -Cleanliness (Van Hoof et al., 2015)

	-Flowers (Van Hoof et al., 2015) -The decor, color, warmth, daylight access, and coziness (Cooney, 2012; van Dijck-Heinen, 2014) -Display of residents' artwork (Cooney, 2012) -Avoiding hospital-like environment (van Dijck-Heinen et al., 2014) -Avoiding long corridors, nooks, and crannies (van Dijck-Heinen et al., 2014) -Ventilation (Fleming et al., 2015) -Window nearby (Fleming et al., 2015) -Physical comfort (Jonsson et al., 2014) -A physical environment that makes activities accessible (Jonsson et al., 2014) -Promoting pleasure and stimulation of all senses with lighting and support of visual perception (Jonsson et al., 2014) -Homelike appearance of furniture (e.g., old style, wood as material) (Jonsson et al., 2014) -Avoiding institutional environments with neutralized, single-hue interiors without contrast and natural lacquered wood furniture (Jonsson et al., 2014)
Outdoors and Location	-Inaccessibility or loss of familiar places that provided memories of past experiences is considered a negative factor in developing a sense of home (Carboni, 1990) -Lack of connection to nature and absence of a garden (Robinson et al., 2010) -Any type of view (nature, park, traffic, playground with children, lively street, or a building) 2 (Van Hoof et al., 2015) -Balconies (Van Hoof et al., 2016)

Appendix B: Ethical approval of Bilkent University.

Bilkent Üniversitesi
Akademik İşler Rektör Yardımcılığı

Tarih : 5 Ocak 2024

Gönderilen : Negin Froughisaeid

Danışman : Burçak Altay

Gönderen : H. Altay Güvenir
İnsan Araştırmaları Etik Kurulu Başkanı

Konu : *"Enhancing ..."* çalışması etik kurul onayı

Üniversitemiz İnsan Araştırmaları Etik Kurulu, 5 Ocak 2024 tarihli görüşme sonucu, *"Enhancing Psychological Well-being of Nursing Home Residents: Incorporating Homelike Interior Design Attributes into Supportive Design Theory"* isimli çalışmanız kapsamında yapmayı önerdiğiniz etkinlik için etik onay vermiş bulunmaktadır. Onay, ekte verilmiş olan çalışma önerisi, çalışma yürütücüleri ve bilgilendirme formu için geçerlidir.

Bu onay, yapmayı önerdiğiniz çalışmanın genel bilim etiği açısından bir değerlendirmedir. Çalışmanızda, kurulumuzun değerlendirmesi dışında kalabilen özel etik ve yasal sınırlamalara uymakla ayrıca yükümlüsünüz.

Kovid-19 salgını nedeniyle konulmuş olan kısıtlamaların yürürlükte olduğu süre içinde, tüm komite toplantıları elektronik ortamda yapılmaktadır; aşağıda isimleri bulunan Bilkent Üniversitesi Etik Kurulu Üyeleri adına bu yazıyı imzalama yetkisi kurul başkanındadır.

Etik Kurul Üyeleri:

Ünvan / İsim	**Bölüm / Uzmanlık**	
Prof.Dr. H. Altay Güvenir	Bilgisayar Mühendisliği	Başkan
Prof.Dr. Haldun Özaktaş	Elektrik ve Elektronik Müh.	Üye
Doç.Dr. Işık Yuluğ	Moleküler Biyoloji ve Genetik	Üye
Dr. Öğr. Üyesi Burcu Ayşen Ürgen	Psikoloji	Üye
Dr. Öğr. Üyesi A.Barış Özbilen	Hukuk	Yedek Üye
Dr. Öğr. Üyesi Didem Özkul McGeoch	İletişim ve Tasarımı	Yedek Üye
Dr. Öğr. Üyesi A.Barış Özbilen	Hukuk	Yedek Üye

Kurul karar/toplantı No: 2024_01_05_01

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Appendix C: Approval of Ministry of Family and Social Services.

T.C.
AİLE VE SOSYAL HİZMETLER BAKANLIĞI
Eğitim ve Yayın Dairesi Başkanlığı

Sayı : E-84459573-605.01-11282430 02.05.2024
Konu : Veri Toplama (Negin FROUGHİSAED)

DAĞITIM YERLERİNE

Bilkent Üniversitesi Güzel Sanatlar Tasarım ve Mimarlık Fakültesi İç Mimarlık ve Çevre Tasarımı Bölümünde Dr. Öğretim Üyesi olarak görev yapan Burçak ALTAY danışmanlığında doktora öğrencisi Negin Froughisaeid'ın "Huzurevleri Sakinlerinin Psikolojik Refahının Arttırılması: Ev-Gibi İç Tasarım Teorisine Dahil Edilmesi" isimli araştırma çalışmasını Ankara, İzmir ve İstanbul'da bulunan Huzurevi Yaşlı Bakım ve Rehabilitasyon Merkezlerinde uygulayabilme talebi Bakanlık Makamının ekteki Onayı ile uygun görülmüştür.

Gereğini rica ve bilgilerinize arz ederim.

Hüseyin KAYA
Bakan a.
Eğitim ve Yayın Dairesi Başkanı

Ek:
1 - Taahhütname (1 Sayfa)
2 - Makam Onayı (1 Sayfa)

Dağıtım:
Gereği:
ANKARA VALİLİĞİNE (Aile ve Sosyal Hizmetler İl Müdürlüğü)
İZMİR VALİLİĞİNE (Aile ve Sosyal Hizmetler İl Müdürlüğü)
İSTANBUL VALİLİĞİNE (Aile ve Sosyal Hizmetler İl Müdürlüğü)
İhsan Doğramacı Bilkent Üniversitesi Rektörlüğüne (Güzel Sanatlar Tasarım ve Mimarlık Fakültesi)

Bilgi:
Engelli ve Yaşlı Hizmetleri Genel Müdürlüğüne

Bu belge, güvenli elektronik imza ile imzalanmıştır.
Doğrulama Kodu: 46EBA0CE-B42E-4F5A-9EF7-EDD8F8FF3C21 Doğrulama Adresi: https://www.turkiye.gov.tr/ashb-ebys

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T.C.
AİLE VE SOSYAL HİZMETLER BAKANLIĞI
Eğitim ve Yayın Dairesi Başkanlığı

Sayı : E-84459573-605.01-11126962 29.04.2024
Konu : Veri Toplama (Negin FROUGHİSAEİD)

BAKANLIK MAKAMINA

Bilkent Üniversitesi Güzel sanatlar Tasarım ve Mimarlık Fakültesi İç Mimarlık ve Çevre Tasarımı Bölümünde Dr. Öğretim Üyesi olarak görev yapan Burçak ALTAY danışmanlığında doktora öğrencisi Negin Froughisaeid'ın "Huzurevleri Sakinlerinin Psikolojik Refahının Arttırılması: Ev-Gibi İç Tasarım Teorisine Dahil Edilmesi" isimli araştırma çalışmasını Ankara, İzmir ve İstanbulda bulunan Huzurevi Yaşlı Bakım ve Rehabilitasyon Merkezlerinde uygulayabilme talebi Engelli ve Yaşlı Hizmetleri Genel Müdürlüğü tarafından uygun görülmüştür.

Çalışmanın, İl Müdürlüğünün koordinasyonunda, kuruluş idarelerinin gözetim ve denetiminde yapılacak araştırmaya katılım hususunda gönüllü olan bireylerin yazılı onamlarının alınarak, uygulamalarda elde edilecek kimlik bilgilerinin gizliliğine ve kuruluş yönetmeliğinde belirtilen gizlilik kurallarına riayet edilerek, ses-görüntü kaydı alınmaksızın ve fotoğraf çekimine izin verilmeksizin, kişisel özgürlükleri ve kişilik hakları korunacak şekilde gerekli tedbirler alınarak, kuruluş işleyişini aksatmayacak şekilde mesai saatleri içerisinde gerçekleştirilmesi, araştırmaya ilişkin makale, bildiri vs. oluşturulduğunda herhangi bir yerde yayınlanmadan önce Bakanlığımızdan izin alınması araştırmanın bitiminde "pdf" birer örneğinin Başkanlığımıza ve Engelli ve Yaşlı Hizmetleri Genel Müdürlüğüne teslim edilmesi ve taahhütname imzalatılması koşulları ile gerçekleştirilmesi hususunu;

Olurlarınıza arz ederim.

Hüseyin KAYA
Eğitim ve Yayın Dairesi Başkanı

OLUR
Zafer TARIKDAROĞLU
Bakan a.
Bakan Yardımcısı

Ek:
1 - 22/03/2024 tarihli sayılı yazı.
2 - 05/04/2024 tarihli E-40592741-605.01-11071789 sayılı yazı.

Bu belge, güvenli elektronik imza ile imzalanmıştır.
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Bilgi için:Cemalettin ULUFER
Sosyal Çalışmacı

1367263 - 1613672631 - 1613672631 - 1613672631

Appendix D: Physical and Architectural Features Checklist (PAF).

PHYSICAL AND ARCHITECTURAL FEATURES CHECKLIST (PAF)

The PAF is one part of the Multiphasic Environmental Assessment Procedure (MEAP) for evaluating the physical and social environments of group residential facilities. It should be used with the information in Chapter 4, which provides an overview of the PAF, instructions for organizing data collection, and item definitions. The scoring key and descriptions of the dimensions assessed by the PAF are provided in Appendix B.

The following questions relate to physical characteristics inside and outside the facility and to the neighborhood context in which the facility is located. Please check the spaces and fill in the information requested about the facility. Answer the questions as fully as possible, making additional comments as necessary.

Please fill in the information below

Date _____

Name of facility _____

Type of facility (e.g., nursing home, domiciliary, residential care facility, or senior citizens apartments) _____

How long has this facility been in operation? _____

Sponsoring agency or name of corporation _____

Your name _____

This section relates to the exterior of the building and its neighborhood. Fill in the blanks or check "yes" or "no" where appropriate. There is space for additional comments at the end of each section.

Section I: Neighborhood Context

1. Is the neighborhood primarily
   1☐ urban
   2☐ suburban
   3☐ rural 1
   1a. If rural, how far is it to the nearest town? _____ 2, 3
2. What type of neighborhood is the facility in?
   1☐ One family or low-rise apartment residential
   2☐ High-rise apartment residential
   3☐ Business
   4☐ Both business and residential
   5☐ Other (please specify) _____ 4
3. Is the facility all in one building? 1☐ Yes 2☐ No 5
   3a. If so, how many stories does the building have? _____ 6, 7
   3b. How old is the building? _____ 8, 9
4. If the facility has more than one building:
   4a. How many stories does the lowest building have? _____ 10, 11
   4b. How many stories does the tallest building have? _____ 12, 13
   4c. How old is the oldest of these buildings? _____ 14, 15

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5. Are the following community resources located within easy walking distance of the facility (1/4 mile)?

	1	2	
5a. Grocery store	☐ Yes	☐ No	16
5b. Drugstore	☐ Yes	☐ No	
5c. Senior citizens center	☐ Yes	☐ No	
5d. Movie theater	☐ Yes	☐ No	
5e. Church or synagogue	☐ Yes	☐ No	20
5f. Public library	☐ Yes	☐ No	
5g. Bank	☐ Yes	☐ No	
5h. Hospital	☐ Yes	☐ No	
5i. Doctor's office	☐ Yes	☐ No	
5j. Dentist's office	☐ Yes	☐ No	25
5k. Post office	☐ Yes	☐ No	
5l. Park	☐ Yes	☐ No	

6. Does the city or town within which this facility is located have a public transportation system? ☐ Yes ☐ No

7. Is there a public transportation stop within easy walking distance (1/4 mile)? ☐ Yes ☐ No

7a. If so, does it have benches? ☐ Yes ☐ No

8. Are there lights in the surrounding streets? ☐ Yes ☐ No 31

Comments on the Neighborhood Context:

Items are considered applicable to all facilities except where not applicable (n.a.) is given as a possible response. Refer to the directions in the manual for the rationale and handling of specific items.

Section II: Exterior of Building

	1	2	
1. Is the main entrance sheltered from sun and rain?	☐ Yes	☐ No	32
2. Is the outside building area well lighted?	☐ Yes	☐ No	
3. Are the outside walk and entrance visible			
3a. from seating spaces in the lobby or a ground floor social space?	☐ Yes	☐ No	
3b. from the office or station of an employee?	☐ Yes	☐ No	35
4. Is there outside seating in the front of the building?	☐ Yes	☐ No	
4a. Is it visible from the entrance lobby or a ground floor social space?	☐ n.a.	☐ Yes	☐ No
4b. Is it visible from the office or station of an employee?	☐ n.a.	☐ Yes	☐ No
4c. Is it protected from the weather?	☐ Yes	☐ No	
4d. Does it provide a view of pedestrians and other activity?	☐ Yes	☐ No	40
5. Is there a patio or open courtyard?	☐ Yes	☐ No	
6. If there is an outside area:			
6a. Are tables available?	☐ Yes	☐ No	
6b. Are umbrella tables available?	☐ Yes	☐ No	
6c. Is the outdoor furniture in good condition?	☐ Yes	☐ No	
6d. Is there a covered area (rainproof)?	☐ Yes	☐ No	45
6e. Is there an area with a sun screen (not necessarily rainproof) or protection from the sun (e.g., trees)?	☐ Yes	☐ No	
6f. Is there a barbecue?	☐ Yes	☐ No	
6g. Is there a shuffleboard game area?	☐ Yes	☐ No	48

7. Is there a garden area for resident use? ☐Yes ☐No 49
8. Is there a lawn? ☐Yes ☐No 50
9. Is there parking reserved for handicapped? ☐Yes ☐No
10. Is there parking for staff? ☐Yes ☐No
11. Is there parking for visitors? ☐Yes ☐No 53
12. What is the acreage of the grounds? _____ 54-57

Comments on the Exterior of the Building:

Section III: Interior of Building

Part I: Lobby and Entrance Area

1 2

1. Can one enter the building from the street without having to use any stairs? ☐Yes ☐No 1
2. Is the entry from outside limited to one unlocked door? ☐Yes ☐No
3. Is there a bell or call system outside? ☐Yes ☐No
4. Are written instructions posted outside that explain how to get in if the front door is locked? ☐Yes ☐No
5. Does the front door open automatically? ☐Yes ☐No 5
6. Does the front door swing closed by itself? ☐Yes ☐No
7. Is the front door wide enough for a wheelchair? ☐Yes ☐No
8. Is there an individual who usually monitors access to the building? ☐Yes ☐No
9. Is there a reception area or reception desk? ☐Yes ☐No
10. Is there a place for visitors to sign in? ☐Yes ☐No 10
11. Is there a lobby? ☐Yes ☐No
    11a. If so, approximately what size is it? _____ sq. ft. 12-15
12. Is there seating in the lobby? ☐Yes ☐No 16
13. Is there a lounge near the entrance (other than the lobby)? ☐Yes ☐No
    13a. If so, is this lounge furnished for resting or casual conversation? ☐Yes ☐No
14. Can one see into the lobby or entrance area from a lounge or other ground floor social space? ☐Yes ☐No
15. Is there a large face clock in the lobby or entrance area? ☐Yes ☐No 20

Comments on the Interior of the Building:

Part II: Hall and Stairway Areas

	1	2	
1. How wide are the hallways (in feet)? _____			21
2. Are the hallways crowded or are there obstructions (e.g., wheelchairs, meal carts, or cleaning equipment)?	☐ Yes	☐ No	
3. Are there handrails in the halls?	☐ Yes	☐ No	
4. Are the halls decorated (e.g., pictures or plants)?	☐ Yes	☐ No	
5. Are there drinking fountains?	☐ Yes	☐ No	25
5a. If so, how many per floor? _____			
5b. Are they accessible to wheelchair residents?	☐ Yes	☐ No	
6. Are there public telephones?	☐ Yes	☐ No	
6a. If so, how many per floor? _____			
6b. Is there a writing surface by the telephone?	☐ Yes	☐ No	30
6c. Is at least one telephone accessible to wheelchair residents?	☐ Yes	☐ No	
6d. Does at least one telephone have a loudness control in the receiver for people who are hard of hearing?	☐ Yes	☐ No	
7. Are there smoke detection devices in the halls?	☐ Yes	☐ No	
8. Does a resident have to climb any steps to have access to all areas of the building intended for resident use?	☐ Yes	☐ No	

	0			
9. Are the stairs well lighted?	☐ n. a.	☐ Yes	☐ No	35
10. Are there nonskid surfaces on stairs and ramps?	☐ n. a.	☐ Yes	☐ No	
11. Is each floor or corridor color coded or numbered?		☐ Yes	☐ No	
12. Are the residents' names on or next to their doors?		☐ Yes	☐ No	
13. Is it relatively easy for new residents to find their way around the building—that is, is the building well marked or small and uncomplicated?		☐ Yes	☐ No	39

Comments on the Hall and Stairway Areas:

Parts III, IV, and V cover the communal rooms in the facility. Three categories are used: lounge or community room areas, recreational or special activity areas, and dining room areas. Each room should be listed under only one category according to its main function.

Part III: Lounge and Community Room Areas

	1	2	
1. Are there any lounge or community room areas?	☐ Yes	☐ No	40
1a. If so, how many? _____			41-43
1b. What size is the smallest lounge? _____ sq. ft.			44-47
1c. What size is the largest lounge? _____ sq. ft.			48-51
1d. How large are the lounges all together? _____ sq. ft.			52-55
2. Are any of these rooms near an entrance or traveled hallway?	☐ Yes	☐ No	56
3. Are there writing desks or tables?	☐ Yes	☐ No	
4. Are there small tables for several people to sit and talk or play games?	☐ Yes	☐ No	
5. Is reading material available on tables or shelves?	☐ Yes	☐ No	
6. Are there any table lamps?	☐ Yes	☐ No	60
7. Is the furniture spaced wide enough for wheelchairs?	☐ Yes	☐ No	
8. Is there a quiet lounge with no television?	☐ Yes	☐ No	62

Comments on the Lounge and Community Room Areas:

Part IV: Recreation or Special Activity Areas

1. Are there any areas primarily designated for recreation or special activities? (Do not record these areas under any other category.) ☐ Yes ☐ No 1
   - 1a. If so, how many? _____ 2-4
   - 1b. What size is the smallest such area? _____ sq. ft. 5-8
   - 1c. What size is the largest such area? _____ sq. ft. 9-12
   - 1d. How large are these areas all together? _____ sq. ft. 13-16
2. Is there a library from which books can be borrowed? ☐ Yes ☐ No 17
3. Is there a music or listening room? ☐ Yes ☐ No

What types of recreational or special activity materials are available?

4. Pool or billiard table? ☐ Yes ☐ No
5. Ping-pong table? ☐ Yes ☐ No 20
6. Piano or organ? ☐ Yes ☐ No
7. One or more television sets? ☐ Yes ☐ No
8. One or more phonographs? ☐ Yes ☐ No
9. One or more radios? ☐ Yes ☐ No
10. One or more sewing machines? ☐ Yes ☐ No 25

Comments on Recreation or Special Activity Areas:

Part V: Dining Room Areas

1. Are there any dining areas? ☐ Yes ☐ No 26
   - 1a. If so, how many? (Do not record these areas under any other category.) _____ 27-29
   - 1b. What size is the smallest dining room? _____ sq. ft. 30-33
   - 1c. What size is the largest dining room? _____ sq. ft. 34-37
   - 1d. How large are these areas all together? _____ sq. ft. 38-41

2. Are there small tables that seat fewer than six? ☐ Yes ☐ No 42
3. Are there large tables that seat more than six? ☐ Yes ☐ No
4. Is aisle space between tables at least 60 inches? ☐ Yes ☐ No

Comments on Dining Room Areas:

Part VI: Staff and Office Areas

1. Are there offices for the administrative staff? ☐ Yes ☐ No 45
2. Is there office space for the secretarial and clerical staff? ☐ Yes ☐ No
3. Are there offices for social service and counseling staff? ☐ Yes ☐ No
4. Is there additional office space available for other staff (e.g., activity director, volunteers, or part-time staff)? ☐ Yes ☐ No
5. Are the offices free of distractions from adjacent activities? ☐ Yes ☐ No
6. Is there a separate room for handling mail, copying, or printing? ☐ Yes ☐ No 50
7. Is there a conference room? ☐ Yes ☐ No
8. Is there a staff lounge? ☐ Yes ☐ No
   - 8a. If so, does it have tables? ☐ Yes ☐ No
   - 8b. Does it have comfortable chairs? ☐ Yes ☐ No
   - 8c. What size is it? _____ sq. ft. 55-58
9. How many staff members are there all together (in FTEs: 1 FTE = 40 hours/week)? _____ 59-61

Comments on Staff and Office Areas:

Part VII: General Facilities

	1	2	
1. Is a map showing community resources available in a convenient public location?	☐ Yes	☐ No	1
2. Is there a bulletin board in a public location?	☐ Yes	☐ No	
3. Is there a posted list of the staff?	☐ Yes	☐ No	
3a. If so, does it include pictures?	☐ Yes	☐ No	
4. Is there a posted list of residents?	☐ Yes	☐ No	5
4a. If so, does it include pictures?	☐ Yes	☐ No	
5. Is there a sound system or public address system?	☐ Yes	☐ No	
6. Is there an air-conditioning system?	☐ Yes	☐ No	
7. Is there a chapel or meditation room?	☐ Yes	☐ No	
8. Is there a gift shop, commissary, or store?	☐ Yes	☐ No	10
9. Is there a kitchen area in which a resident or visitor can make a cup of coffee, heat some soup, or the like?	☐ Yes	☐ No	
10. Is there a snack bar?	☐ Yes	☐ No	
11. Are there vending machines for candy or soft drinks?	☐ Yes	☐ No	
11a. If so, are they used by residents?	☐ Yes	☐ No	
12. Is there a laundry area for residents' use?	☐ Yes	☐ No	15

Comments on General Facilities:

Part VIII: Bathroom and Toilet Areas

	All or almost all 1	*Some* 2	*Very few or none* 3	
1. Are there raised thresholds at the entrances?	☐	☐	☐	
2. Do the bathroom doors open out?	☐	☐	☐	16
3. Are there handrails or safety bars?	☐	☐	☐	
4. Are there lift bars next to the toilet?	☐	☐	☐	
5. Are the towel racks and dispensers higher than 40 inches from the floor?	☐	☐	☐	
6. Are there mirrors in the bathrooms?	☐	☐	☐	20
7. Are there nonslip surfaces in all areas subject to wetness?	☐	☐	☐	
8. Are there call buttons in the bathrooms?	☐	☐	☐	
9. Is there turning radius for a wheelchair (5 feet × 5 feet)?	☐	☐	☐	
10. What size is the smallest bathroom?	_____ sq. ft.			25-27
11. What size is the largest bathroom?	_____ sq. ft.			28-30
12. What is the largest number of residents who share one bathroom area?	_____			31, 32
13. Does each resident have access to both a bathtub and a shower?	1 ☐ Yes	2 ☐ No		33
13a. How many bathtubs are there?	_____			34-36
13b. How many showers are there?	_____			37-39
13c. Is there a flexible shower?	☐ Yes	☐ No		40
13d. Is there a seat included in the shower?	☐ Yes	☐ No		41
13e. Is a wheelchair-entered shower available?	☐ Yes	☐ No		42

Comments on the Bathroom and Toilet Areas:

Part IX: Individual Rooms or Apartments

1. How many rooms or apartments or both are there all together? _____ 1-3
2. How many residents are living here at the present time? _____ 4-6
3. What is the largest number of residents who share one room or apartment? _____ 7, 8

Are the following features present in individual rooms or apartments?

	All or almost all 1	*Some* 2	*Very few or none* 3	
4. Is there wall space available on which residents can hang pictures?	☐	☐	☐	9
5. Are there wall lights (or table lamps) that give adequate light for reading?	☐	☐	☐	10
6. Is there a mirror?	☐	☐	☐	
7. Is there a window sill that is wide enough for flowers?	☐	☐	☐	
8. Are the floors a light color?	☐	☐	☐	
9. Are the walls a light color?	☐	☐	☐	
10. Are there individual heating controls?	☐	☐	☐	15
11. Are there individual air-conditioning controls?	☐	☐	☐	
12. Is there a telephone or a telephone connection?	☐	☐	☐	
13. Is there room for wheelchair use?	☐	☐	☐	
14. Are there handrails?	☐	☐	☐	
15. Are there smoke detection devices?	☐	☐	☐	20
16. Is there a call button or telephone connection in every room (e.g., each bedroom of two-bedroom apartments)?	☐	☐	☐	

	All or almost all 1	*Some* 2	*Very few or none* 3	N/A 0	
17. Do the apartments have their own kitchen or kitchenette?	☐	☐	☐	☐	22

18. What size is the smallest room or apartment? _____ sq. ft. 23-26
19. What size is the largest room or apartment? _____ sq. ft. 27-30
20. What size is the smallest per person closet area? _____ sq. ft. 31-32
21. What size is the largest per person closet area? _____ sq. ft. 33-34

Comments on Individual Rooms or Apartments:

Appendix E: Consent form of the survey.

İç mekan tasarımı ve huzurevlerindeki yaşlıların ruh sağlığı

Bilgi ve onay formu

Bu form İ.D. Bilkent Üniversitesi İç Mimarlık ve Çevre Tasarımı Bölümü dâhilinde "Ev Gibi İç Tasarım Özelliklerinin Destekleyici Tasarım Teorisine Dahil Edilmesi" adlı Doktora Tez Çalışması için hazırlanmıştır. Çalışmanın bu aşamasının amacı, yaşlılar için hangi özelliklerin önemli olduğunu ve bu özelliklerden huzurevlerine nelerin artırılabileceğini anlamaktır. Bu calismanin nihai amaci, huzurevlerindeki yaşlıların ruh sağlığını artırmak için iç mekan tasariminin nasil kullanilabileceğini anlamaktir.
Çalışmaya katılabilmek için 60 yaşından büyük olmanız ve Türkçe dilini akıcı bir şekilde konuşabiliyor olmanız gerekmektedir. Anket 3 soru setinden oluşmaktadır. ilki günlük aktivitelerdeki bağımsızlığı değerlendirecektir. ikinci form psikolojik refahı değerlendirecek ve sonuncusu ise çalışmanın odaniz ve huzurevinin tasarim özellikleri hakkinda sorulardır. Anket yaklaşık 15 dakika sürmektedir.
Anketlerin bir kısmı görüşme şeklinde olacak ve katılımcının izni ile kayıt altına alınacaktır. Araştırmanın analiz kısmında cevaplarınız isimsiz bir şekilde paylaşılacak ve isimleriniz numaralarla eşleştirilecektir. Araştırmacıyı bilgilendirmek suretiyle, dilediğiniz zaman araştırmadan çekilme hakkına sahipsiniz.

Yukarıda belirtilen bilgiler doğrultusunda, gönüllü olarak çalışmaya katılmayı onaylıyorsanız lütfen aşağıdaki kutucuğu işaretleyin.

☐ Yukarıda açıklanan araştırma çalışmasına katılmak istiyorum. İmza ……

Araştırma hakkında daha detaylı bilgi için lütfen aşağıdaki isimlerle iletişime geçin:
Negin Froughisaeid: n.froughisaeid@bilkent.edu.tr
Asst. Prof. of Practice Dr. Burçak Altay: burcak@bilkent.edu.tr

Appendix F: Demographic questions of the survey.

Demographic Questions

No…….

1. Yaş: ……

2. Cinsiyet:

Kadın Erkek Cevap vermemeyi tercih ederim

3. Eğitim:

İlkokul Ortaokul Lise Üniversite Yükseklisans/Doktora

4. Meslek: ……

5. Çalışma durumu:

Çalısıyorum Çalışmıyorum Diğer (Lütfen belirtin)

6. Oda türü:

Tek kişilik oda Çift kişilik oda Diğer (Lütfen belirtin)

Kaçıncı kat?……

9. Şu anki odanızda ne kadar süredir yaşıyorsunuz? ……

10. Ne kadar süredir huzurevinde yaşıyorsunuz? …….

Appendix G: Turkish Psychological Well-Being Scale for the Older People (Demir , 2022) based on Ryff's PWS(1995).

Yaşlılarda psikolojik iyi oluş ölçeği (YPİOÖ) **NO……**

Aşağıda yaşamınızla ilgili ifadeler bulunmaktadır. Lütfen her bir maddeyi dikkatle okuyunuz ve bu ifadelere ne derece katıldığınızı aşağıdaki seçeneklerden birini (X) ile işaretleyerek belirtiniz. Doğru ya da yanlış cevap yoktur.

	Hiç	Çok az	Biraz	Büyük ölçüde	Tamamen
1. Yaşam sevinciyle doluyum.	1	2	3	4	5
2. Hayatımdan memnunum.	1	2	3	4	5
3. Genelde kendimi huzurlu hissediyorum.	1	2	3	4	5
4. Anlamlı bir hayat yaşıyorum.	1	2	3	4	5
5. Akranlarımın (yaşıtlarımın) çoğundan daha mutluyum.	1	2	3	4	5
6. Zihinsel olarak kendimi tamamen zinde (dinç) hissediyorum.	1	2	3	4	5
7. Sevinç ve kederlerimi paylaşabileceğim arkadaşlarım var.	1	2	3	4	5
8. Çoğu zaman kederli (üzgün) hissediyorum.	1	2	3	4	5
9. Olduğum kişi olmaktan memnunum.	1	2	3	4	5
10. Günlük yaşamımdaki sorumlulukların çoğunun üstesinden gelmekte oldukça başarılıyımdır.	1	2	3	4	5
11. Mutlu olmak için pek çok sebebim var.	1	2	3	4	5
12. İnsanlara faydalı birisiyim.	1	2	3	4	5
13. Günlerim çok sıkıcı geçiyor.	1	2	3	4	5
14. Hayatımda pek çok şey istediğim gibi gidiyor.	1	2	3	4	5
15. Diğer insanlar tarafından sevilen bir insanım.	1	2	3	4	5

Appendix H: The Katz independence in activities of daily living index (Turkish).

KATZ-ADL

Aktiviteler	**Bağımsız(1)**	**Bağımlı (0)**
Banyo Yapma	Kendi başına yıkanabiliyor veya vücudunun küçük bir parçasının yıkanması için yardım alıyor.	Kendi başına yıkanamıyor veya vücudunun büyük bir kısmının yıkanmasında başkasına ihtiyaç duyuyor.
Giyinme	Dolaptan kendi başına kıyafetlerini çıkarıp giyinebilir. (Ayakkabısını bağlarken yardım alabilir)	Giyinirken yardım alıyor veya tamamen başkası tarafından giydiriliyor.
Tuvalet yapma	Tuvalete gitme, tuvaletini yapma, temizlenme, üzerini tekrar giyme gibi aktiviteleri kendi başına yapabiliyor.	Tuvalete giderken yardım alıyor, tek başına temizlenme vb. etkinlikleri yapamıyor ya da lazımlık (sürgü) veya lazımlıklı iskemle kullanıyor.
Transfer	Yataktan kanepeye veya tersi etkinliği tek başına veya baston vb. cihaz ile yapabiliyor.	Yataktan sandalyeye geçerken kısmi Veya tam olarak bir başkasının yardımına ihtiyaç duyuyor.
Kontinans*	Defekasyon (Dışkılama) ve mesane üzerine tam kontrolü mevcut.	Kısmi veya tam mesane veya bağırsak inkontinansı mevcut.
Beslenme	Yemeği tabaktan ağzına kendisi götürebiliyor. (Yemeği başkası hazırlayabilir)	Bir başkası tarafından yediriliyor veya parenteral* beslenmeye muhtaç.

Appendix I: SDTH Questionnaire - Turkish

Destekleyici Tasarım ve Evgibilik unsurlarının huzurevi sakinleri tarafından algılanan varlığının ve huzurevi sakinleri için önem düzeyinin ölçülmesi

1- Odanızdaki aşağıdaki unsurler üzerinde ne ölçüde kontrolünüz var?					
	Hiç	Çok az	Biraz	Büyük ölçüde	Tamamen
a. Aydınlatma (örneğin, istediğiniz gibi açıp kapatma, ışıkları kısma veya aydınlatmak yeteneği, vb.)	⭕	⭕	⭕	⭕	⭕
b. Sıcaklık (örneğin, istediğiniz gibi daha soğuk veya daha sıcak hale getirme, açma veya kapatma, vb.)	⭕	⭕	⭕	⭕	⭕
c. Havalandırma (örneğin, pencerelerin açılıp kapatılması, klimanın açılıp kapatılması, sıcaklığının değiştirilmesi, vb.)	⭕	⭕	⭕	⭕	⭕
d. Odanın mahremiyeti (örneğin, istediğiniz zaman diğer insanlardan uzaklaşabilme, odanıza kimin girip çıkacağını kontrol edebilme, vb.)	⭕	⭕	⭕	⭕	⭕
e. Banyo mahremiyeti (örneğin, kendi banyonuz olması, oda arkadaşları, bakıcılar vb. tarafından rahatsız edilme endişesi olmadan banyoyu kullanırken kendinize zaman ayırma yeteneği, vb.)	⭕	⭕	⭕	⭕	⭕

2- Odanızdaki aşağıdaki özellikler üzerinde kontrol sahibi olmak sizin için ne derece önemlidir?					
	Hiç	Çok az	Biraz	Büyük ölçüde	Tamamen
a. Aydınlatma (örneğin, istediğiniz gibi açıp kapatma, ışıkları kısma veya aydınlatmak yeteneği, vb.)	⭕	⭕	⭕	⭕	⭕
b. Sıcaklık (örneğin, istediğiniz gibi daha soğuk veya daha sıcak hale getirme, açma veya kapatma, vb.)	⭕	⭕	⭕	⭕	⭕
c. Havalandırma (örneğin, pencerelerin açılıp kapatılması, klimanın açılıp kapatılması, sıcaklığının değiştirilmesi, vb.)	⭕	⭕	⭕	⭕	⭕
d. Odanın mahremiyeti (örneğin, istediğiniz zaman diğer insanlardan uzaklaşabilme, odanıza kimin girip çıkacağını kontrol edebilme, vb.)	⭕	⭕	⭕	⭕	⭕
e. Banyo mahremiyeti (örneğin, kendi banyonuz olması, oda arkadaşları, bakıcılar vb. tarafından rahatsız edilme endişesi olmadan banyoyu kullanırken kendinize zaman ayırma yeteneği, vb.)	⭕	⭕	⭕	⭕	⭕

	Hiç	Çok az	Biraz	Büyük ölçüde	Tamamen
3a- Odanızda cazip ve ilgi çeken niteliklere sahip misiniz? (örneğin, bakılacak güzel şeyler, odanızda dikkatinizi çeken ilginç şeyler, vb.)	⭕	⭕	⭕	⭕	⭕
3b- Odanızın cazip ve ilgi çekici niteliklere sahip olması sizin için ne derece önemlidir?	⭕	⭕	⭕	⭕	⭕
4a- Odanızda vakit geçirmeyi ve odada çevrenize bakmayı seviyor musunuz?	⭕	⭕	⭕	⭕	⭕
4b- Odanızda vakit geçirmek ve odada çevrenize bakmak sizin için ne derece önemlidir?	⭕	⭕	⭕	⭕	⭕
5a- Odanızda bir manzaraya erişiminiz varmı ? (örneğin, dış mekan, park, binalar, cadde vb. manzarası)	⭕	⭕	⭕	⭕	⭕
5b- Odanızda bir manzaraya erişiminizin olması sizin için ne derece önemlidir?	⭕	⭕	⭕	⭕	⭕
6a- Odanızda doğa veya doğal unsurlar bulunuyor mu? (örneğin, odadaki bitkiler ve çiçekler, doğal ahşap mobilyalar, vb.)	⭕	⭕	⭕	⭕	⭕
6b- Odanızda doğa veya doğal unsurların bulunması sizin için ne derece önemlidir?	⭕	⭕	⭕	⭕	⭕
7a- Huzurevinizde doğa veya doğal unsurlara bulunuyor mu? (örneğin, ortak alanlardaki bitkiler ve çiçekler, bahçedeki ağaçlar, bahçeler, çeşmeler, vb.)	⭕	⭕	⭕	⭕	⭕

7b- Huzurevinizde doğa veya doğal unsurların bulunması sizin için ne derece önemlidir?	⭕	⭕	⭕	⭕	⭕
8a- Diğer huzurevi sakinleriyle ilişkiniz varmı?	⭕	⭕	⭕	⭕	⭕
8b- Diğer huzurevi sakinleriyle ilişki içinde olmak sizin için ne derece önemlidir?	⭕	⭕	⭕	⭕	⭕
9a- Odanız diğer huzurevi sakinleri ile, ailenizle ve arkadaşlarınızla görüşmeniz ve zaman geçirmeniz için fırsat sağlıyormu? (örneğin, odanın ziyaretçiler için rahat bir oturma yeri veya alanı var, vb.)	⭕	⭕	⭕	⭕	⭕
9b- Oda koşullarınızın diğer huzurevi sakinlerle, ailenizle ve arkadaşlarınızla görüşmeniz ve zaman geçirmeniz için uygun olması sizin için ne derece önemlidir?	⭕	⭕	⭕	⭕	⭕
10a- Huzureviniz diğer sakinlerle, ailenizle ve arkadaşlarınızla görüşmeniz ve zaman geçirmeniz için fırsat sağlıyormu? (örneğin, rahat oturma yerleri, ziyaretçilerin sizinle vakit geçirebileceği alanlar, aileniz ve arkadaşlarınızla vakit geçirmek için seçebileceğiniz farklı alanların olması, vb.)	⭕	⭕	⭕	⭕	⭕
10b- Huzurevinde diğer sakinlerle, ailenizle ve arkadaşlarınızla görüşmeniz ve zaman geçirmeniz için uygun	⭕	⭕	⭕	⭕	⭕

koşulların olması sizin için ne derece önemlidir?					
11a- Odanızı kendiniz dekore edebiliyor musunuz?	⭕	⭕	⭕	⭕	⭕
11b- Odanızı kendiniz dekore edebilme yeteneğine sahip olmanız sizin için ne derece önemlidir?	⭕	⭕	⭕	⭕	⭕
12a- Odanızda hatıra eşyası varmı? (örneğin, seyahatlerinizden hatıra eşyalar, heykeller, resimler, size güzel anıları hatırlatan nesneler, vb.)	⭕	⭕	⭕	⭕	⭕
12b- Odanızda hatıra eşyası bulundurmanız sizin için ne derece önemlidir?	⭕	⭕	⭕	⭕	⭕
13a- Odanızda kişisel eşyalarınız varmı? (örneğin, huzurevine yerleşmeden önce sahip olduğunuz ve buraya getirdiğiniz kıyafetleriniz, mobilyalarınız, battaniyeniz vb. gibi şeyler)	⭕	⭕	⭕	⭕	⭕
13b- Odada kişisel eşyalarınızın bulunması sizin için ne derece önemlidir?	⭕	⭕	⭕	⭕	⭕
14a- Odanızda kendi ortamınızı yaratma fırsatına ne ölçüde sahipsiniz? (örneğin, odanıza kişisel dokunuşunuzu eklemek, mobilyaları veya yerlerini ve konumlarını değiştirmek, odanıza istediğiniz gibi eşya eklemek / çıkarmak, duvarlara sanat eserlerinizi asmak, vb.)	⭕	⭕	⭕	⭕	⭕

14b- Kendi ortamınızı yaratma fırsatlarına sahip olmanız sizin için ne derece önemlidir?	⭕	⭕	⭕	⭕	⭕
15a- Odanızda sergilenen sanat eserlerinden ne ölçüde memnunsunuz? (örneğin, resimler, doğa, yer, hayvan vb. resimleri, heykeller, el işleri gibi sanat objeleri) (Odanızda sanat eseri yoksa "Geçersiz" seçeneğini işaretleyin) ☐ Geçersiz	⭕	⭕	⭕	⭕	⭕
15b- Odanızda sanat eserlerinin sergilenmesi sizin için ne derece önemlidir?	⭕	⭕	⭕	⭕	⭕
16a- Odanız ihtiyaçlarınıza, becerilerinize ve yeteneklerinize uygun faaliyetlere ne ölçüde ortam sağlıyor? (örneğin, okuma, bulmaca, el işi, örgü, egzersiz, vb.) (Odanızda yapılacak herhangi bir aktivite yoksa "Geçersiz" seçeneğini işaretleyiniz) Burada yaptığınız başka faaliyetler varsa lütfen belirtin..... ☐ Geçersiz	⭕	⭕	⭕	⭕	⭕
16b- Odanızın ihtiyaçlarınıza, becerilerinize ve yeteneklerinize uygun faaliyetlere ortam sağlaması sizin için ne derece önemlidir?	⭕	⭕	⭕	⭕	⭕
17a- Huzurevinizin ortak alanlarındaki ihtiyaçlarınıza, becerilerinize ve yeteneklerinize uygun faaliyetlere ne ölçüde ortam sağlıyor? (örneğin, grup egzersizleri, geziler, toplantılar,	⭕	⭕	⭕	⭕	⭕

sanat ve el sanatları, kitap kulüpleri, vb.) (Huzurevinizde yapılacak herhangi bir aktivite yoksa "Geçersiz" seçeneğini işaretleyin.) Burada yaptığınız başka faaliyetler varsa lütfen belirtin..... ☐ Geçersiz					
17b- Huzurevinizin ihtiyaçlarınıza, becerilerinize ve yeteneklerinize uygun faaliyetlere ortam sağlaması sizin için ne derece önemlidir?	○	○	○	○	○
18a- Fiziksel ortamınız sunulan faaliyetlere erişiminizi ne derece mümkün kılıyor? (örneğin, engellerin varlığı, basamaklar, yön bulma)	○	○	○	○	○
18b- Faaliyetleri erişilebilir kılan fiziksel bir ortama sahip olmak sizin için ne derece önemlidir?	○	○	○	○	○
19a- Odanızın genel atmosferinden ne ölçüde memnunsunuz? (örneğin dekor, renkler, mobilyalar, aydınlatma ve nesneler tarafından sağlanan sıcaklık, rahatlık, konfor ve rahatlama hissi)	○	○	○	○	○
19b- Odanızın genel atmosferi sizin için ne derece önemlidir?	○	○	○	○	○
20a- Odanızın mobilyaların mekânsal düzeninden ne ölçüde memnunsunuz?	○	○	○	○	○
20b- Odanızın mobilyaların mekânsal düzeni sizin için ne derece önemlidir?	○	○	○	○	○

21a- Odanızın boyutundan (genişliği) ne ölçüde memnunsunuz?	⭕	⭕	⭕	⭕	⭕
21b- Odanızın boyutu (genişliği) sizin için ne derece önemlidir?	⭕	⭕	⭕	⭕	⭕
22a- Huzurevinizin ölçeğinden ne ölçüde memnunsunuz? (örneğin, huzurevindeki oda ve sakin sayısı)	⭕	⭕	⭕	⭕	⭕
22b- Küçük ölçekli bir huzurevinde yaşamak sizin için ne derece önemlidir?	⭕	⭕	⭕	⭕	⭕
23a- Huzurevinizde sergilenen sanat eserlerinden ne ölçüde memnunsunuz? (örneğin, resimler, doğa, yer, hayvan vb. resimleri, heykeller, el işleri gibi sanat objeleri) (Huzurevinizde sanat eseri yoksa "Geçersiz" seçeneğini işaretleyin) ☐ Geçersiz	⭕	⭕	⭕	⭕	⭕
23b- Huzurevinde sanat eserlerinin sergilenmesi sizin için ne derece önemlidir?	⭕	⭕	⭕	⭕	⭕
24a- Huzurevinizdeki iç alan sembollerin ve levhaların açıklığı ve tutarlılığından ne ölçüde memnunsunuz? (yani, bu sembollerin ve levhaların odanızı, ortak alanları, giriş ve çıkışları bulmanıza ne ölçüde yardımcı olduğu; huzurevinde gezinirken sizi ne ölçüde doğru bir şekilde yönlendirdikleri)	⭕	⭕	⭕	⭕	⭕
24b- Huzurevinizde açık ve tutarlı iç alan sembollerin ve	⭕	⭕	⭕	⭕	⭕

levhaların olması sizin için ne derece önemlidir?					
25a- Huzureviniz ne ölçüde kurumsal bir ortama sahip? (yani, ne derece bir hastane veya sağlık hizmeti ortamı gibi konut dışı bir ortam gibi görünüyor ve hissediliyor)	⭕	⭕	⭕	⭕	⭕
25b- Ev gibi bir ortama sahip olmak sizin için ne derece önemlidir?	⭕	⭕	⭕	⭕	⭕

Appendix J: SDTH Questionnaire - English

Measuring the perceived Supportive Design and Homelikeness elements by nursing home residents and the level of importance of these elements for them.

1- To what extent do you have control over the following items in your room?					
	Not at all	Little	Somewhat	To a large extent	Completely
a. Lighting (e.g., turning it on and off as you wish, the ability to dim or brighten the lights, etc.)	⭕	⭕	⭕	⭕	⭕
b. Temperature (e.g., making it cooler or warmer as you wish, turning it on or off, etc.)	⭕	⭕	⭕	⭕	⭕
c. Ventilation (e.g., opening and closing the windows, turning the air conditioner on and off, changing its temperature, etc.)	⭕	⭕	⭕	⭕	⭕
d. Privacy of the room (e.g., the ability to withdraw from the public whenever you want, the ability to control who comes and goes into your room, etc.)	⭕	⭕	⭕	⭕	⭕
e. Privacy of the bathroom (e.g., having your own bathroom, ability to take your time while using the bathroom without worrying about interruption by roommates, caregivers, etc.)	⭕	⭕	⭕	⭕	⭕

2- To what extent having control over the following items in your room is important to you?					
	Not at all	Little	Somewhat	To a large extent	Completely
a. Lighting (e.g., turning it on and off as you wish, the ability to dim or brighten the lights, etc.)	⭕	⭕	⭕	⭕	⭕
b. Temperature (e.g., making it cooler or warmer as you wish, turning it on or off, etc.)	⭕	⭕	⭕	⭕	⭕
c. Ventilation (e.g., opening and closing the windows, turning the air conditioner on and off, changing its temperature, etc.)	⭕	⭕	⭕	⭕	⭕
d. Privacy of the room (e.g., the ability to withdraw from the public whenever you want, the ability to control who comes and goes into your room, etc.)	⭕	⭕	⭕	⭕	⭕
e. Privacy of the bathroom (e.g., having your own bathroom, ability to take your time while using the bathroom without worrying about interruption by roommates, caregivers, etc.)	⭕	⭕	⭕	⭕	⭕

	Not at all	Little	Somewhat	To a large extent	Completely
3a. Does your room have fascinating qualities? (e.g., beautiful things to look at,	⭕	⭕	⭕	⭕	⭕

interesting things in your room that draw your attention, etc.)					
3b. How important is it for you to have fascinating qualities in your room?	⭕	⭕	⭕	⭕	⭕
4a. Do you like to spend time in your room and look at the surroundings?	⭕	⭕	⭕	⭕	⭕
4b. How important is it for you to spend time in your room and look at the surroundings?	⭕	⭕	⭕	⭕	⭕
5a. Do you have access to a view in your room? (e.g., view of outside, a park, buildings, street, people, etc.)	⭕	⭕	⭕	⭕	⭕
5b. How important is it for you to have access to a view in your room?	⭕	⭕	⭕	⭕	⭕
6a. Do you have access to nature or natural elements in your room? (e.g., plants and flowers in the room, natural wood furniture, etc.)	⭕	⭕	⭕	⭕	⭕
6b. How important is it for you to have access to nature or natural elements in your room?	⭕	⭕	⭕	⭕	⭕
7a. Do you have access to nature or natural elements in your nursing home? (e.g., plants and flowers in common spaces, trees in the yard, gardens, fountains, etc.)	⭕	⭕	⭕	⭕	⭕
7b. How important is it for you to have access to nature or natural elements in your nursing home?	⭕	⭕	⭕	⭕	⭕
8a. Do you have a relationship	⭕	⭕	⭕	⭕	⭕

with fellow residents?					
8b. How important is it for you to have a relationship with fellow residents?	⭕	⭕	⭕	⭕	⭕
9a. Does your <u>room</u> provide space and conditions for you to spend time with fellow residents, family, and friends? (e.g., the room has comfortable seating or space for visitors, welcoming visitors as it is at home, etc.)	⭕	⭕	⭕	⭕	⭕
9b. How important is it that your room provides space and conditions for you to spend time with fellow residents, family, and friends?	⭕	⭕	⭕	⭕	⭕
10a. Does your <u>nursing home</u> provide space and conditions for you to spend time with fellow residents, family, and friends? (e.g., there is comfortable seating, areas for visitors to spend time with you, having different spaces to choose from to spend time with family and friends, welcoming visitors as it is at home, etc.)	⭕	⭕	⭕	⭕	⭕
10b. How important is it that your nursing home provides space and conditions for you to spend time with fellow residents, family, and friends?	⭕	⭕	⭕	⭕	⭕
11a. Do you decorate your <u>room</u>?	⭕	⭕	⭕	⭕	⭕
11b. How important is it for you to decorate your room?	⭕	⭕	⭕	⭕	⭕
12a. Do you have memorabilia	⭕	⭕	⭕	⭕	⭕

in your room? (e.g., souvenirs from your travels, statues, pictures, objects that remind you of good memories, etc.)					
12b. How important is it for you to have memorabilia in your room?	⭕	⭕	⭕	⭕	⭕
13a. Do you have personal belongings in your room? (e.g., things you had before coming to the nursing home and you brought with you here, such as your clothes, furniture, blanket, etc.)	⭕	⭕	⭕	⭕	⭕
13b. How important is it for you to have personal belongings in your room?	⭕	⭕	⭕	⭕	⭕
14a. Do you have the opportunity to create your own environment in your room? (e.g., adding your personal touch to your room, changing the furniture or their places and positions, adding/removing items to/from your room as you please, hanging your artwork on the walls, etc.)	⭕	⭕	⭕	⭕	⭕
14b. How important is it for you to have the opportunity to create your own environment in your room?	⭕	⭕	⭕	⭕	⭕
15a. Do you have artwork in your room? (e.g., paintings, pictures of nature, places, animals, etc., art objects such as statues, crafts.) (If there is no artwork in your room, choose "not applicable.") ☐ Not applicable	⭕	⭕	⭕	⭕	⭕
15b. How important is it for	⭕	⭕	⭕	⭕	⭕

you to have artwork in your room?					
16a. Does your room provide an environment for activities appropriate for your needs, skills, and abilities? (e.g., reading, puzzles, crafts, knitting, exercise, etc.) (If there are no opportunities to do activities in your room, choose "not applicable.") Please mention if there are other activities that you do here…….. ☐ Not applicable	⭕	⭕	⭕	⭕	⭕
16b. How important is it that your room provides an environment for activities appropriate for your needs, skills, and abilities?	⭕	⭕	⭕	⭕	⭕
17a. Does your nursing home's common spaces provide an environment for activities appropriate for your needs, skills, and abilities? (e.g., group exercises, trips, gatherings, arts and crafts, book clubs, etc.) (If there are no opportunities to do activities in your nursing home, choose "not applicable.") Please mention if there are other activities that you do here…….. ☐ Not applicable	⭕	⭕	⭕	⭕	⭕
17b. How important is it that your nursing home provides an environment for activities appropriate for your needs, skills, and abilities?	⭕	⭕	⭕	⭕	⭕
18a. Does your physical environment make activities	⭕	⭕	⭕	⭕	⭕

accessible? (e.g., the existence of barriers, steps, wayfinding)					
18b. How important is it for you to have a physical environment that makes activities accessible?	⭕	⭕	⭕	⭕	⭕
19a. To what extent are you satisfied with your room's general atmosphere? (e.g., the warmth, comfort, and sense of relaxation provided by decor, colors, furniture, lighting, objects, and the overall atmosphere)	⭕	⭕	⭕	⭕	⭕
19b. How important is the general atmosphere of your room for you?	⭕	⭕	⭕	⭕	⭕
20a. To what extent are you satisfied with your room's spatial layout and furniture?	⭕	⭕	⭕	⭕	⭕
20b. How important is your room's spatial layout and furniture for you?	⭕	⭕	⭕	⭕	⭕
21a. To what extent are you satisfied with the size of your room?	⭕	⭕	⭕	⭕	⭕
21b. How important is your room size for you?	⭕	⭕	⭕	⭕	⭕
22a. To what extent are you satisfied with the scale of your nursing home? (i.e., number of rooms and residents in the nursing home)	⭕	⭕	⭕	⭕	⭕
22b. How important is it for you to live in a small-scale nursing home?	⭕	⭕	⭕	⭕	⭕
23a. Do you have artwork in your nursing home? (e.g.,	⭕	⭕	⭕	⭕	⭕

paintings, pictures of nature, places, animals, etc., art objects such as statues, crafts.) (If there is no artwork in your nursing home, choose "not applicable.") ☐ Not applicable					
23b. How important is it for you to have art work in your nursing home?	○	○	○	○	○
24a. Do you find it easy to navigate and understand different areas of the nursing home, like finding your room, the public areas, entrances and exits, etc.?	○	○	○	○	○
24b. How important is it for you to have clear and consistent indoor signs and symbols?	○	○	○	○	○
25a. Does your nursing home look and feel like an institutional environment? (i.e., look and feel like a non-residential environment such as a hospital or a healthcare environment)	○	○	○	○	○
25b. How important is it for you to have a homelike environment?	○	○	○	○	○