



An Assessment of Elderly Bedrooms in Nursing Homes, in Terms of Human Wellbeing and Sustainability: An Example Case from Brussels

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Abstract

The built environment influences the well-being of elderly people in nursing homes. In order to make sustainable designs for the effective use of the physical environment, we can take lessons from existing nursing home buildings, taking into account the physical activity and social life quality of the elderly. For that reason, a case study was made to examine current nursing home spaces. In the methodology part, an extensive analysis of the bedroom spaces of the nursing home in Brussels, where Senior Assist Nursing Homes is located, is analyzed. They are discussed by their spatial features such as spatial organization, sustainable and correct use of furnitures, materials and equipments, etc. according to the regulations. As a result of the analyzes, an evaluation table was created. The evaluation table includes the spatial standards of bedroom spaces of nursing homes in Brussels. According to these criterias, the case is examined and evaluated by their adequacies with the regulation and elderly needs. Also the methodology includes the use of photos of bedroom spaces taken from the personal of institution of chosen nursing home. In the research process of the nursing homes which are spatially arranged within the framework of the regulations, and standards will be discussed and evaluated within the scope of human well-being and sustainability especially elderly. Accordingly, considering the application of standards in elderly nursing homes, there will be an evaluation of how much of these standards are applied in reality and are they suitable and enough for elderly needs through example. Meeting the minimum standards that are determined according to the regulations and which must be applied is a quite important issue on human well-being.

Keywords: Interior Architecture Design, Nursing homes, Physical Environment Control, Sustainability, Spatial standards.

Huzur Evlerindeki Yaşlı Yatak Odalarının İnsan Sağlığı Ve Sürdürülebilirlik Açısından Değerlendirilmesi: Brüksel'den Örnek Bir Durum

Öz

Fiziksel çevre koşulları, huzurevlerindeki yaşlıların yaşam koşullarını etkilemektedir. Fiziksel çevrenin etkin kullanımına yönelik sürdürülebilir tasarımlar yapabilmek için, yaşlıların fiziksel aktivite ve sosyal yaşam kalitesi göz önünde bulundurularak, mevcut huzurevi binalarından öğretiler çıkarabiliriz. Bu nedenle, mevcut huzurevi alanlarını incelemek için bir vaka çalışması yapılmıştır. Metodoloji bölümünde, Senior Assist Huzurevleri'nin bulunduğu Brüksel'deki huzurevinin yatak odası alanlarının geniş bir analizi incelenmiştir. Bu alanlar, yönetmeliklere göre mekansal organizasyon, sürdürülebilir ve doğru mobilya seçimi, malzeme ve ekipman kullanımı gibi mekansal özellikleri ile tartışılmıştır. Analizler sonucunda bir değerlendirme tablosu oluşturulmuştur. Değerlendirme tablosu Brüksel'deki huzurevlerinin yatak odası alanlarının mekansal standartlarını içermektedir. Bu kriterlere göre örnek mekan, yönetmelik ve yaşlı ihtiyaçları çerçevesinde yeterliliklerine göre incelenmiş ve değerlendirilmiştir. Ayrıca metodolojide, seçilen huzurevi kurumunun yatak odası alanları fotoğraflarının kullanımını içermektedir. Yönetmelikler çerçevesinde mekansal olarak düzenlenen huzurevlerinin araştırma süreci, başta yaşlılar olmak üzere insan sağlığı ve sürdürülebilirlik kapsamında ele alınacak ve değerlendirilecektir. Buna göre, standartların yaşlı bakımevlerinde uygulanması dikkate alındığında, bu standartların gerçekte ne

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kadar uygulandığı ve yaşlı ihtiyaçlarına uygun ve yeterli olup olmadığı örnekler üzerinden değerlendirilecektir. Yönetmeliklere göre belirlenen ve uygulanması gereken asgari standartların karşılanması insan sağlığı açısından oldukça önemli bir konudur.

Anahtar Kelimeler: İç Mimari Tasarım, Huzur evleri, Fiziksel Çevre Kontrolü, Sürdürülebilirlik, Mekansal standartlar.

1. Introduction

Today, aging and elderly places have become an important field of study. The elderly population is increasing rapidly and the need for institutions that may be an alternative to classical institutional nursing homes has increased due to this increase in the aging population. In the 21st century, one of the most important problems that came to the forefront for all countries of the world was aging. Today, as people live longer and birth rates decrease, the elderly population rate increases numerically and proportionally and our world gradually enters demographic aging process.

The built environment influences the well-being of elderly people in nursing homes. In order to design for enablement, physical activity, and social connectivity there are lessons to be learnt from current nursing home buildings (McIntyre and Harrison, 2017).

Studies related to nursing homes have been carried out in the fields of psychology, home economy, social services, elderly care, elderly health. Although there are many studies on the effects of spatial features on people, nursing homes are out of this subject. Based on this situation, it was aimed to conduct a study and support the study with an example whether the nursing home in Brussels are sufficient in terms of spatial qualities depending on the social, psychological and biological needs of the elderly. Accordingly, considering the application of standards in elderly nursing homes, there will be an evaluation of how much of these standards are applied in reality and are they suitable, sustainable and enough for elderly needs through example.

In the methodology part, there is a broad analysis of the example of nursing home bedroom spaces from Brussels where is Senior Assist Nursing Homes. They are discussed by their spatial features such as spatial organization, sustainable and correct use of furnitures, materials and equipments, etc. according to the regulations. As a result of the analyzes, an evaluation table was created. The evaluation table includes the spatial standards of bedroom spaces of nursing homes in Brussels. According to these criterias, the case is examined and evaluated by their adequacies with the regulation and elderly needs. Also the methodology includes the use of photos of bedroom spaces taken from the personal of institution of chosen nursing home.

In the research process of the nursing homes which are spatially arranged within the framework of the regulations, and standards will be discussed and evaluated within the scope of human well-being especially elderly.

2. Material and Method

2.1. Elderly Needs Within the Scope of Well-Being

In the 21st century, one of the most important problems that came to the forefront for all countries of the world was

aging. Today, as people live longer and birth rates decrease, the elderly population rate increases numerically and proportionally and our world gradually enters the demographic aging process. The World Health Organization (WHO) has dealt with aging chronologically and according to its classification;

- Adolescent 0-18 years old
- Young 18-65 years old
- Young-elderly 65-74 years old
- Elderly 74-84 years old
- Very elderly 85 years and older

The explosion in the elderly population, which emerged without the necessary social support systems, continues with an increase of 3% per year. According to UN research, in the next 30 years, the number of elderly people over the age of 65 will more than double the world over. It is estimated that the number of people aged 65 and over, which was 1 billion in 2019, will increase by 34 percent to 1.4 billion in 2030, reach 1.5 billion in 2050 and 3.1 billion in 2100. (WHO, 2020).

As a result of these datas, well-being of the elderly population comes forward as an important issue on all over the world. According to the report of the United Nations' "Economic Performance and Social Progress Measurement Commission" (Stiglitz-Sen-Fitoussi Report) in 2010, it was determined that there are eight main criteria that should be taken into account simultaneously when defining human welfare;

- 1) Material living standards (income, consumption and wealth);
- 2) Health;
- 3) Education;
- 4) Personal activities including work;
- 5) Political voice and governance;
- 6) Social connections and relationships;
- 7) Environment (present and future conditions);
- 8) Insecurity, of an economic as well as physical nature.

Furthermore, the Report posits that the sustainability of well-being factors measured is an integral factor in terms of their worth. Beyond these founding assumptions, the Report recognizes that both objective and subjective factors are important in the measurement of the eight dimensions of human well-being listed above (Wikiprogress, 2020).

This study focuses on seventh dimension which is environment. In this study, suitability of built environments' designs for elderly use is discussed. In this context, understanding of elderly needs in terms of physical conditions, space organization and design of built environments is quite important.

According to Kalinkara, when the places where elderly people will live are designed by considering their functional competencies, it is possible to carry out their daily activities without being tied to anyone or with a light support. There are design principles that should be applied in order for elderly users

to move freely on their own and to maintain their daily lives independently and safely. These;

- Physical Environment Factors (visual, auditory and thermal comfort)
- Space Organization (relationship between spaces, organization in one space)
- Equipment Design (user-equipment compatibility, function-equipment compatibility) (Konuk and Kaya, 2018).

It is important that the living spaces to be designed have an ergonomic structure in order to ensure that older individuals do not lag behind the independent life they are accustomed to. Ergonomics aims at designing everything that is open to human use and interaction as human-oriented, improving the person's life performance, ensuring the safety and happiness of the user, ensuring the health conditions at the best levels.

According to the scientific studies, as spatial requirements of nursing homes we can said that they should have correct spatial organization, correctly constructing the relationship between spaces, suitable use of equipment needed, appropriate visual, auditory, thermal comfort conditions, choosing the right materials, accurate sizing of architectural elements like windows, doors, etc. and circulation areas. All countries have set some standards to be implemented in organizations such as nursing homes, in line with their regulations. The standards in Brussels according to the "Regulation of Nursing Homes and Elderly Care and Rehabilitation Centers", the standards of the bedroom space are expressed in the evaluation chart in findings chapter.

In the case study part, application of these standards in Brussels is discussed detailed with the examples chosen from Brussels within the scope of human well-being and sustainability in terms of suitable design of nursing home bedroom spaces (Presidential Legislation Information System, 2020).

2.2. Case study: Brussels Nursing Home Example

In the methodology part, there is a broad analysis of the example of nursing home bedroom spaces from Brussels where is Senior Assist Nursing Homes. They are discussed by their spatial features such as spatial organization, correct use of furnitures, materials and equipments, etc. according to the regulations. As a result of the analyzes, an evaluation table was created. The evaluation table includes the spatial standards of bedroom spaces of nursing homes in Brussels. According to these criterias, the case is examined and evaluated by their adequacies with the regulation and elderly needs. Also the methodology includes the use of photos of bedroom spaces taken from the personal of institution of chosen nursing home. For Brussels case study, a single bedroom space of Senior Assist Nursing Home is choosed where is in Londerzeel, Brussels (Fig-1).



Figure 1. Senior Assist Londerzeel Nursing Home Master Plan

The bedroom plan consists of a total of 21,53 m², 17,05 m² of sleeping area and 4,48 m² of wet space arranged for single use. The room has a bed, wardrobe, sitting element, table and chair suitable for single use. It is observed that suitable arrangements have been made in the space for wheelchair users. Accordingly, there are holding bars for elderly users and the shower area is suitable for wheelchair access. Circulation in wet volume is also suitable for such users. The panel which the sink is connected is movable. In this way, it is ensured that the user meets his/her needs more easily. Door openings are also suitable in this respect. The wide window opening also makes it possible to utilize daylight as much as possible (Fig-2).

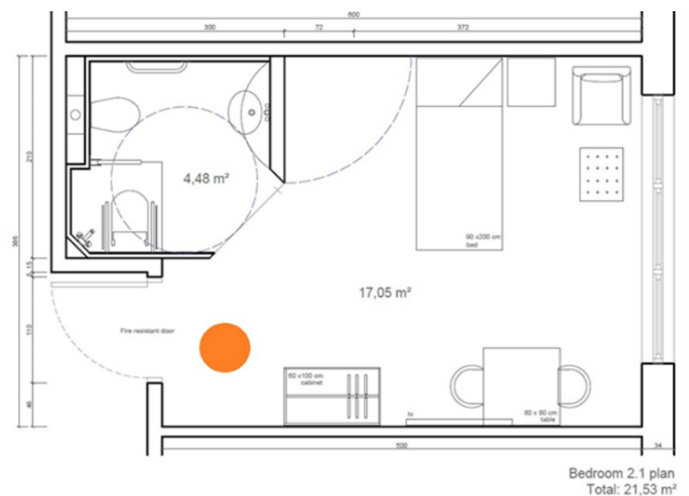


Figure 2. Senior Assist Londerzeel Nursing Home Single Bedroom Plan

The colors preferred in the room are quite plain and relaxing. In this way, the user will be able to customize his/her room. There are emergency call button and holding bar next to the bed. The use of bed is suitable for such institutions (Fig-3). There are enough holding bars in the toilet and shower areas. The emergency call button is also available in this area. Also there is ventilation system in the bathroom. The height of the sink and the use of the mirror are correct for the disabled user (Fig-4).

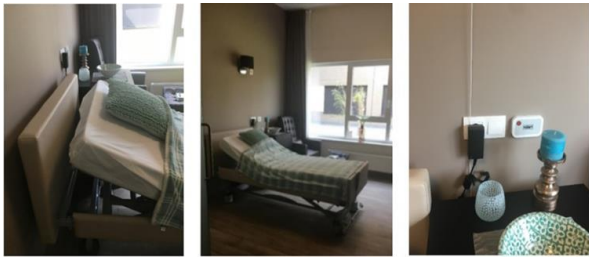


Figure 3. Senior Assist Londerzeel Nursing Home Single Bedroom Photos



Figure 4. Senior Assist Londerzeel Nursing Home Wet Area Photos

3. Results and Discussion

The standards in Brussels according to the “Belgian Nursing Homes Framework Regulation (2006)”, the standards of the bedroom space are expressed in the evaluation chart in table 1 and conformity of the sample to the standards was measured. According to the Belgian Nursing Homes Framework Regulation (2006); minimum standards regarding the structure and equipment of the spaces are specified and accordingly, the standards for the bedroom space are specified below; (Table 1).

Table 1. The Evaluation Chart of Nursing Home

The standards for the bedroom space of nursing homes in Belgium	available	unavailable
Rooms should be spacious enough for people to use and should be equipped with maximum comfort.	x	
The maximum number of beds allowed in the rooms is 2.	x	
Single room surface area cannot be smaller than 8 m ² , double room surface area cannot be smaller than 12 m ² .	x	
Adequate privacy should be provided in double rooms.	No double rooms	
The rooms should conform to the normative designated surface area, but appropriate width should be provided for the residents in need of care.	x	
The rooms should have wardrobes,	x	

tables and chairs, armchairs and TV units.		
There should be alarm system at bedside and bathroom areas where necessary.	x	
Room spaces should be adequately equipped with the necessary equipment for wheelchair users.	x	
It is essential that the floor material used in the interior is hygienic.	x	
The rooms should have a wet space including elderly toilet, shower tray and equipment.	x	
Bathrooms must be equipped for wheelchair users.	x	
There should be sinks that provide hot and cold water in the bathroom.	x	
There should be ventilation system in toilet and bathroom areas.	x	

The room has a bed, wardrobe, sitting element, table and chair suitable for single use. It is observed that suitable arrangements have been made in the space for wheelchair users. Accordingly, there are holding bars for elderly users and the shower area is suitable for wheelchair access. Door openings are also suitable in this respect. Circulation in wet volume is also suitable for such users. The panel which the sink is connected is movable. In this way, it is ensured that the user meets his/her needs more easily (Fig-5).

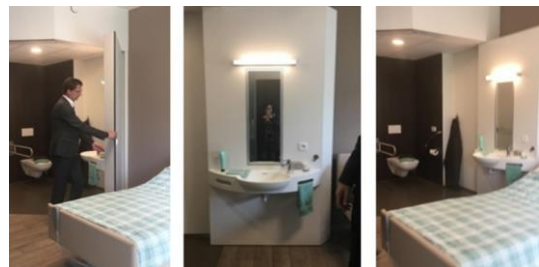


Figure 5. Senior Assist Londerzeel Nursing Home Wet Area Photos

The wide window opening also makes the room possible to utilize daylight as much as possible. The colors preferred in the room are quite plain and relaxing. In this way, the user will be able to customize his/her room. There are emergency call button and holding bar next to the bed. The use of bed is suitable for such institutions. For the sustainable design, all the bathrooms have ventilation system and there are enough holding bars in the toilet and shower areas. The emergency call button is also available in this area. The height of the sink and the use of the mirror are correct for the disabled user (Fig-6).



Figure 6. Senior Assist Nursing Home Bedroom Inside Photos

4. Conclusions and Recommendations

One of the most important points to consider when designing a space is to provide appropriate physical environmental conditions for those who use the space. If the factors in the physical environment, the organization and design of the space and equipment are not arranged correctly, the space causes discomfort in the comfort of the users as well as damages and losses that may cause their health. For the use and user of the space; People living in spaces designed by paying attention to criteria such as visual, auditory and thermal comfort, relationship between spaces, ergonomics, indoor air quality, noise annoyance, etc., lead their lives happier and more comfortably.

The concept and conditions of nursing homes and elderly care centers have shown great developments from past to present. According to this, in the places where the elderly live in crowded ways, today, places that give importance to the individual needs of the elderly. The bedrooms have also improved a lot during this process. Recently, the understanding of the elderly to be cared for in his/her own home environment and comfort has become widespread. Meeting the minimum standards that are determined according to the regulations and which must be applied is a quite important issue on human well-being and sustainability. It is obvious that, the research and rehabilitation center for elderly and disabled people expected to be formed in the light of the regulations should be programmed and checked in a comprehensive way for the buildings to be built in this area.

References

- Berkin, G., Özcan, U., (2017), "Oturmanın Ergonomisi", Yapı Dergisi (ISSN: 1300-3437, DAAI-Design and Applied Arts Index), Sayı: 426, s:140.
- Hedge A.L., Rhodes R. (2010). "Assessment of lighting in independent living facilities and residents' perceptions", Journal of Applied Gerontology, 29(3)
- Huls, M., de Rooij, S.E., Diepstraten, A., Koopmans, R., Helmich, E. (2015)." Learning to care for older patients: hospitals and nursing homes as learning environments". Med. Educ. 49 (3), 332–339.
- Kayacan, T., Özel, Y., Kayacan, B., "Kente Kazandırılan Yeni Yaşam Alanları" European Journal of Science and Technology, sayı:6, Ağustos 2019, ss. 679-687, ISSN NO: 2148-2683
- Konuk, M., Kaya A. Huzurevleri ve Tasarım Ölçütlerinin İrdelenmesi: Bolu ve Düzce Örnekleri. Tykhe Journal of Art and Design. Vol. 3/5 (2018), pp. 271-294.

Loe, M., Moore, C.D. (2012). "From nursing home to green house: changing contexts of elder care in the United States". Journal of Applied Gerontology. 31 (6), 755–763.

Lök, N. & Akın, B. (2013, Şubat). Domestic environmental risk factors associated with falling in elderly. Iranian Journal of Public Health, 42(2):120-128.

Malmberg, B., Zarit, S.H., (1993). "Group homes for people with dementia: a Swedish example". Gerontologist 33 (5), 682–686.

McIntyre, L., Harrison, I. The effects of built environment design on opportunities for wellbeing in care homes. International Journal of Architectural Research. Vol. 11/1 (2017), pp.138-156.

Nakanishi, M., Nakashima, T., Sawamura, K. (2012), "Quality of life of residents with dementia in a group-living situation: an approach to creating small, homelike environments in traditional nursing homes in Japan". Nihon Koshu Eisei Zasshi, 59 (1), 3–10.

Özcan, U., Erol, İ., (2018), Organik Mimarlık, Dicle Üniversitesi I Uluslararası Mimarlık Sempozyumu, 4-6 Ekim, Diyarbakır, Türkiye.

Özcan, U., (2019), "Yapıda HVAC Sistem Seçimi", Süleyman Demirel Üniversitesi Fen Bilimleri Enstitüsü Dergisi (e-ISSN: 1308-6529, ULAKBİM TR Dizin, EBSCO Discovery Service) ,23 (1), s: 212.

Özcan, U., Cestel, T., (2020), "Reggio Emilia Sistemi ve Mekânsal Kurguya Etkisi", Yapı Dergisi (ISSN: 1300-3437, DAAI-Design and Applied Arts Index), Sayı: 459, s:46.

Özcan, U., Erol, İ., (2018), A Sustainable Material / Polli Brick, 2nd International Symposium on Multidisciplinary Studies and Innovative Technologies, 19-21 October, Ankara, Turkey.

Özcan, U., Erol, İ., (2018), Mimari Tasarımda Endüstriyel Ahşap Yapı Elemanları, II. International Symposium On Multidisciplinary Academic Studies, 16-17 November, Istanbul / Turkey.

Özel, Y. Kayacan, B. "Seri, Bant Üretim Mobilya Tasarım-Üretim Sürecine Etkisi Ve Modüler Mobilya", European Journal of Science and Technology, Yıl 2020, Cilt, Sayı 19, Sayfalar 623- 632

Özel Y., Kayacan B., Irmak Y. "Geçmişten Günümüze Montajı Kullanıcı Tarafından Yapılan Mobilyaların Sektördeki Yeri" İstanbul Ticaret Üniversitesi Fen Bilimleri Dergisi, 15(30)2016, s153.

Özel, Y., Ürük, Z. F. "Use of Plastic Materials in Furniture Design and Production", International Journal of International Journal of Advanced Research and Review, Yıl:4, sayı:1, Ocak 2019, ss. 1-13, ISSN NO: 2455-7277

Peters Roderick, Nursing Homes Visit, roderick.peters@acalis.com (12.04.2017), zfuruk@gelisim.edu.tr (17.04.2017).

Presidential Legislation Information System, Regulation of Nursing Homes and Elderly Care and Rehabilitation Centers. <https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=4414&MevzuatUr=7&MevzuatTertip=5> (08/05/2020).

Türkiye Cumhuriyeti Aile ve Sosyal Politikalar Bakanlığı, Sosyal İçerme Politikaları Alanında Kurumsal Kapasitenin Artırılması Projesi, Demans Bakım Modeli Raporu, Ankara, 2017

Türkiye Cumhuriyeti Aile ve Sosyal Politikalar Bakanlığı, Engelli ve Yaşlı Hizmetleri Genel Müdürlüğü, Türkiye'de Yaşlıların Durumu ve Yaşlanma Ulusal Eylem Planı Uygulama Programı, Ankara, 2013

WHO, 10 Facts on Ageing and Health. <https://www.who.int/features/factfiles/ageing/en/> (17/06/2020).

Wikiprogress, Human Well-Being. http://wikiprogress.org/articles/jobs-and-work/human-well-being/#cite_note-Sen-6 (17/06/2020)