EVALUATION OF INTERIOR DESIGN CRITERIA IN HEMODIALYSIS TREATMENT AREAS FROM THE PERSPECTIVE OF INTERIOR ARCHITECTURE AND DIALYSIS PRACTICES

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Abstract. Hemodialysis treatment is a long-term, repetitive healthcare service in which patients spend time in the treatment area several times a week for approximately four hours per session. Consequently, the physical characteristics of the treatment area are significant not only for the safe and functional execution of clinical processes but also regarding the patients' prolonged experience of the space and the working conditions of the staff. National regulations and design standards for healthcare facilities establish various requirements concerning spatial needs, circulation, patient stations, supervision, privacy, technical infrastructure, infection control, and support spaces. However, there is a need to holistically evaluate-alongside clinical requirements-interior design components that influence the user experience, such as color, material and texture, natural and artificial lighting, acoustic and visual comfort, universal design, personal space, and psychological comfort.

The aim of this study is to evaluate the interior design of hemodialysis treatment areas through the relationship between clinical requirements and user experience, and to develop supplementary criteria and recommendations for the user-oriented design of these areas. The research is limited to the hemodialysis treatment area, where patients spend a significant portion of their treatment time and where clinical observation and treatment procedures take place. The study was conducted using a comparative document analysis method within a qualitative research framework. National legislation, Health Quality Standards (SKS-Dialysis), design guidelines for healthcare facilities, international dialysis unit guidelines, and scientific literature were examined; the data obtained were evaluated under the headings of spatial organization and ergonomics, universal design and accessibility, privacy and personal space, color-material-texture, lighting and daylight, acoustic and visual comfort, and psychological comfort and the healing environment. Requirements regarding clinical safety, infection control, patient monitoring, and

emergency response were treated as fundamental constraints in the evaluation of the interior design decisions in question.

The study focused on developing a framework of criteria and recommendations for the user-oriented interior design of hemodialysis treatment areas, designed to complement the minimum physical and functional requirements defined in existing regulations. Thus, an interdisciplinary approach was presented that addresses patient experience and staff needs alongside clinical conditions, potentially contributing to evidence-based interior design in healthcare facilities.

Keywords: Hemodialysis treatment area, interior design, healthcare facilities, patient safety, ergonomics.

1. INTRODUCTION

Chronic kidney disease is a significant health issue with an increasing global prevalence, and hemodialysis is one of the most common renal replacement therapies used to sustain life in patients who develop end-stage renal disease(KDIGO, 2024; Türk Nefroloji Derneği, 2025). In-center hemodialysis is typically administered in three sessions per week, lasting approximately four hours each; the duration and frequency of treatment are individualized based on the patient's clinical needs (National Kidney Foundation, 2015). Consequently, patients spend a significant portion of their lives in hemodialysis treatment areas; the physical environment of the treatment space transcends being merely a setting for administering therapy, becoming a crucial component that directly influences patient safety, user comfort, and the treatment experience. Hemodialysis treatment areas are healthcare environments where patients remain in the same space for extended periods, healthcare personnel continuously conduct clinical observations and interventions, medical equipment is used extensively, and infection control is of critical importance(Flythe ve ark., 2020; T.C. Sağlık Bakanlığı, 2016It is stated that the physical environment in healthcare facilities should be addressed through a holistic approach that supports the healing process and human-space interaction, rather than solely based on functional requirements (Özgen, 2018). For this reason, it is important that hemodialysis treatment areas are handled not only in accordance with technical requirements, but also within the framework of interior design principles that take into account user needs. However, it is observed that the current studies on the design of hemodialysis treatment areas mainly focus on clinical processes, technical requirements or service quality, while interdisciplinary research evaluating interior Deconstruction together with user needs and

clinical applications remains limited. This situation makes it necessary to address the interior design components that affect the user experience such as ergonomics, universal design and accessibility, privacy, color, material, lighting, acoustics and environmental comfort with a holistic approach together with clinical and technical requirements. This study focuses solely on the treatment area rather than covering all units of a hemodialysis center. In determining this scope; with the patient safety, clinical observation, treatment procedures and emergency interventions largely carried out in this area, it has been effective for patients to spend a significant part of their treatment time here. The aim of the study is to evaluate the interior design criteria that are critical for patient safety, personnel ergonomics and spatial comfort in the fields of hemodialysis treatment from the perspective of interior architecture and dialysis applications in accordance with national legislation, quality standards, international design guidelines and scientific literature. Additionally, the study aims to highlight the importance of user-centered design in healthcare facilities and raise awareness about this issue.To this end, the research was conducted using a comparative document analysis method within a qualitative research framework; criteria found in national legislation, quality standards, international design guidelines, and scientific literature were evaluated under the themes of spatial organization and ergonomics, universal design and accessibility, privacy, color and materials, lighting, acoustics, and environmental comfort. Requirements regarding patient safety, clinical observation, and infection control have been treated as fundamental conditions in the evaluation of the interior design decisions in question.

2. Hemodialysis Treatment and Clinical Requirements

Hemodialysis is a renal replacement therapy in which uremic toxins and excess fluid-which the kidneys cannot adequately remove-are eliminated by passing the patient's blood through an extracorporeal dialyzer via a vascular access site. Although chronic center-based hemodialysis is typically administered in three sessions per week lasting approximately four hours each, the duration and frequency of treatment are individualized based on the patient's residual renal function, fluid status, clinical requirements, and dialysis adequacy(National Kidney Foundation, 2015; KDIGO, 2024).

The chronic hemodialysis patient population is heterogeneous in terms of age, comorbidities, and functional capacity. Data from Turkey indicate that hemodialysis is the most common modality among renal replacement therapies; patients of advanced age and those with

comorbid diabetes and cardiovascular diseases constitute a significant segment of this population (Türk Nefroloji Derneği, 2025). However, the determining factor regarding spatial design is not merely the diagnosis, but the patient's individual requirements concerning vision, balance, movement, transfers, and the use of assistive devices. Therefore, entering the treatment area, being weighed, safely transferring to the patient chair or bed, using the toilet, and-when necessary-accessing the area via wheelchair or stretcher are fundamental components of the clinical workflow.

Rapid fluid and electrolyte shifts during treatment can lead to complications such as intradialytic hypotension, muscle cramps, nausea, arrhythmias, and altered consciousness. Issues related to vascular access bleeding, circuit or device alarms, and infections may also require rapid assessment and intervention. Therefore, continuous monitoring of the patient, the vascular access site, and device parameters-along with tracking vital signs and ensuring immediate access to emergency intervention equipment-is essential for patient safety. (Flythe ve ark., 2020; T.C. Sağlık Bakanlığı, 2016).

The hemodialysis workflow encompasses pre- and post-treatment weighing, assessment of vital signs, checking the vascular access site, aseptic connection and disconnection procedures, equipment and supply checks, record-keeping, and complication management. These clinical processes require that healthcare personnel have a direct view of both the patient and the machine, allow for access to both sides of the patient and the machine, ensure unobstructed movement for stretchers and wheelchairs, keep emergency equipment accessible, and maintain a clean workflow for infection control. Privacy solutions must be designed in a way that does not impede clinical monitoring.

2.1. Spatial Requirements of the Treatment Area

In healthcare facilities, interior design is a crucial design component linked to patient safety, user experience, the treatment process, and the performance of healthcare professionals-extending far beyond the mere fulfillment of aesthetic and functional requirements. When planning healthcare facilities, addressing user needs alongside medical and technical requirements is essential for ensuring spatial functionality and the efficient delivery of healthcare services. Indeed, approaches such as user requirements, patient-centered design, healing environments, and evidence-based design are gaining increasing importance in the

design of healthcare facilities (Selçuk, 2015). Accordingly, interior design elements-such as spatial organization, ergonomics, accessibility, environmental comfort, privacy, and wayfinding-must be addressed in alignment with the physical and psychological needs of users. The quality of the physical environment, especially in areas where long-term and repetitive treatments are applied, is of great importance not only in terms of patient experience, but also in terms of the working conditions of healthcare professionals and the effectiveness of the service provided.

3. Regulations and Design Guidelines for Planning Hemodialysis Treatment Areas

Spatial decisions in hemodialysis treatment areas are directly related to clinical monitoring and intervention requirements. The ability of health professionals to observe the patient, the vascular access area and the device alarm screen without obstructing vision facilitates the early detection of conditions such as hypotension, changes in consciousness, bleeding or device alarms. Similarly, it is important to have sufficient space around the device in order to control the connections, access to the necessary materials, perform emergency interventions and ensure the safe transfer of patients. This area must also enable the safe movement of personnel, stretchers, and wheelchairs. Spatial solutions designed to ensure privacy should not impede clinical observation or rapid patient access when necessary. In addition, issues such as hand hygiene, clean-to-dirty workflow, the use of cleanable surfaces and the separation of infected patients should also be addressed in accordance with infection control requirements.Thus, clinical necessities are directly linked to interior design components such as visibility, access, circulation, privacy, ergonomics, and hygiene(T.C. Sağlık Bakanlığı, 2016; Diyaliz Merkezleri Hakkında Yönetmelik, 2019).

3.1. National Regulations

The fundamental framework regarding the planning and operation of hemodialysis centers in Türkiye is established by the Regulation on Dialysis Centers, the Health Quality Standards – Dialysis (SKS-Dialysis), and the 2010 Guideline on Minimum Design Standards for Healthcare Facilities in Turkey. (Diyaliz Merkezleri Hakkında Yönetmelik, 2019; T.C. Sağlık Bakanlığı, 2010, 2016Article 16 of the Regulation on Dialysis Centers outlines the general physical requirements for the center. Accordingly, dialysis treatment halls cannot be

located in the basement; if patient-use areas are situated on upper floors, an elevator suitable for transporting stretchers must be available. The same article mandates the presence of heating and cooling systems, the provision of a generator and an uninterruptible power supply of sufficient capacity to handle power outages, and the implementation of necessary fire safety measures. Minimum physical requirements regarding treatment areas are defined in greater detail in Article 17 of the Regulation. Under these provisions, a minimum area of 7 m² per bed must be allocated in hemodialysis areas. It is required to establish a separate section and use separate equipment for HBsAg-positive patients, and to allocate separate equipment for HCV-positive patients. Furthermore, the center must include an emergency care and treatment room of at least 9 m²; separate toilets and sinks for male and female patients—with at least one unit accessible to patients with disabilities; separate toilets, sinks, and lockers for staff; and adequate storage space. 18 of the Regulation. the article specifies the minimum equipment, tools and materials that should be available at the center. Accordingly, it is mandatory to have a portable electrocardiography device with monitor, defibrillator, emergency response kit, oxygen support, aspirator, adequate ventilation system, stretcher and wheelchair in the center, as well as a number of mobile patient beds or armchairs equal to the number of dialysis machines in use. When these Decrees are evaluated together, it is seen that the hemodialysis treatment area is not just a hall where machines and patient chairs are placed. Patient stations are part of a spatial system that requires a holistic approach to address the relationships between medical equipment, circulation, accessibility, infection control and emergency response requirements. Dec.1. Patient stations are part of a spatial system that requires a holistic approach to address the relationship between medical equipment, circulation, accessibility, infection control and emergency response requirements. The workflow of healthcare personnel is also an important factor in the spatial arrangement of the treatment area. Regulation 22. the article stipulates that at least one non-medical medical personnel should be present for up to five patients during each treatment session, and an additional medical personnel should be assigned for each subsequent group of five patients. The regulation also defines the duties of medical personnel; these tasks include providing patient care before, during and after treatment, performing routine follow-up of the patient, preparing hemodialysis machines, performing vascular access procedures and performing surface Decontamination. These Decrees reveal the importance of evaluating the spatial relationship between patient stations and the working areas of medical personnel in accordance with workflow, access and observation requirements. Additionally, the regulation treats architectural planning as an integral part of the licensing and evaluation processes for these centers.Under Article 19, the application dossier must include 1/100 scale plans—

prepared by an architect and detailing layout and usage areas—separately for each floor of the center or unit. Additionally, Article 8 mandates the inclusion of an engineer or architect in the Dialysis Services Monitoring, Inspection, and Evaluation Commission when evaluating matters such as the opening of new centers, renovations, or project modifications.

The 2010 Guideline on Minimum Design Standards for Healthcare Facilities in Turkey supplements the minimum conditions defined in the regulation with more detailed design criteria regarding the spatial organization of the hemodialysis unit. Article 6.15.1.1 of the guideline stipulates that the dialysis unit must include-or provide access to-a waiting room, restroom, drinking water, a general telephone, and a seating area. Article 6.15.2.1 requires the separation of the treatment area from administrative and waiting sections; Article 6.15.2.2 specifies that the nurse station must be located within the dialysis treatment area and designed to allow for the visual monitoring of all patient stations. According to Article 6.15.2.3, a minimum clear floor area of 9 m^2 must be allocated per bed/stretcher treatment station used for examination and treatment, and a minimum of 7 m^2 per dialysis treatment station; a clearance of at least 120 cm must be maintained between chairs, beds, or stretchers, between these units and the walls, and in front of the foot end of the station. Article 6.15.2.4 mandates that the unit be designed to ensure privacy for each patient, while Article 6.15.2.5 requires the provision of areas where patients can store personal belongings and hang long garments.

The guideline also addresses in detail the spatial requirements regarding infection control and support areas. According to Article 6.15.2.6, the need for isolation rooms with reverse air flow and the number of these rooms are determined in accordance with the evaluation of the infection control committee. In the same article, it is stated that in cases where dialysis machines are reused, the reprocessing room should be arranged in such a way as to support a workflow moving from a “dirty” area to a “clean” area Jul. Within the scope of Articles 6.15.2.8 and 6.15.2.9, a separate room for the preparation of dialysis solutions and the processing of used materials and a closed area with water treatment equipment are provided.In addition, it is stated in Article 6.15.2.11 that there should be a patient toilet suitable for the treatment area, in Article 6.15.2.12 that a cleaning supplies room allocated only to the dialysis unit should be created, and in Article 6.15.2.13 that staff areas containing lockers, toilets, hand washing facilities and a changing area should be arranged. Finally, Article 6.15.2.14 stipulates the presence of office and clinical work areas for the provision of administrative services.

3.2. International Design Guidelines

HPU renal dialysis unit 620 (Revision 8), *Australasian health facility Guidelines* provide a recommendation for the hemodialysis unit and is published under an international planning and Design Guide. The guideline addresses the basic design components such as functional relationships, accessibility, treatment areas, relationship with natural light and outdoor space, acoustic and visual comfort, infection control, technical infrastructure and support areas (Australasian Health Infrastructure Alliance [AHIA], 2026). Similarly, NHS *Health Building Note 07-01 (HBN 07-01)* provides guidance on the planning and design of satellite dialysis units, while HBN 07-02 addresses the planning and design principles of main renal units (NHS England, 2013a, 2013b). These guidelines cover various design components that affect the spatial nature of hemodialysis treatment areas, such as patient and staff circulation, arrangement of patient stations, nurses' viewing areas, privacy, accessibility, infection control, environmental comfort and safety.

A combined assessment of national regulations, international guidelines, and scientific literature offers a holistic framework that contributes to the design of hemodialysis treatment areas in a user-oriented, safe, and functional manner.

When national regulations and international guidelines are considered together, a common framework of requirements regarding spatial planning, technical infrastructure, and functional organization emerges for the establishment and evaluation of hemodialysis units. Healthcare Quality Standards (SKS-Dialysis) complement this framework through quality criteria concerning patient and staff safety, emergency management, infection prevention, risk management, and the assessment of physical spaces. Design standards for healthcare facilities define requirements regarding the spatial needs of treatment stations, clearances between stations, the location of nurse stations, visual monitoring of patient stations, privacy, storage for patient belongings, and provisions for support spaces. However, these regulations primarily outline the minimum architectural, technical, and functional conditions necessary to ensure the safe and effective delivery of healthcare services. Given that hemodialysis patients spend extended and recurring periods in the treatment area, it is crucial to evaluate-alongside clinical requirements-interior design components that directly influence the user experience, such as color, materials and textures, natural and artificial lighting, acoustic comfort, visual and psychological comfort, personal space, universal design principles, and healing environment characteristics. Therefore, this study takes the minimum conditions defined in national

regulations as a starting point and focuses on developing supplementary criteria and recommendations for the user-centered interior design of hemodialysis treatment areas.

4. Findings and Evaluation

Based on a comparative document analysis, the key issues in the interior design of hemodialysis treatment areas were evaluated holistically under the headings of spatial organization and ergonomics, accessibility, patient monitoring and privacy, environmental comfort, and infection control and safety. National regulations and design guidelines define the fundamental requirements regarding the functional organization of the treatment area, the size and interrelationship of patient stations, the ability of healthcare staff to monitor patients, accessible usage, support spaces, and infection control. For instance, the national design guideline stipulates that the nurse station must be located within the treatment area and allow for visual monitoring of all patient stations; it also mandates a minimum of 7 m² of clear floor space per dialysis station and a clearance of at least 120 cm around each station. The same guideline also includes requirements for ensuring patient privacy, allocating space for personal belongings, and organizing clean-to-dirty workflows for infection control.

However, the prolonged and repetitive nature of hemodialysis treatment necessitates that treatment areas not be evaluated solely based on minimum physical and technical requirements. The fact that patients remain at the same station for extended periods during treatment makes interior design elements—such as spatial organization, scale and proportion, equipment layout, surface components (floors, walls, ceilings), ergonomics, personal space, privacy, natural and artificial lighting, color, materials and textures, acoustic and thermal comfort, and spatial perception—crucial from the perspective of user experience. In interior design, while space, light, color, and texture are considered fundamental design elements, scale and proportion are treated as key design principles in establishing the relationship between the space, the user, and the furnishings. It is noted that the way users perceive and experience an interior space is linked not only to design elements such as form, color, material, texture, and light but also to auditory and thermal environmental conditions and psychological factors (Aslan, Aslan, and Atik, 2015; Yurttaş, 2019). In healthcare facilities, it is crucial to address user needs, human-space interaction, hygiene, material properties, daylight, and environmental components—alongside technical and functional requirements—through a user-centered approach (Özgen, 2020).

In this context, it is important that interior design decisions support privacy without hindering clinical observation and rapid intervention; facilitate the movement of patients and staff; enable safe use by elderly, disabled, and mobility-impaired users; and support physical and psychological comfort during long-term treatment. Aligning with the universal design approach, the provision of threshold-free circulation, adequate maneuvering and transfer spaces, and accessible furnishings can enable users with varying physical capabilities to utilize the treatment area safely and as independently as possible. Regarding environmental comfort, it is essential to arrange natural and artificial lighting to support visual comfort without negatively affecting clinical observation; to develop acoustic solutions that reduce noise generated by equipment and users; and to consider color, material, and texture selections in conjunction with requirements for hygiene, durability, and ease of cleaning. In light of these considerations, it is crucial to address clinical and technical requirements alongside user experience through an interdisciplinary approach—rather than treating them in isolation—when designing the interiors of hemodialysis treatment areas. Evaluating the minimum conditions defined in regulations and design guidelines in conjunction with interior design components—such as ergonomics, universal design, psychological comfort, color, materials and textures, lighting, acoustics, and thermal comfort—can contribute to the development of user-oriented treatment spaces.

Accordingly, the findings of this study have been correlated with clinical and user requirements and consolidated in Table 1 under the heading "Prominent Interior Design Approaches in Hemodialysis Treatment Areas." The table does not aim to establish a binding design standard; rather, it seeks to provide an interdisciplinary framework that can contribute to the interior design evaluation of hemodialysis treatment areas and inform future design efforts, based on existing regulations and the literature.

Table 1. Prominent Interior Design Approaches in Hemodialysis Treatment Areas

Interior design component	**Clinical / user requirement**	**Its reflection in the design**
Spatial organization	Clinical workflow and safe use	Functional relationship of patient stations, nurse station, device and support areas

Interior design component	Clinical / user requirement	Its reflection in the design
Scale, proportion, and ergonomics	Safe operation, intervention, and transfer	Equipment sized according to human dimensions; sufficient working and movement space around the device.
Reinforcement	Long-term treatment and user requirements	Accessible arrangement of the patient chair/bed, equipment, personal belongings, and support accessories.
Surveillance and privacy	Continuous clinical monitoring and psychological comfort.	Unobstructed controlled dividers and appropriate station layout
Accessibility	Elderly, disabled, and mobility-impaired users	Step-free circulation, adequate maneuvering and transfer spaces
Lighting and daylight	Visual comfort and clinical observation	Controlled use of natural and artificial light
Acoustic comfort	Noise reduction during long treatment periods	Sound-absorbing surfaces and materials compliant with hygiene standards
Thermal comfort	Physical comfort in long-term treatment	Ensuring suitable indoor environmental conditions
Color, material and texture	Spatial perception, psychological comfort, and hygiene	Selection of suitable colors, surfaces, and textures; durable and cleanable materials.
Floor, wall, and ceiling surfaces	Hygiene, safety and environmental comfort.	Easy-to-clean, durable, and practical surface solutions
Infection control and safety	Infection and patient safety	Separation of clean and dirty areas, suitable surfaces, and safe circulation

As shown in Table 1, the interior design of hemodialysis treatment areas cannot be addressed independently of clinical requirements. Furthermore, the fact that users experience these spaces over extended periods and on a recurring basis necessitates evaluating technical and functional requirements alongside interior design components such as color, materials, lighting, acoustics, ergonomics, privacy, and universal design. Therefore, it is considered that an interdisciplinary approach-integrating interior design and dialysis practices-can contribute to the development of user-centered design for hemodialysis treatment areas.

Conclusions and summary

This study demonstrates that hemodialysis treatment areas should be evaluated not only within the framework of clinical, technical, and functional requirements but also in terms of user experience and interior spatial quality. National regulations and design guidelines for healthcare facilities define key requirements regarding the spatial organization of treatment areas, patient stations, supervision, accessibility, infection control, and technical infrastructure. However, addressing interior design components that influence user experience-such as color, material and texture, natural and artificial lighting, acoustic and thermal comfort, personal space, and psychological comfort-within a holistic interior design approach complements existing physical and functional requirements. Accordingly, this study presents an interdisciplinary evaluation framework by correlating prominent interior design components in hemodialysis treatment areas with clinical and user needs. It is anticipated that this framework could serve as a starting point for future design projects and research. As the study was limited to document analysis, the proposed evaluations require validation through user data. Future studies should aim to test the proposed criteria through surveys, interviews, user experience assessments, and spatial observations involving patients and healthcare professionals, and to develop a more comprehensive, evidence-based interior design guide tailored to hemodialysis treatment areas based on the findings.

REFERENCES

Aslan, F., Aslan, E., & Atik, A. (2015). İç mekanda algı. İnönü Üniversitesi Sanat ve Tasarım Dergisi, 5(11), 139–151. https://doi.org/10.16950/std.60957

Australasian Health Infrastructure Alliance. (2026). Australasian Health Facility Guidelines: HPU 620 Renal Dialysis Unit (Revision 8). https://healthfacilityguidelines.com.au/sites/default/files/HPU_B.0620_8.pdf

Diyaliz Merkezleri Hakkında Yönetmelik. (2019, 1 Mart). Resmî Gazete (Sayı: 30701). Son değişiklik: 10 Aralık 2022, Resmî Gazete (Sayı: 32039). https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=31297&MevzuatTur=7&MevzuatTertip=5

Flythe, J. E., Chang, T. I., Gallagher, M. P., ve ark. (2020). Blood pressure and volume management in dialysis: Conclusions from a Kidney Disease: Improving Global Outcomes (KDIGO) Controversies Conference. Kidney International, 97(5), 861-876. https://doi.org/10.1016/j.kint.2020.01.046

Kidney Disease: Improving Global Outcomes (KDIGO) CKD Work Group. (2024). KDIGO 2024 clinical practice guideline for the evaluation and management of chronic kidney disease. Kidney International, 105(4S), S117-S314.

National Kidney Foundation. (2015). KDOQI clinical practice guideline for hemodialysis adequacy: 2015 update. American Journal of Kidney Diseases, 66(5), 884-930. https://doi.org/10.1053/j.ajkd.2015.07.015

NHS England. (2013a). Health Building Note 07-01: Satellite dialysis unit. https://www.england.nhs.uk/publication/satellite-dialysis-units-planning-and-design-hbn-07-01/

NHS England. (2013b). Health Building Note 07-02: Main renal unit. https://www.england.nhs.uk/publication/main-renal-unit-planning-and-design-hbn-07-02/

Özgen, E. (2018). İnsan-mekân etkileşiminde sağlık yapıları ve mekânın iyileştirici rolü. Sanat ve Tasarım Dergisi, 8(2), 184-195. https://doi.org/10.20488/sanattasarim.529764

Özgen, E. (2020). Sağlık yapıları iç mekan tasarımı: Kuram ve uygulama pratikleri bağlamında tartışma. Mimarlık ve Yaşam Dergisi, 5(2), 603-614. https://doi.org/10.26835/my.751732

T.C. Sağlık Bakanlığı. (2016). Sağlıkta Kalite Standartları-Diyaliz (Versiyon 1). Sağlık Hizmetleri Genel Müdürlüğü.

T.C. Sağlık Bakanlığı İnşaat ve Onarım Dairesi Başkanlığı. (2010). Türkiye Sağlık Yapıları Asgari Tasarım Standartları 2010 Yılı Kılavuzu. https://ekutuphane.saglik.gov.tr/Yayin/414

Türk Nefroloji Derneği. (2025). Türkiye'de nefroloji, diyaliz ve transplantasyon-Registry 2024. https://nefroloji.org.tr/uploads/pdf/REGISTRY_2024_web.pdf

Selçuk, E. (2015). Türkiye'de hastane asgari tasarım standartlarının kullanıcı ihtiyaçlarına uygunluğunun değerlendirilmesi [Doktora tezi, Haliç Üniversitesi]. Haliç Üniversitesi Fen Bilimleri Enstitüsü.

Yurttaş, N. B. (2019). Mekansal algı kavramı ve iç mekan tasarımı ilişkisi. Euroasia Journal of Social Sciences & Humanities, 6(1), 27-34.

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